

COMMITMENT AND ETHICAL DECISION-MAKING
IN THE R&D PROCESS
IN PHARMACEUTICAL INDUSTRY

By

Helge Rynning

Department of Business Administration,

Åbo Academy University

June, 1992

Dissertation presented to the Institute of
Organization Sciences of the Norwegian School
of Economics and Business Administration in
partial fulfillment of the requirements for the
degree Dr. Oecon

92h002491

q174.4
7:661.12
R99c

"Loyalty is perfectly consistent with originality. The loyal man may often have to show his loyalty by some act which no mere routine predetermines. He may have to be as inventive of his duties as he is faithful to them."

(Josiah Royce, The Philosophy of Loyalty,
Hafner Publ. Comp., 1971, p. 102.)

Lectures given at the Summer School of
Harvard University, 1906

ACKNOWLEDGEMENTS

Business ethics is today a relatively unexplored research area, particularly outside the U.S. It has been an especially exciting task to conduct an empirical study on moral dilemmas in a company. Nycomed AS, a research intensive pharmaceutical company, was willing to let an outsider gain insight into their ethical decision-making processes. Obviously, the management of the company felt they had nothing to hide! I am grateful to all the managers and the employees of Nycomed AS who have participated as respondents and key informants. Especially I wish to thank Thor Andersen and Berit Wenaas from the administration, and Erik Andrew and Arne Berg from the research. They have all been of great support ever since the start of the empirical part, December, 1989, and invested much of their valuable time in attending meetings and commenting on the professional aspects of the manuscript.

The examples of moral dilemmas presented in the study are, however, typical to the pharmaceutical industry in general, and not company specific.

When I, in January 1989, presented my proposal for a dissertation on business ethics, it was by no means clear how and where the empirical part of the study could be implemented. Still, the members of my dissertation committee - Associate Professor Jörn Rognes and Professor Torger Reve at the Norwegian School of Economics and Business Administration, and Professor Risto Tainio at the Helsinki School of Economics and Business Administration - took the chance of supporting an organization behavior study on ethical decision-making. They have encouraged my efforts throughout the implementation, and given valuable comments both on the proposal and dissertation drafts. Jörn Rognes, the Chairman

of the Committee, has given insightful comments on the questionnaires as well as on the manuscript. But it was Torger Reve who through his lectures on power bases, opportunism and markets, bureaucracies, and clans in the early 1980s made me interested in research. He has given valuable advice on the the design and the broad lines of the present study. Risto Tainio I learnt to know at a Nordic research course in the Finnish Lapland in Spring 1988. At that time I had some initial ideas to the study. Risto said immediately: "Let's talk about it." Since then, we have kept on talking about it, and Risto has had a constructive influence both on the design of the study and the reporting of the results. Admittedly, I have, on a few occasions, walked out of Risto's office a bit frustrated because of the direct and provoking questions he has posed. But it has not taken long for me to realize that he has had a point in what he has said.

The dissertation work has been carried out in several environments: in Bergen, at the Institute of Organization Sciences of the Norwegian School of Economics and Business Administration; in Helsinki, at the Department of Business Administration of the Helsinki School of Economics and Business Administration, where I was visiting in Winter, 1989); and in Turku, at the Department of Business Administration of Åbo Academy University, where I have been working since 1990. I am grateful for the support I have received from my colleagues and the administrative staff at all these three schools. I am especially grateful for having had the opportunity to work together with Professor Claes Gustafsson at Åbo Academy University, who had started studying business ethics already in the late 1970s. Our approaches to the study of business ethics are sufficiently different to be stimulating, and similar enough to make a fruitful co-operation possible. I have learnt much about business ethics by listening to Claes. I also wish to thank Associate Professor Lars Hassel at Åbo Academy University for stimulating

discussions on the data analyses of the study, and for challenging competition on the ski tracks in the Turku area.

Besides the members of the dissertation committee at the Norwegian School of Economics and Business Administration, I owe special thanks to two persons whose courses on ethics I have had an opportunity to attend. In the early 1980s, Associate Professor Edvard Vogt, currently working at the University of Bergen, shared with me his insight into ethics and the concept of commitment. Later on, in 1987, I attended Professor Odd Langholm's course on business ethics, which gave me a sparkle to choose business ethics as the topic for my dissertation.

I also wish to thank professor Reginald W. Revans of University of Manchester, UK, who has set forth the philosophy of action learning and made it concrete. Though I did not choose the link between ethics and action learning as the subject of my dissertation, learning to know professor Revans's way of combining theoretical insight with a practical orientation has provided a solid base for the challenging task of implementing an ethical experiment in real-life surroundings.

I am grateful for the secretarial help I have received both in Turku and in Bergen. Birgit Lindblom at the Department of Business Administration of Åbo Academy University provided professional and patient help in editing the manuscript, drawing figures and working out the lay-outs for the tables. At the Norwegian School of Economics and Business Administration, Aase Moss and Anne-Mari Carlsen at the Institute of Organization Sciences, as well as Målfrid Hornnes at the Institute of Marketing, have always been helpful when there has been something that I have needed. I am also grateful for the exemplary library service I have received both at the Norwegian School of Economics and Business Administration,

and from May Ahlqvist and Inger Söderlund at our department at Åbo Academy University.

Finally, I would like to express my gratitude towards my family. My wife, Marjo-Riitta, has always been encouraging, supportive, and understanding. My parents, Solveig and Christian, have always inspired me to seek the positive aspects of life, and followed me with love and enthusiasm. My brother, Ole Christian, and my sister-in-law, Anne-Karin, and their children have helped me keep my feet down to earth. Ole Christian has also shown the greatest generosity in promising not to announce publicly that I once, at the age of 7 or 8, persuaded him to buy a mushroom from me at the price of 50 öre claiming that the price was reasonable considering how rare and valuable that particular mushroom species is!

Åbo/Turku, in June, 1992

Helge Rynning

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	v
LIST OF FIGURES	x
LIST OF TABLES	xi
1. INTRODUCTION	1
1.1. Problem	1
1.2. Purpose	5
1.3. Scope	7
1.4. Structure of the dissertation	8
2. IDENTIFICATION AND DESCRIPTION OF MORAL DILEMMAS ..	9
2.1. Moral philosophical position of the study	9
2.2. Identification and description of ethical decision-making in previous studies	13
2.3. Conclusion	19
3. FACTORS INFLUENCING ETHICAL DECISION-MAKING	21
3.1. Introduction	21
3.2. Individual factors	24
3.2.1. Demographic variables	24
3.2.1.1. Gender	24
3.2.1.2. Age	26
3.2.1.3. Tenure	26
3.2.1.4. Managerial position	27
3.2.2. Personalities and values	29
3.2.3. Individual variables - conclusion	31
3.3. Situational factors	32
3.3.1. The ethical policy of the company	34
3.3.2. The intensity of competition	42
3.3.3. Conclusion - situational variables	43
3.4. Implications for future research	44

4. FRAMEWORKS FOR THE TWO PHASES OF THE STUDY	45
4.1. Introduction	45
4.2. Framework for the first phase of the study	45
4.2.1. Characteristics of moral dilemmas in the pharmaceutical industry	46
4.2.2. Moral dilemmas in the work roles	47
4.2.3. Moral dilemmas in relation to stakeholders of the company .	48
4.2.4. The influence of demographic variables	48
4.3. Conceptual model used in the second phase of the study	49
4.3.1. Independent situational variables	51
4.3.1.1. Role expectations from superiors	51
4.3.1.2. Job autonomy	52
4.3.1.3 The market situation	53
4.3.2. Variables linking the individual to the organization	54
4.3.2.1. Organizational commitment	55
4.3.1.2. Professional commitment	57
4.3.3. The dependent variable - decision-making in moral dilemmas	58
5. DESIGN OF THE FIRST PHASE OF THE STUDY	59
5.1. Methodological considerations	59
5.2. Sample and questionnaire design	60
6. ANALYSES OF THE EXAMPLES OF MORAL DILEMMAS	64
6.1. The R&D process in a research based pharmaceutical company . .	64
6.2 The moral dilemmas	68
6.2.1. Problems concerning conducting studies in animals and humans	69
6.2.2. Examples illustrating time and resource	76
6.2.3 Dilemmas related to strategy	80
6.2.4. Dilemmas related to research ethics	81
6.3. The dilemmas related to stages in the R&D process	83
6.4. Discussion	85
7. THE EXTENT OF EXPERIENCED MORAL DILEMMAS	88
7.1. Introduction	88
7.2. Moral dilemmas in the work roles	88

7.2.1. Moral dilemmas in the work roles - discussion	91
7.3. Moral dilemmas in relation to the constituencies of the company .	92
7.4. Findings related to the demographic variables	96
7.4.1. Occupational group (researchers vs. technicians)	97
7.4.2. Managerial position	98
7.4.3 Gender	100
7.4.4. Tenure	101
7.4.5. Age	101
7.4.6. Demographic variables - conclusion	102
8. HYPOTHESES	103
9. DESIGN OF THE SECOND PHASE OF THE STUDY	110
9.1. Introduction	110
9.2. Experimental design	110
9.3. Sample and data collection procedure	112
9.4. Operationalization of variables	114
9.4.1. Role expectations from superiors	114
9.4.2. The market situation	116
9.4.3. Organizational commitment	117
9.4.4. Professional commitment	117
9.4.5. Job autonomy	117
9.4.6. Tenure	118
9.4.7. Decision-making in moral dilemmas	118
10. VALIDATION	122
10.1. Introduction	122
10.2. Threats to internal validity	122
10.3. Construct validity	124
10.3.1. Manipulation check	125
10.3.1.1. Perceived pressure from management	126
10.3.1.2. Perceived market situation	127
10.3.1.3. Conclusion from the manipulation checks . . .	129
10.3.2. Were the decision situations perceived as having an ethical content?	130
10.3.3. Construct validity of the individual variables	134

10.3.3.1. Introduction	134
10.3.3.2. Organizational commitment	136
10.3.3.3. Professional commitment	139
10.3.3.4. Autonomy	140
10.3.3.5. External associations	141
11. RESULTS OF THE ANALYSES OF FACTORS	
EXPLAINING DECISION-MAKING IN MORAL DILEMMAS . . .	145
11.1. Introduction	145
11.2. Tests for assumptions in analysis of variance	146
11.3. The effects of role expectations and the market situation (Hypotheses 1-3)	148
11.3.1. Situation 1	149
11.3.2. Situation 2	150
11.3.3. Situation 3	152
11.3.4. Summary of the effects of the treatment variables	153
11.4. Tests for the effects of the continuous covariates and tenure	154
11.4.1. Introduction	154
11.4.2. The overall regression analyses	156
11.4.3. The effects of organizational commitment	159
11.4.4. The effects of professional commitment	166
11.4.5. The effects of autonomy	166
11.4.6. The effects of tenure	167
11.4.7. Summary of the effects of the continuous covariates and tenure. Direction of further analyses	172
11.5. Analysis of the qualitative comments to the decision situations	175
11.5.1. Introduction	175
11.5.2. Comments concerning professional aspects	175
11.5.2.1. Situation 1	176
11.5.2.2. Situation 2	177
11.5.2.3. Situation 3	179
11.5.3. Comments related to strategic considerations and the market situation	180
11.5.4. Conclusions based on the qualitative comments	182
11.6. Analysis of the impact of the extent of perceived moral dilemmas and professional ethical relevance	184

12. DISCUSSION	191
12.1. Introduction	191
12.2. Methodological limitations	191
12.3. Theoretical contributions	194
12.3.1. Findings related to the description of moral dilemmas .	195
12.3.2. Findings related to explaining ethical decision-making .	197
12.4. Managerial implications	207
12.5. Future research	211
12.5.1. Description of moral dilemmas	211
12.5.2. Explaining decision-making in moral dilemmas	212
 REFERENCES	 215

APPENDICES

Appendix 1. A review over some empirical studies on ethical decision-making/ethical beliefs	229
Appendix 2. Supplement to chapter 10 "Validation"	236
Appendix 3. Supplement to chapter 11 "Results"	243
Appendix 4. Questionnaire used in the first phase of the study	247
Appendix 5. Questionnaire used in the second phase of the study	263
Appendix 6. Introduction letters and articles in the company's magazine concerning the study	281

LIST OF FIGURES

3.1.	A PERSON-SITUATION MODEL FOR EXPLAINING ETHICAL DECISION-MAKING IN ORGANIZATIONS	23
4.1a.	FRAMEWORK FOR DESCRIBING MORAL DILEMMAS IN THE FIRST PHASE OF THE STUDY	46
4.1b.	FRAMEWORK FOR EXPLAINING THE IMPACT OF DEMOGRAPHIC VARIABLES ON THE EXTENT OF EXPERIENCED MORAL DILEMMAS IN THE FIRST PHASE OF THE STUDY ..	46
4.2.	CONCEPTUAL MODEL FOR EXPLAINING DECISION-MAKING IN MORAL DILEMMAS	50
6.1.	THE RESEARCH AND DEVELOPMENT PROCESS IN PHARMACEUTICAL INDUSTRY	68
9.1.	THE TREATMENT GROUPS IN THE EXPERIMENT	111
11.1.	PLOT OF MEAN VALUES ILLUSTRATING THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 1. .	149
11.2.	PLOT OF MEAN VALUES ILLUSTRATING THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 2. .	151
11.3.	PLOT OF MEAN VALUES ILLUSTRATING THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 3. .	153
11.4.	PLOT ILLUSTRATING THE EFFECT OF ORGANIZATIONAL COMMITMENT ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 2 UNDER THE TWO CONDITIONS OF ROLE EXPECTATIONS FROM SUPERIORS	164
11.5.	PLOT ILLUSTRATING THE EFFECT OF ORGANIZATIONAL COMMITMENT ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 3 UNDER THE TWO CONDITIONS OF ROLE EXPECTATIONS FROM SUPERIORS	165
11.6.	PLOT OF MEAN VALUES ILLUSTRATING THE EFFECT OF TENURE AND ROLE EXPECTATIONS FROM SUPERIORS ON DECISION-MAKING IN SITUATION 1.	170
11.7.	PLOT OF MEAN VALUES ILLUSTRATING THE EFFECT OF TENURE AND ROLE EXPECTATIONS FROM SUPERIORS ON DECISION-MAKING IN SITUATION 2.	171

LIST OF TABLES

7.1.	EXTENT OF EXPERIENCED MORAL DILEMMAS/VALUE CONFLICTS REPORTED BY THE RESPONDENTS	90
7.2.	EXTENT OF EXPERIENCED MORAL DILEMMAS IN RELATION TO INTERNAL ACTORS	94
7.3.	EXTENT OF EXPERIENCED MORAL DILEMMAS BY OCCUPATIONAL GROUP	98
9.1.	THE TENURE DISTRIBUTION OF THE RESPONDENTS	114
10.1.	THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS ON PERCEIVED PRESSURE FROM MANAGEMENT	126
10.2.	THE EFFECT OF DESCRIBED MARKET SITUATION ON PERCEIVED MARKET SITUATION	128
10.3.	TO WHAT EXTENT THE THREE DECISION SITUATIONS WERE PERCEIVED AS BEING MORAL DILEMMAS	130
10.4.	TO WHAT THE EXTENT THE THREE DECISION SITUATIONS WERE PERCEIVED AS HAVING PROFESSIONAL ETHICAL RELEVANCE	131
10.5.	CORRELATION MATRIX FOR THE EXTENT OF PERCEIVED MORAL DILEMMAS AND PROFESSIONAL ETHICAL RELEVANCE IN THE SITUATIONS 1-3	133
10.6.	MEAN SCORES AND STANDARD DEVIATIONS OF THE ITEMS IN THE ORGANIZATIONAL COMMITMENT QUESTIONNAIRE	137
10.7.	MEAN SCORES, NUMBER OF RESPONDENTS AND STANDARD DEVIATIONS OF THE ITEMS IN THE PROFESSIONAL COMMITMENT SCALE	139
10.8.	MEAN SCORES AND STANDARD DEVIATIONS OF THE ITEMS IN THE AUTONOMY SCALE	140
10.9.	CORRELATION MATRIX FOR THE INDEPENDENT INDIVIDUAL VARIABLES	142
10.10.	THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND MARKET SITUATION ON PERCEIVED PRESSURE FROM MANAGEMENT (APPENDIX 2)	238
10.11.	THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND DESCRIBED MARKET SITUATION ON PERCEIVED MARKET SITUATION (APPENDIX 2)	239

10.12. VARIMAX ROTATED PRINCIPAL COMPONENT ANALYSIS FOR THE ITEMS IN THE OCQ-SCALE (APPENDIX 2)	240
10.13. ITEM-TO-TOTAL CORRELATIONS AND CRONBACH'S ALPHA IF AN ITEM IS DELETED FROM THE OCQ-SCALE (APPENDIX 2)	241
10.14. VARIMAX ROTATED PRINCIPAL COMPONENT ANALYSIS FOR THE ITEMS IN THE AUTONOMY SCALE (APPENDIX 2)	242
11.1. CORRELATION MATRIX FOR THE DECISION-MAKING IN SITUATION 1, 2, AND 3	147
11.2. DECISION-MAKING IN THE SITUATIONS 1-3. FREQUENCIES	148
11.3. THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 1	149
11.4. THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 2	151
11.5. THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND THE MARKET SITUATION ON DECISION-MAKING IN SITUATION 3	153
11.6. SIMPLE CORRELATION BETWEEN THE COVARIATES AND THE DEPENDENT VARIABLES	156
11.7. REGRESSION ANALYSIS ILLUSTRATING THE EFFECTS OF THE INDEPENDENT VARIABLES ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN DECISION SITUATION 1	157
11.8. REGRESSION ANALYSIS ILLUSTRATING THE EFFECTS OF THE INDEPENDENT VARIABLES ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN DECISION SITUATION 2	158
11.9. REGRESSION ANALYSIS ILLUSTRATING THE EFFECTS OF THE INDEPENDENT VARIABLES ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN DECISION SITUATION 3	159
11.10. REGRESSION ANALYSIS ILLUSTRATING THE INTER-ACTION EFFECT BETWEEN ROLE EXPECTATIONS AND ORGANIZATIONAL COMMITMENT ON THE DECISION-MAKING IN SITUATION 1	162

11.11. REGRESSION ANALYSIS ILLUSTRATING THE INTER-ACTION EFFECT BETWEEN ROLE EXPECTATIONS AND ORGANIZATIONAL COMMITMENT ON THE DECISION-MAKING IN SITUATION 2	163
11.12. REGRESSION ANALYSIS ILLUSTRATING THE INTER-ACTION EFFECT BETWEEN ROLE EXPECTATIONS AND ORGANIZATIONAL COMMITMENT ON THE DECISION-MAKING IN SITUATION 3	163
11.13. THE EFFECT OF ORGANIZATIONAL COMMITMENT ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 2 UNDER VARYING CONDITIONS OF ROLE EXPECTATIONS FROM SUPERIORS	164
11.14. THE EFFECT OF ORGANIZATIONAL COMMITMENT ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 3 UNDER VARYING CONDITIONS OF ROLE EXPECTATIONS FROM SUPERIORS	165
11.15. THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND TENURE ON DECISION-MAKING IN SITUATION 1 ...	170
11.16. THE EFFECT OF ROLE EXPECTATIONS FROM SUPERIORS AND TENURE ON DECISION-MAKING IN SITUATION 2 ...	171
11.17. SIMPLE CORRELATIONS BETWEEN THE EXTENT OF PERCEIVED PROFESSIONAL ETHICAL RELEVANCE IN THE SITUATIONS 1-3, THE DECISION-MAKING IN THE SITUATIONS, AND THE CONTINUOUS COVARIATES AND TENURE	185
11.18. MANOVA TESTS OF THE HOMOGENEITY-OF-REGRESSION ASSUMPTION FOR THE COVARIATES IN THE DECISION-SITUATIONS 1-3 (APPENDIX 4)	243
11.19. REGRESSION ANALYSIS. EXTENDED MODEL ILLUSTRATING THE EFFECTS OF THE PERCEIVED ETHICAL RELEVANCE AND THE INDEPENDENT VARIABLES IN THE ORIGINAL MODEL, ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 1 (APPENDIX 4)	244
11.20. REGRESSION ANALYSIS. EXTENDED MODEL ILLUSTRATING THE EFFECTS OF THE PERCEVEID ETHICAL RELEVANCE AND THE INDEPENDENT VARIABLES IN THE ORIGINAL MODEL, ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 2 (APPENDIX 4)	245

11.21. REGRESSION ANALYSIS. EXTENDED MODEL ILLUSTRATING THE EFFECTS OF THE PERCEIVED ETHICAL RELEVANCE AND THE INDEPENDENT VARIABLES IN THE ORIGINAL MODEL, ON THE PROPENSITY TO BE IN FAVOR OF CONDUCTING ADDITIONAL STUDIES IN SITUATION 3 (APPENDIX 4) 246

1. INTRODUCTION

1.1 Problem

The detection of corporate scandals, illegality, and cynical speculation in companies have been among the most important reasons for the increased public debate on business ethics that we have witnessed in the U.S. and in Europe over the past 25-30 years. On this background it is natural that a substantial amount of the research on business ethics has focused on establishing what is considered "unethical behavior" in work organizations and identifying factors that influence "unethical behavior" (Akaah, 1990, Fimbel and Burstein, 1990, Kidwell, Stevens, and Bethke, 1987, Laczniak and Inderrieden, 1987, Mathews, 1987, McNichols and Zimmerer, 1985, Staw and Sz wajkowski, 1975, Trevino and Youngblood, 1990, Zey-Ferrel and Ferrel, 1982).

Still, the perhaps most interesting ethical decision situations, the genuine moral dilemmas, arise when different ethical principles give support for two or more incompatible courses of action (De George, 1982, Nagel, 1979). In moral dilemmas, it is extremely difficult to tell what is the the "right" or "wrong" behavior, since violation of an ethical principle is attached to each decision alternative. We would argue that it might be more important for business ethics researchers to accumulate knowledge on the nature of rather complex moral dilemmas than on clearly "unethical", even illegal, behavior. Complex moral dilemmas are likely to occur in any business organization, regardless of the "moral standard" it practices. Though managers and employees with different individual values might differ in the extent to which they would engage in "unethical" behavior, they would all have a difficult choice when confronted with a genuine moral dilemma. Thus, by focusing on moral dilemmas rather than on incidents of "unethical behavior", we imply that ethics could be relevant for each individual

in any work organization, and not only for the "unethical" outliers. After all, there is no reason to believe that business managers are either more or less "ethical" than other people.

Generally, it is complicated to distinguish between "ethical" and "unethical" behavior based on ethical criteria. Indeed, the moral philosophical debate in the twentieth century has to a great extent been centered on the difficulties of making objective moral judgements (MacIntyre, 1966, Taylor, 1975). Still, in many empirical studies on ethical decision-making in organizational contexts, items or scenarios are assumed to represent "ethical"/"unethical" behavior, without any explicit discussion of the ethical content of the items/scenarios (see also Brady and Hatch, 1992, 313-315). This illustrates the problems of integrating the two dominant research traditions in business ethics (*ibid*): **the applied normative ethics** focusing on how individuals "ought" to behave, and **the descriptive ethics**, focusing on describing and explaining actual morality without making explicit normative judgements (Beauchamp and Walters, 1989, Taylor, 1975). Whereas applied normative ethics belongs to the domain of the moral philosopher, descriptive ethical studies are predominantly carried out by social scientists. The possibilities of bridging the gap between the two traditions is currently under debate among researchers on business ethics (Brady and Hatch, 1992, Enderle, 1992, Fleming, 1987, Kahn, 1990).

The approach of this study is descriptive ethical. Ethical decision-making will be studied without making normative judgements on the decision situations presented. Descriptions of actual morality could, by a moral philosopher, be used as a starting point for inquiries into the nature and ground of ideal morality (Taylor, 1975, 5-6).

Moral dilemmas have hitherto been seldom studied among organization behavior researchers. There are several reasons for the small amount of organization behavior studies dealing with ethical issues.

Firstly, the positivist ideals of objectivity, neutrality, and the separation between facts and values (Pugh, 1983) may have guided the researchers' attention towards topics that are less loaded with values than ethics. Many researchers would consider it difficult to conduct an empirical study within a descriptive-ethical approach without interpreting the findings with regard to the values of the researcher.

Secondly, there is a lack of theory to guide empirical investigations of ethical decision-making behavior (Brady and Hatch, 1992, Trevino, 1986). Normative ethical theories can to a limited extent explain ethical behavior, since the theories focus on ideal principles which are less relevant for the day-to-day decision-making of managers (ibid, 604, Fritzsche and Becker, 1984). At the same time, researchers in organization behavior still have a limited knowledge on how personal dispositional and situational factors influence central work-related attitudes and behaviors such as job satisfaction and performance (Davis-Blake and Pfeffer, 1989, Pervin, 1989, Schneider, 1983, Staw and Ross, 1985). The understanding of ethical beliefs and ethical behavior in organizations is particularly vague, in spite of recent attempts at developing person-situation models for explaining ethical decision-making (Ferrel, Gresham and Fraedrich, 1989, Fritzsche, 1991, Trevino, 1986).

Thirdly, organization behavior could be considered an "applied" field, compared to disciplines such as psychology and sociology (Brief and Dukerich, 1991). Theories in organization behavior are often expected not only to contribute to

understanding and explaining work-related attitudes and behavior, but also to prescribe how problems that organizational practitioners encounter should be solved (ibid, 329). As stated by Pugh (1983, 49), an important ethical framework within which studies in organization behavior are conducted is how "to organize better". It is likely that research on ethical issues in organizations would fail to meet this and other immediate usefulness criteria, since there are no obvious solutions to how moral dilemmas should be resolved. Neither do we have objective criteria for assessing what is ethical behavior.

From the point of view of the organizational practitioner, ethical issues are sensitive topics. In most companies, the managers will be reluctant to let outsiders gain insight in ethical issues, and even more reluctant to let researchers publish studies based on such insight. Also, some managers regard moral talk as a threat to the harmony and efficiency of the company (Bird and Waters, 1989), and therefore try to avoid explicit discussion of the subject.

Consequently, in spite of the increased interest in business ethics in society, few researchers have done in-depth analyses of ethics in companies. Still, it is important that studies on business ethics are conducted in settings which are as realistic as possible. This is in line with Kahn (1990), who has argued that normative and descriptive approaches to business ethics could be better integrated by concentrating business ethics research on ethical practice in real-life settings (ibid, 312-314).

1.2 Purpose

The purpose of the study is twofold, and follows two of the main objectives of research, viz. **understanding** and **explanation** (Kerlinger, 1964). To increase our understanding of ethical issues in business organizations, an attempt will be made to **identify** and **describe** characteristics of moral dilemmas in a business context. This descriptive purpose is important since relatively few studies have been conducted on business ethics. In addition, most of the previous studies have been carried out in the U.S.. Since values are in part culture specific, it is possible that results obtained in the U.S. cannot be generalized to the Nordic countries. The second purpose of the study is to **explain** how selected individual and organizational factors influence ethical decision-making. An understanding of how individual and situational factors are related to ethical decision-making in business organizations could also be used prescriptively to influence ethical behavior.

A setting was chosen in which ethical issues are of crucial importance, viz. the pharmaceutical industry. The importance of ethics in this line of industry is mainly due to the adverse reactions drugs can cause to subjects participating in clinical trials and patients using the drugs. The industry is strictly regulated by law and international conventions, mainly aimed at securing the industry's ethical standard.

The management of a Nordic research intensive, internationalized pharmaceutical company agreed to cooperate in implementing a study on ethical decision-making, particularly related to the company's research and development (R&D) activities. The particular company was chosen, since some of its managers had publicly announced an interest in business ethics. The company has throughout its long history emphasized a high professional and business ethical standard. Therefore, the company could be characterized as an ethical pioneer.

Studying an ethical pioneer entails both advantages and disadvantages. It is likely that the researcher will be met with an open attitude and gain access to much information. On the other hand, a company that emphasizes a high ethical standard might have less ethical problems to deal with than other companies in the same line of industry.

The study was carried out in **two phases**, each focusing on one of the purposes of understanding and explaining. In the **first phase**, the emphasis was on identifying and describing moral dilemmas in the R&D process. An exploratory, inductive research approach was chosen in this phase, due to our lack of knowledge about moral dilemmas in business contexts. Basically, the methodology was qualitative, with semi-structured personal interviews as the main data source. The results from the first phase of the study were used in developing realistic experimental treatments for the second phase.

The **second phase** of the study was more quantitatively oriented than the first phase. The focus was on how individual and organizational factors could influence decision-making in moral dilemmas. This phase of the study was carried out as an experiment, where researchers from the company were asked to make a decision in three moral dilemmas. The moral dilemmas were derived from the interviews in the first phase of the study, and all dealt with situations where project groups were developing new drugs. The members of the project groups faced a common problem in the moral dilemmas: Had sufficient information been gathered so that the project could enter the next stage of the R&D process, or should additional studies be carried out to increase the safety and/or the efficacy of the substance?

Two situational factors, role expectations from superiors emphasizing time and resource limits, and the market situation of the company, were manipulated in the experiment. In addition, the following characteristics linking the employee to the organization were related to the choices of a decision alternative: Organizational commitment, professional commitment, job autonomy, and tenure.

1.3 Scope

As is typical of the field of business ethics, the study is interdisciplinary, and qualitative and quantitative methods are used in a combination (Fleming, 1987). The area of inquiry is the description and explanation of ethical decision-making in a business context. Consequently, the study has relevance for applied ethics, both business ethics and ethics in the professions involved in the R&D process in pharmaceutical industry.

Knowledge from theories of organization behavior will be used to describe and explain decision-making behavior in moral dilemmas. An assumption is made that individual and situational factors in combination influence ethical decision-making. Consequently, a person-situation approach is used to study work-related attitudes and behavior (Chatman, 1989, Pervin, 1989, Schneider, 1983, Trevino, 1986).

Thus, though the study relies on social science research methodology, it is conceptually linked to both social sciences and humaniora. In addition, the activity studied is research and development in a pharmaceutical company, which is based on natural sciences such as pharmacology, chemistry, biology, engineering and medicine.

1.4 Structure of the dissertation

The study has a theoretical part which is common for the two phases of the study. The theoretical framework is followed by a presentation of the design and results of the two phases of the study separately. The theoretical part starts with a discussion of the moral philosophical position of the study (chapter 2.1.). Next, we show examples of how ethical decision situations have been described in 27 previous studies on business ethics (chapter 2.2.). The theoretical part continues in chapter 3 with a review of some of the individual and situational factors that have been suggested to influence ethical decision-making in previous studies. In chapter 4, an explorative framework for the first phase of the study is presented, followed by a conceptual model for the second phase of the study.

Since information obtained in the first phase of the study was used to design the second phase, the design and findings of the first phase are reported (chapters 5-7) before the second phase of the study. The hypotheses for empirical testing in the second phase of the study are presented in chapter 8. The subsequent chapters encompass the design of the second phase of the study (chapter 9), validation (chapter 10), and analyses and results (chapter 11). The discussion of the results of the study (chapter 12) will intergate the findings in the two phases. Suggestions for directions in future research are also discussed in chapter 12.

2. IDENTIFICATION AND DESCRIPTION OF MORAL DILEMMAS

The purpose of this chapter is to clarify the moral philosophical position of the study, and review how ethical decision-making/ethical beliefs have been operationalized in earlier empirical studies on ethical decision-making in business contexts.

2.1 Moral philosophical position of the study

This study deals with a scientific description and explanation of actual moral dilemmas in an organizational context. No attempt will be made to resolve the dilemmas presented. Thus, as discussed in the introduction, the focus of the study is on **descriptive ethics**, as distinguished from **normative ethics** (Beauchamp and Walters, 1989, Taylor, 1975). A **moral dilemma** will be defined as a situation in which consideration of several moral principles together suggests mutually inconsistent choices of decision alternatives. The decision-maker cannot follow one moral principle without violating another (based on DeGeorge, 1982, 65). Moral principles are principles for determining what is considered "good" or "bad", "right" or "wrong" behavior (Taylor, 1975, 1). A brief outline of some major themes in moral philosophy will be given to clarify what is meant by the definition.

The so-called **normative** moral philosophers work at constructing systems of moral principles that, with the addition of factual knowledge, can determine what a person ought or ought not to do in an ethical conflict (ibid, 55). The major

categories of normative ethical systems are consequentialist (teleological) and deontological (nonconsequentialist) ethics.¹

The application of normative ethical principles to specific moral problems, e.g. moral dilemmas in a business context, is called applied ethics (Beauchamp and Walters, 1989).² Defenders of both utilitarianism and deontological ethics claim that the moral norms embedded in the theories correctly apply to the conduct of

¹ **Consequentialists** use the **consequences** of a decision or an act as the criterium when judging to what extent the decision or act is morally right. The most well-known tradition in consequentialist ethics is **utilitarianism**, which also forms the basis for neoclassical economic theory. According to utilitarians, the ethical course of action is the one that produces the maximum of good for the maximum number of those involved with the action. Thus, an act is good if it leads to a desirable end (Taylor, 1975, 59).

Deontologists, on the other hand, hold that it is the characteristics of the act itself, not the ends it deserves, that determine the moral quality of the act.

"An act is right when it conforms to a rule of conduct which meets the supreme principle of duty, this principle of duty not being itself a matter of the production of good consequences" (ibid, 82).

The most well-known deontological ethical theory is the ethical formalism of Immanuel Kant. Kant's categorical imperative states that you should act in such a way that the principle according to which you act can become a universal law (ibid, 87). Another formulation of the categorical imperative is that "we must never treat humanity, in ourselves or in others, merely as a means, but always as an end" (ibid, 105).

² Both applied ethics and business ethics are forms of normative ethics.

"Applied ethics...focuses on the tools, concepts, and concerns of normative ethics to help specify and clarify the obligations of agents who regularly encounter ethical issues in particular sectors or spheres. Business ethics, then is a type of applied ethics which is concerned to clarify the obligations and dilemmas of actors (managers) who make business decisions" (Powers and Vogel, 1980, 2).

all human beings, and that the norms thus are universally valid (ibid, 26-27).³ In applied ethics, it is possible to take a somewhat less categorical position, and combine principles based on different normative ethical systems (Taylor, 1975, Tranöy, 1989). For example, several of the leading textbooks on business ethics present both consequentialist and deontological theories, and apply them on cases (for a review, see Derry and Green, 1989).

Thus, we define moral dilemmas as situations in which consideration of several moral principles together suggests mutually inconsistent choices of decision alternatives, without taking a position as to whether the principles are universally valid or not. It is important to this study that the principles should have relevance to the practical moral problems we intend to study, i.e. dilemmas in business ethics and bioethics, in particular as they are experienced by professionals working with the research and development process in pharmaceutical industry. The discussion of the examples of moral dilemmas will therefore be based on an empirically derived framework for understanding moral reasoning and behavior in business firms, developed by Gustafsson (1981, 1988). In this framework, it is suggested that the action logics that business managers follow when confronted with ethical issues be based on five broad classes of ethical principles or norm

³ This view is challenged by the so-called ethical relativists. There are various theories on ethical relativism, which it is beyond the scope of this study to discuss in detail. Some relativists maintain that since moral norms are culture-bound, they are only applicable to particular societies or groups, or in a particular historical context. On this background, ethical universalism is rejected (DeGeorge, 1982, 28-38, MacIntyre, 1966, Taylor, 1975, 13-30).

An important moral philosophical tradition in the twentieth century has been the so-called "meta-ethics". Meta-ethics includes a higher-level study about the logic of moral reasoning and the meaning of central terms in ethics such as "right" and "good" (Beauchamp and Walters, 1989, Taylor, 1975). Thus, meta-ethics inquires into the presuppositions of normative ethics (Taylor, 1975, 8), instead of taking up practical issues (Singer, 1986, 2).

structures. Briefly stated, the classes of norms structures are the following (Gustafsson, 1981, 1988, 44-86):⁴

1. Credibility ethics.

Credibility ethics is concerned with keeping trustworthiness in interpersonal relations, and includes principles of speaking the truth, keeping promises and contracts, and loyalty.

2. Humanity ethics.

In this category, we find principles of respecting the integrity of other persons, justice and human rights, and loving one's next.

3. Effectivity ethics.

Norms concerning effectivity and rationality are particularly important for business firms, since they constitute the bases on which business firms exist. The rationale for having business firms is that they can produce and supply goods or services that customers want at a price the customers are willing to pay (Powers and Vogel, 1980, 5). Also, work ethics concerning being diligent is included in this class of norms.

4. Environmental ethics.

Environmental ethics deals with protecting the environment and developing the societal standard of the society.

⁴ The framework is based on ethical relativism, acknowledging the difficulty of identifying supreme moral norms that are valid in all situations. Thus, the ethical norm structures are not seen as clearcut principles in a hierarchy with a universal, supreme norm at the top. Instead, it is suggested that the norm structures are results of the cultural and intellectual development over thousands of years (Gustafsson, 1988, 110).

5. Ritual ethics.

Ritual ethics includes customs that are taken for granted and contribute to making social behavior predictable, e.g. customs in negotiations.

Norms of effectivity and credibility ethics are seen as being particularly important for business organizations, but also humanity ethics and environmental ethics can be central, depending upon the situation.

According to the theory of Gustafsson, moral dilemmas occur when the courses of action derived from two ethical norm structures, which are both valid, are mutually exclusive (Gustafsson, 1981, 7, 1988, 116-118). The most prominent moral dilemmas in business organizations will probably be conflicts between principles of effectivity on the one hand, and credibility ethics, humanity ethics and principles of protecting the environment on the other hand.

2.2. Identification and description of ethical decision-making in previous studies

Empirical studies of ethical decision-making in business contexts is a relatively recent phenomenon. In their survey of methodological issues in business ethics research, Randall and Gibson (1990) identified a total of 94 studies that dealt with ethical beliefs and ethical behavior (hereafter called ethical decision-making). The period covered ran from 1961 to 1989. As few as 10 of the studies had been published before 1975. Only 25% of the studies offered explicit hypotheses predicting a particular relationship between two or more variables. The article of Randall and Gibson (1990) gave to a limited extent detailed information about the individual studies that were included. For the purposes of this study, a review of 27 studies on ethical decision-making published between the years 1961 and 1992

was prepared. Only studies that included variables or items that were directly relevant for this study will be presented in the following. The review is based on a manual literature search in the major journals of organization theory/organization behavior, business ethics, and marketing. Information associated with the studies is presented in Appendix 1. The information about each study includes design, sample and sample size, the variables that were suggested to influence ethical decision-making, and how ethical decision-making had been operationalized. In this chapter we will concentrate on the latter aspect; how ethical decisions have been identified and described.⁵ In the next chapter, we will focus on variables that have been suggested to influence ethical decision-making.

In most studies the respondents have been presented with already identified ethical decision situations, without any explicit report on how the decision situations had been developed. Among the exceptions is the study about ethics in marketing research by Hunt, Chonko, and Wilcox (1984), where the respondents in an open-ended manner were asked to briefly describe the job situation that poses the most difficult ethical or moral problem. The 252 responses to this question were coded in 13 categories (ibid, 312). In the pioneering study by Baumhart (1961), another exception, the respondents were asked to tell the "one practice in their industry

⁵None of the studies included in the review use the term "moral dilemma". Since the definition of a moral dilemma is more precise than general terms such as ethical beliefs, ethical decision-making and ethical behavior, it would not be appropriate to use moral dilemma as a common denominator.

that they would most like to see eliminated" (ibid, 162). The answers were grouped into 9 categories.⁶

We will now proceed to show how ethical decision situations have been presented to respondents in laboratory experiments and mail surveys. The laboratory studies included in the review (Brief, Dukerich, and Doran, 1991, Hegarty and Sims 1978, 1979, Laczniak and Inderrieden, 1987, and Trevino and Youngblood, 1990) all contained relatively detailed scenarios on ethical decisions. **Hegarty and Sims (1978, 1979)** had students work on a simulation concerning the number of salesman to employ for a wholesaling firm over several time periods (months). The ethical decision in the scenario dealt with information to the effect that some salesmen had been providing kickbacks to some of their purchasing agents. The students both had to decide on the number of salesmen to employ, and whether to stop the kickback or not in each of the ten months. The degree of ethical decision was operationalized by the number of kickback decisions that were refused or not made during the ten months.

Laczniak and Inderrieden (1987) presented the subjects participating in their experiment with four scenarios, two on illegal behavior, and two on legal behavior that was, however, arguably unethical. The scenarios on illegal behavior advocated a tying contract (forbidden by the anti-trust law) and the laundering of foreign

⁶ The categories of "unethical" behavior were:

- Gifts, gratitudes, bribes and "call girls",
- price discrimination, unfair pricing,
- dishonest advertising,
- miscellaneous unfair competitive practices,
- cheating customers, unfair credit practices, overselling,
- price collusion by competitors,
- dishonesty in making or keeping a contract,
- unfairness to employees in hiring,
- others.

bribery payment (forbidden by the Foreign Corrupt Practices). The scenarios on legal, but ethically questionable behavior dealt with hiring of an employee of a competitor to obtain inside information and a change in product components without notifying the client. The subjects responded to the scenarios in form of narratives that were coded afterwards by the researchers, who evaluated to what extent the practice being advocated could be considered unethical/ethical.

The two scenarios used in **Trevino and Youngblood (1990)** involved a kickback decision and a substitution of a part decision. The substitution of a product component to save costs was a situation where the vice-president of production recommended that customers should not be informed despite potential problems. For each decision, the respondents were asked to choose between a number of options, or to write in a response. In the kickback decision, a decision to allow kickbacks in the continuation on was coded as "unethical". A decision to stop the kickback was coded as "ethical". In the part decision, a decision not to inform the customers was coded as "unethical". A decision to inform customers, or to report the vice-president of production, or both, was coded as "ethical".

In **Brief, Dukerich, and Doran (1991)** the subjects were asked to role-play members of a board of directors of a pharmaceutical company, and make a decision concerning the marketing of the drug Panalba. The drug had been highly successful and profitable, but scientists had presented arguments that the drug had

a greater probability of causing serious adverse reactions than other drugs with the same medical effects.⁷ The subjects were presented with five decision options regarding the marketing of the drug in the United States. "Recall Panalba immediately and destroy it" was coded as reflecting a humanitarian value system. All other options were coded as reflecting an economic ("Smithian") value system.

In most of the laboratory experiments the ethical decisions accounted for only a few of several decisions the students had to make. This was done to mask the ethical content of the studies.

In the studies adopting a **mail survey design**, ethical decision-making has been operationalized either by scenarios or a direct question format (see also Randall and Gibson, 1990, 465). The number of scenarios has ranged from 1 to 15, and the number of direct questions from 6 to 19.⁸ The responses to the direct questions and scenarios dealing with ethical decision-making had been measured in different ways. In some studies, the respondents had been asked to tell how they would have behaved in the situation. Sometimes, several courses of actions had been described, and the respondents had been able to choose among them, or rate the extent to which they agreed on the options (Baumhart, 1961, Mayo and Marks, 1990, Singhapakdi and Vitell, 1990). In other studies, the respondents had been

⁷The role-play was based on a dispute between the Food and Drug Administration (FDA) and the Upjohn Corporation concerning the drug Panalba. The drug was a so-called fixed-ratio drug, that contained a combination of drugs. The arguments against marketing Panalba was that there was no evidence that fixed-ratio drugs would be more beneficial than single drugs, and that the possibility of adverse drug reactions, included death, was at least doubled (ibid, 10).

⁸In their more comprehensive review of studies on ethical decision-making/ethical beliefs, Randall and Gibson (1990, 465) found that the average numbers of direct questions were 19, whereas the average number of scenarios was 12.

asked to rate to what extent they considered the described behavior to be ethical/unethical (Kidwell, Stevens, and Bethke, 1987, Mayo and Marks, 1990), and in one study to what extent the situation or practice presented an ethical question (Dubinsky and Ingram, 1984). In still other studies the respondents had been asked to what extent they approved/disapproved the described behavior (Akaah, 1989), or to what extent the behavior was common (Akaah and Riordan, 1990, Zey-Ferrel, Ferrel and Weaver, 1979). Only in two of the mail surveys included in this review the respondents had been asked to comment on the scenarios in a free-response format (Fritzsche and Becker, 1984, Jones and Gautschi, 1988).

It would be too comprehensive for our present purposes to analyze the content of the questions and scenarios used in the mail surveys. It is, however, evident that an item that is one sentence long is too short to give an adequate description of a complex moral issue. Many of the direct questions that have been used have described behaviors that by most people would be regarded as rather "unethical", e.g. "Sometimes I claim to use the latest research techniques as a selling tool, even though I don't use the techniques" (Ferrel and Skinner, 1988, 108), and "Passing blame for errors to an innocent co-worker" (Kidwell, Stevens, and Bethke, 1987). Also, many of the studies dealt with ethical problems related to marketing research (Akaah, 1989, Akaah and Riordan, 1990, Ferrel and Skinner, 1988, Mayo and Marks (1990), Hunt, Chonko and Wilcox, 1984, and Kelley, Ferrel and Skinner (1990).

Among the studies that had scenarios covering broader areas of ethical behavior could be mentioned Fritzsche and Becker (1984) and Harris (1990). Fritzsche and Becker (1984) explored the moral reasoning of managers in five scenarios: coercion and control, conflict of interest, physical environment, paternalism, and

personal integrity. The managers that served as respondents were asked to rate the likelihood of their behaving in accordance with the behavior characterized in the scenarios, and give a reason why. The comments to the scenarios were coded according to whether the moral reasoning was utilitarian, or based on principles of rights or justice. Harris (1990) presented employees in a company marketing intangible goods/services with 15 scenarios, and asked to what extent the respondents would approve the described behavior. The scenarios dealt with fraud, influence dealing, self-interest, and deceit.

In addition to the studies relying on primary data sources, there were two time series studies included in the review that relied on secondary data (Mathews, 1987, Staw and Szwajkowski, 1975). Both of these studies used possible company violations of laws and regulations, that were registered by public authorities, to operationalize "unethical"/possible illegal behavior.

2.3. Conclusion

In summary, researchers studying ethical decision-making in business contexts have done relatively little explorative research to identify and describe moral dilemmas. In many of the above reviewed studies the items that dealt with ethical decision-making had been taken from previous studies. It is also a possibility that textbooks on business ethics have provided examples of ethical issues that have later on been used in empirical studies.

As concluded by Randall and Gibson (1990), there is a need to develop more detailed and realistic scenarios in research in business ethics.⁹ Also, a free

⁹ Referring to Fredrickson (1986), Randall and Gibson suggest that a scenario usually could have enough details for five, single-spaced pages (Randall and Gibson, 1990, 465).

response format should be used more often as compared to only close-ended questions (ibid, 465-466).

Attempts should be made to check the ethical relevance of the situations presented to the respondents, as it was done by Dubinski and Ingram (1984), and Trevino and Youngblood (1990). The ethical relevance could be checked by asking the respondents about the extent to which they considered the situations described as involving an ethical issue (Dubinsky and Ingram, 1984). Alternatively, an expert panel could be used to judge the ethical content of the decision situations (Trevino and Youngblood, 1990). The latter approach is most appropriate if the researcher wishes to mask the ethical content of the study.

3. FACTORS INFLUENCING ETHICAL DECISION-MAKING

3.1. Introduction

The effect of both individual and situational factors on ethical decision-making behavior will be researched in this study. We start the chapter by reviewing some of the individual and situational factors that have been suggested to affect ethical decision-making in the relatively limited number of previous studies (see the 27 studies presented in Appendix 1). In the next chapter, the conceptual model used to explain ethical decision-making in this study will be developed. It is a person-situation model, where it is assumed that individual and situational variables jointly influence ethical decision-making.

The issue of whether human behavior in general is best explained by enduring personal characteristics or by situational factors external to the individual has been under much debate in psychology since the late 1960's, and more recently also in organization behavior (Chatman, 1989, Davis-Blake and Pfeffer, 1989, Pervin, 1989, Schneider, 1983). Though the person-situation issue has not been resolved (Pervin, 1989), most psychologists and researchers in organization behavior today agree that individual dispositions and situational factors both affect behavior in organizational settings, and that they are likely to interact (Chatman, 1989, Pervin, 1989, Schneider, 1983).

This position is also reflected in the most comprehensive attempts to explain ethical behavior in organizations, for example in the person-situation interaction

models suggested by Ferrel, Gresham and Fraedrich (1989), Fritzsche (1991), and Trevino (1986).¹⁰

The review of selected previous studies will be structured according to what individual and situational variables the studies have focused on (see figure 3.1.). Following Davis-Blake and Pfeffer (1989, 387, 393), we will distinguish between individual factors that are personal dispositions (personalities, values, attitudes), and individual nondispositional attributes (demographic variables). The demographic variables could further be subdivided into variables that are attributes of the person (gender, age), and variables that are tied to the membership of the organization the person is working with (tenure, managerial position). The situational variables will both be characteristics of the organization and the environment of the organization (figure 3.1.).

As it is evident from the table in Appendix 1, several of the reviewed studies have included only individual demographical variables (e.g. Akaah, 1989, Harris, 1990, Jones and Gautschi, 1990, Kelley, Ferrel and Skinner, 1990,

¹⁰ The Ferrel-Gresham-Fraedrich model is an integration and extension of the models of ethical decision-making in marketing suggested by Ferrel and Gresham (1985) and Hunt and Vitell (1986). Though these models deal primarily with ethics in marketing, the frameworks can also be applied in general organizational contexts. The models proposed by Trevino (1986) and Fritzsche (1991) encompass ethical decision-making in organizations without referring to specific functions.

A weakness of the above models is that they include so many factors that the models cannot be tested in single empirical studies. Therefore, to the limited extent that the models have been tested empirically, the studies have focused on only some of the relationships proposed in the more comprehensive models (Mayo and Marks, 1990, Singhapakdi and Vitell, 1990, Trevino and Youngblood, 1990, Zey-Ferrel and Ferrel, 1982, Zey-Ferrel, Ferrel, and Weaver, 1979).

Kidwell, Stevens and Bethke, 1987, McNichols and Zimmerer, 1985). A few of the studies have only explored the effects of situational variables on ethical behavior (Ferrel and Skinner, 1988, Laczniak and Inderrieden, 1987, Mathews, 1987, Staw and Sz wajkowski, 1975). Attempts to assess the influence of both individual and situational factors have been done by Akaah and Riordan (1990), Brief, Dukerich, and Doran (1991), Dubinsky and Ingram (1984), Fimbel and Burstein (1989), Hegarty and Sims, (1978, 1979), Hunt, Chonko, and Wilcox (1984), Singhapakdi and Vitell (1990), and Trevino and Youngblood, (1990).

We start the review by discussing individual factors, and continue with situational factors.

INDIVIDUAL FACTORS

- Demographic variables
- Personality and values

SITUATIONAL FACTORS

- Characteristics of the organizations
- Characteristics of the environment of the organization

ETHICAL
DECISION
MAKING

Figure 3.1. A person-situation model for explaining ethical decision-making in organizations

3.2. Individual factors

3.2.1. Demographic variables

The demographic variables can be distinguished according to whether they are personal attributes or they are linked to the person's role in the organization. In previous studies explaining ethical decision-making, the nondispositional personal attribute that has been most commonly used is gender. In a few studies the effect of age on ethical behavior has also been explored. The demographic variables linked to the person's role in the work organization include tenure and managerial position.

3.2.1.1. Gender

It has been suggested that, in resolving moral dilemmas, men will be more likely to rely on principles of justice and individual rights, whereas women will be more likely to be "care" oriented and consider empathy and compassion (Gilligan, 1982). Consequently, females would bring other traits and values to their work roles than males, and react differently in work situations involving ethical issues (Betz, Connel and Shepard, 1989). This approach to gender differences in work values, emphasizing the impact of personality on behavior, has been labeled a "gender socialization" approach (ibid, 322).

An alternative view to the "gender socialization" approach has been set forth by researchers emphasizing the impact of work situations on behavior. According to this "structural approach", the impact of work conditions (e.g. rewards and costs associated with work roles) will override the gender differences in work values. Consequently, there will be no differences in ethical behavior between men and women in the same occupational environment (ibid, 322).

The findings in previous studies on gender and ethical decision-making have been somewhat contradictory. A number of studies have identified very few differences between males and females in terms of how they respond to ethical decision situations, and thus lend support to the "structural" approach. For instance, the only significant difference Kidwell, Stevens, and Bethke (1987) found between the genders, was that females considered one out of 17 items ("concealing one's errors") to be more unethical than males. Similarly, Fimbel and Burstein (1990) and Singhapakdi and Vitell (1990) found no significant differences in the ethical judgements of males and females. Also the studies conducted on students by Hegarty and Sims (1978, 1979), McNichols and Zimmerer (1985), and Tsalikis and Ortiz-Buonafina (1990) indicate that males and females should have similar ethical beliefs and perceptions.

On the other hand, there are also studies which lend support to the "gender socialization" approach. The results of three studies with professional marketing researchers as respondents (Akaah, 1989, Ferrel and Skinner, 1988, Kelley, Ferrel and Skinner, 1990) showed that female marketing professionals to a higher degree than their male counterparts emphasized research ethical judgements. A student survey by Jones and Gautschi (1988) indicated that female students were more concerned about some ethical issues than males. Similar results were obtained in the student surveys by Betz, Connel, and Shepard (1989), Ruegger and King (1992), and Shepard and Hartenian (1991). The results of Harris' (1990) study on employees in a single firm were contradictory. In the survey five scenarios were presented to males and females. Female employees were significantly less tolerant of behaviors related to self-interest than males. Still, there were no differences between males and females in assessments of the ethical acceptability of the

remaining scenarios concerning fraud, coercion, influence dealing and deceit (ibid, 745).

In summary, the "gender socialization" approach has got limited empirical support. Some of the studies with students as respondents indicate that females are less likely to behave "unethically" than males. These results must, however, be interpreted cautiously, since the students are not influenced by the occupational environments of work settings.

3.2.1.2. Age

Three of the studies reviewed have explored the relationship between age and ethical decision-making (Kelley, Ferrel, and Skinner, 1990, Kidwell, Stevens, and Bethke, 1987, Ruegger and King, 1992). Those who responded to the student survey carried out by Ruegger and King (1992) were divided into groups according to age as follows: younger than 21 years, 22 to 30 years, 31 to 40 years, and older than 40 years. The study showed that in 8 out of 10 questions related to ethical behavior, the older students would have behaved in a more "ethical" manner than their younger fellow students. Similarly, Kelley, Ferrel, and Skinner (1990) found that marketing researchers 50 years or older generally rated themselves as being more ethical than younger marketing researchers. In the study by Kidwell, Stevens, and Bethke (1987), however, no consistent relationship between age and ethical decision-making could be reported.

3.2.1.3. Tenure

Generally, it is likely that the employees with increasing length of service gradually become adapt to the ethical values of the company (see for instance Posner and Schmidt, 1984). In his study of a single firm, Harris (1990) selected

a company that had a high degree of ethical awareness. The results showed that employees with a tenure of 10 years or more were significantly less tolerant than their colleagues with a shorter tenure concerning behavior related to fraud, influence dealing, self-interest and deceit (Harris, 1990, 745-747). Also Kelley, Ferrel and Skinner (1990) found that the self-ratings of marketing researchers who had a tenure below 3 years and of 10 years or more were more ethical than the perceptions of marketing researchers with a tenure between 3 and 5 years. A possible explanation for this result is that individuals who have worked in the same positions for 3 to 5 years may be most willing to compromise their personal ethical values in order to advance in their careers (ibid, 687).

Dubinsky and Ingram (1984) did not, however, find support for a hypothesis that salespeople with a long tenure would experience to a lesser degree ethical conflicts than those with a short tenure.

3.2.1.4. Managerial position

There are relatively few studies that have compared ethical values among employees at different levels in the organizational hierarchy. Both Posner and Schmidt (1984) and Harris (1990) asked managers at three different levels of the hierarchy (top, middle level and first level managers) to indicate how often they felt pressure to compromise their personal values to expectations from the organization they were working with. Posner and Schmidt (1984, 211) concluded that pressure to conform to the expectations of the organization occurred most frequently in the group of supervisory managers, and most infrequently among top executives. In Harris' (1990) study, top managers also felt less pressure to compromise their personal values than first and middle level managers. As many as

75-80% of managers at all levels of the hierarchy did, however, report that they never or rarely felt a pressure to compromise their values.

Hunt, Chonko, and Wilcox (1984, 317) found that in their sample of marketing researchers, presidents and vice-presidents perceived to a less extent than analysts and junior analysts that there were ethical problems in their organization. By contrast, Kelley, Ferrel, and Skinner (1990) found that job title only had a significant influence on the respondents' evaluations of two out of ten items on ethical behavior in marketing research. The results of the study showed that analysts agreed to a less extent than managers, vice-presidents/presidents and owners with the statement "I sometimes only report part of the data because I know the client may not like the results".

Fimbel and Burstein (1990) investigated how employees working in high- versus low-technology industries evaluated ethical/unethical behaviors in work situations. They also tested whether managers and nonmanagers responded in a significantly different manner on any of the situations. No significant differences could be found (ibid, 941-943).

In summary, the few results that exist on how employees at different levels of the organizational hierarchy evaluate ethical conflicts, are nonconclusive. However, there is a tendency for managers to perceive somewhat lower levels of ethical conflict than nonmanagers. This can be due to managers' being more socialized to the values of the company than nonmanagers.

3.2.2. Personalities and values

Several of the studies included in the review have explored to what extent personality characteristics and individual values might influence ethical decision-making. In their laboratory experiments with students as subjects, Hegarty and Sims (1978, 1979) used Machiavellianism (Christi and Geis, 1970), Locus of control (Rotter, 1966), neuroticism and extraversion (Eysenck and Eysenck, 1967), and religious, economic and political value orientation (Allport, Vernon and Lindsey, 1960) as covariates.

Locus of control¹¹ explained a significant proportion of the variance in the first study by Hegarty and Sims (1978), and in one of the two experiments in the second study by the same authors (1979). However, the authors did not report whether internals or externals were most reluctant to pay kick-backs, the "unethical" decision in the study. Trevino and Youngblood (1990) found, as they had expected, that individuals with an internal locus of control exhibited more ethical behavior than individuals with an external locus of control. On the other hand, locus of control did not influence ethical decision-making in a test of some of the relations in the Hunt-Vitell model of marketing ethics carried out by Singhapakdi and Vitell (1990).

Machiavellianism had a significant influence on ethical decision-making in all three experiments conducted by Hegarty and Sims (1978, 1979). The direction of the influence was, however, not reported. The results of the mail survey carried out by Singhapakdi and Vitell (1990) would, however, indicate that individuals

¹¹ People who have an internal locus of control (internals) typically perceive that what happens to them is caused largely by their own actions. Externals, on the other hand, feel that what happens to them is mainly caused by chance, luck or fate. Thus, externals perceive that they have little control over events in their lives (Mitchell and Larson, 1987, 102).

who rated low in being Machiavellian perceived to a greater extent that the experimental scenarios involved ethical issues or problems. Also, those low in Machiavellianism agreed more than those high in Machiavellianism with the option "Say and do nothing" as a response to the payment of bribery. Thus, there seems to be a tendency for those high in Machiavellianism to be more likely to accept "unethical" behaviors than those low in Machiavellianism.

Economic value orientation was a significant covariate in all three experiments conducted by Hegarty and Sims (1978, 1979), whereas political value orientation explained a significant part of the variance only in their first study (Hegarty and Sims, 1978). The covariates religious value orientation, neuroticism, and extraversion had no statistically significant influence on the number of kickback payments made in their experiments.

Kohlberg (1969) has suggested that humans go through different **stages of cognitive moral development**, ranging from an instrumental ego-orientation to the use of general moral principles. The stage of cognitive moral development was used as an independent variable in the contingency models of Ferrel, Gresham and Fraedrich (1989) and Trevino (1986). The results of the study of Trevino and Youngblood (1990) showed, as hypothesized, that subjects on higher stages of cognitive moral development adhered to more ethical decision-making behavior than subjects on lower stages.

Brief, Dukerich, and Doran (1991) found that two dimensions of the **Rokeach Value Survey** (1968), economic orientation and humanitarian orientation, were related to ethical decision-making only when the subjects were not influenced by

the values of a higher authority to whom they were accountable (see the more detailed description in chapter 3.3., "situational factors").

In the Hunt-Vitell model of ethical decision-making, it is assumed that the individual decision-maker makes use of deontological and teleological evaluations, which influence ethical judgements. Ethical judgements in turn influence behavior through intentions. Thus, in this model, the **dominant ethical theory** of the decision-maker is an independent variable.¹² In a test of a core portion of the Hunt-Vitell model, Mayo and Marks (1990) found that teleological evaluations had the strongest influence on the respondents' ethical judgements and intentions.¹³ This result supports the findings of Fritzsche and Becker (1984), which imply that managers primarily use utilitarian reasoning when dealing with moral dilemmas.

3.2.3. Individual variables - conclusion

This review of selected studies has shown that our knowledge of how individual factors influence ethical decision-making is very limited. There are some indications of women paying more attention to ethical considerations than men, and that individuals who score high on Machiavellianism and have an external locus of control being more likely to accept "unethical" behaviors than low Machiavellians and those with an internal locus of control. More research is, however, needed to establish under what conditions there are stable relations between personal attributes and ethical behavior.

¹²For an explanation of what is meant by deontological and teleological ethics, see chapter 2 of this study.

¹³Some of the operationalizations of variables in the Mayo and Marks study were criticized by Hunt (1990).

Since tenure and managerial position are attributes determined by how individuals are linked to the organizations they are working with, it is likely that the impact of these variables on ethical behavior will be highly contingent upon the ethical work climate (Victor and Cullen, 1988) of the organizations. In companies less concerned with the ethical standard, one could assume that the employees will have a greater propensity to behave "unethically" with increasing tenure and as they advance in the organizational hierarchy. In companies which pay much attention to dealing with ethical issues, however, the socialization process associated with increasing tenure and advancement might cause the employees to behave more "ethically". If tenure and managerial position interact with organizational characteristics in influencing ethical behavior, it is not surprising that the results of the direct effects of the two variables on ethical behavior have been weak.

3.3. Situational factors

The situational variables associated with ethical decision-making behavior could be organizational factors as well as environmental conditions.¹⁴ The component that most obviously would have an impact on how employees behave when confronted with ethical issues is probably the ethical policy of the company, as communicated through the attitudes and behavior of top management and peers, in company credos and codes of ethics, and as an aspect of the general organizational culture. The ethical policy of the company is also the single situational determinant that has been most commonly included in studies of ethical decision-making (Akaah and Riordan, 1990, Baumhart, 1961, Brief, Dukerich, and

¹⁴ For a more complete description of relevant organizational factors, see Trevino (1986).

Doran, 1991, Hegarty and Sims, 1979, Laczniak and Inderrieden, 1987, Mathews, 1987, Singhapakdi and Vitell, 1990).

The implementation of the ethical policy through the use of rewards and punishments will presumably also influence how ethical dilemmas are resolved (Hegarty and Sims, 1978, 1979, Laczniak and Inderrieden, 1987, Trevino and Youngblood, 1990). How the ethical policy is developed and enforced will in addition depend on aspects of the bureaucratic structure of the organization. Ferrel and Skinner (1988) found some support for their hypothesis that formalization and centralization would enhance the possibilities for marketing research organizations to control the ethical behavior of their employees, and thus lead to improved ethical behavior within the organization. On the other hand, studies on interorganizational relations in distribution channels have shown that increased perceptions of formalization, centralization and control can lead to increased opportunistic behavior¹⁵ (John, 1984, Reve, 1980).

Both cultural and economic aspects of the environment the organization is operating in will probably influence what ethical norms and values that will dominate (Beyer, 1981, Hunt and Vitell, 1986). An especially interesting environmental dimension is how the ethical standards of a company are influenced by the intensity of competition the company is faced with, and the favorability of

¹⁵ In studies of interorganizational relations opportunism has been defined in transaction cost theory terminology as "self-interest seeking with guile" (Williamson, 1975, 6). In distribution channel studies, in particular, opportunism has been measured by items such as: "Sometimes, I have to alter the facts slightly in order to get what I need", and "I have sometimes promised to do things without actually doing them later" (John, 1984, 288). In transaction cost theory opportunism is primarily regarded as a threat to effectivity. In an ethical perspective the measures of opportunism used in distribution channel studies would also imply conflict with credibility ethics (for a definition of credibility ethics [Gustafsson, 1988], see chapter 2).

the market situation (Dubinsky and Ingram, 1984, Hegarty and Sims, 1978, Staw and Szwajkowski, 1975).

In this review, we will focus on the results of the studies that have used the ethical policy of the company and/or the intensity of competition as independent situational variables.

3.3.1. The ethical policy of the company

The ethical policy of a company can be seen as an aspect of the organizational culture (Trevino, 1986, Ferrel, Gresham, and Fraedrich, 1989), where culture means shared norms and values among the members of the organization.¹⁶ In experimental studies, the corporate ethical policy has been represented by statements from the president of the company or other top managers (Hegarty and Sims, 1979, Laczniak and Inderrieden, 1987). Top management actions on ethics and the extent of perceived ethical problems within the organization, measured by direct questions, have also been used as indicators of the corporate ethical policy (Akaah and Riordan, 1990, Hunt, Chonko, and Wilcox, 1984).

Corporate codes of ethics could be regarded as ways of formalizing the ethical policy of an organization. In some of the studies included in the review, the impact of codes of ethics on ethical decision-making has been investigated (e.g. Laczniak and Inderrieden, 1987, Mathews, 1987, Singhapakdi and Vitell, 1990). It has been quite common to link the influence of ethical policy on moral decision-making to the extent to which the policy is being reinforced by the use

¹⁶ Studies have also been carried out to identify ethical work climates of organizations (Victor and Cullen, 1987, 1988).

of rewards and punishments. (Akaah and Riordan, 1990, Hegarty and Sims, 1979, Mathews, 1987, Trevino, 1986, Singhapakdi and Vitell, 1990).

In his pioneering survey of attitudes towards business ethics among Harvard Business Review readers, **Baumhart (1961)** found that the behavior of superiors was the single most important factor influencing unethical behavior. This result was replicated by Brenner and Molander (1977) and Posner and Schmidt (1984). **Zey-Ferrel and Ferrel (1982)** studied ethical decision behavior among advertising agencies and their corporate clients. The results of the study showed that perceptions on their own top management's views had the strongest impact on ethical decision-making for the corporate clients that responded. For the respondents on the agency side, however, the perceptions of what their peers did was the strongest predictor variable. This result could be due to a higher frequency of interaction between advertisers and upper managers in corporations than in advertising agencies (ibid, 602). The study also showed that unethical behavior increased with greater opportunity to engage in such behavior without being punished.

Both **Hunt, Chono and Wilcox (1984)** and **Akaah and Riordan (1990)**, in their studies on marketing researchers, found that top managers' actions in ethical issues had a significant impact on perceived ethical problems (Hunt, Chonko and Wilcox, 1984) and reported unethical practices (Akaah and Riordan, 1990). Marketing professionals whose top managers would punish or not tolerate possibly unethical behavior perceived ethical problems and reported incidences of unethical research practices to a lesser degree than respondents whose top managers would not take action against unethical behavior. In neither of the studies did the existence of a corporate code of ethics influence ethical perceptions/behavior.

Similarly, in the time-series analysis conducted by **Mathews (1987)**, the existence of corporate codes of ethics appeared to have no significant effect on possibly illegal activity. Companies with codes that included penalties for noncompliance did not have less violations of regulations than companies with codes that were not enforced through punishment.

In their survey of marketing/sales managers, **Singhapakdi and Vitell (1990)** presented the respondents with two different versions of a scenario involving bribery in an industrial selling situation. In one version of the scenario, the company was described as an ethical organization, having adopted a code of ethics that was enforced. In another version of the scenario, the company was described as one not having a code of business conduct. In addition, the vice president of sales was stated to have encouraged giving cash gifts to purchasing agents ("unethical organization" manipulation).

The treatment variable "ethical" vs. "unethical" organization had a significant impact on all the four dimensions of ethical decision-making that were used in the study. Respondents in the "ethical" organization group reported the bribery scenario as involving an ethical issue to a higher extent than respondents in the "unethical" organization group. In addition, respondents who were assigned to the "ethical" organization scenario tended to agree more with punishment and less with a "Say and do nothing" course of action than respondents who were assigned to the "unethical" organization scenario.

In the first of the two experiments reported by **Hegarty and Sims (1979)**, the ethical policy of the President of the company in question was manipulated. Both treatment groups in the experiment received an article from a popular publication,

that the President referred to in a positive manner in a cover letter of the experiment. One article supported a high ethical standard, whereas the other did not (ibid, 333). As expected, subjects who received the article supporting ethical behavior made significantly less kickback payments than subjects in the "unethical policy" group.

In the second experiment, subjects who had received an organizational ethical goal made significantly fewer kickback payments than respondents who had set only an individual ethical goal, and subjects in the control group who had had neither an individual nor an organizational ethical goal. The organizational ethical goal in this study was in reality a punishment in the form of a threat of dismissal of those who were found engaged in unethical behavior.

The experiment of **Laczniak and Inderrieden (1987)** was conducted as an in-basket exercise, where each subject was asked to assume the role of the executive VP of a hypothetical company. The subjects were divided into four groups, of which a control group received no treatment. In the first treatment group, the subjects received a letter from the President of the company, informing that he would be abroad for three weeks in his capacity of an honorary director of an association for better business ethics. In the second treatment condition, the subjects received the same letter from the President, plus a corporate code of ethics. In the third treatment condition the subjects received the letter from the President, the corporate code of ethics plus a statement by the President acknowledging the right of the company to dismiss employees who violated the ethical standards of the company.

Recall that four different scenarios were used in the experiment, two dealing with illegal acts and two with acts that implicitly violated the ethical code, but were not illegal. The results were analyzed separately for the illegal and the moral (but not illegal) scenarios. For the illegal scenarios, the respondents in the third treatment group (the President's letter plus the code of ethics plus the threat of dismissal for unethical behavior) to a significantly less extent approved the illegal behavior than respondents in the three other groups. There were no other significant differences between the other group means. Thus, the threat of dismissal was the only factor that had a significant effect on the evaluation of the illegal scenarios (ibid, 302). No significant differences between the treatment groups appeared in the evaluations of the scenarios involving legal, but ethically questionable issues.

A main purpose of the experiment carried out by Trevino and Youngblood (1990) was to explore the effect of vicarious learning on ethical decision-making behavior. The subjects were divided into two treatment groups and one control group. The manipulation of vicarious learning consisted of a description of top management's reactions towards an incident of sexual harassment and the substitution of a potentially hazardous substandard wire in a product. In the first treatment condition ("unethical-behavior-punished"), the employees who committed sexual harassment and substituted the product component were disciplined. In the second condition ("ethical-behavior-rewarded"), the individuals who blew the whistle and reported the same actions were rewarded. In the control condition, top management gave no clear response to the two incidents. Thus, in this study the vicarious rewards and punishments could be seen as reflecting the corporate policy on ethical issues.

The results showed that neither vicarious reward nor punishment had any direct effect upon ethical decision-making behavior (paying kickbacks and changing the material used in a product component without informing the consumers of potential problems). However, vicarious reward had a significant impact on the respondents' outcome expectancies, i.e. the expectations of the organization supporting ethical behavior and discouraging unethical behavior. Outcome expectancies again had a significant impact on ethical behavior. Thus, when subjects observed that the individuals who blew the whistle on the incidents of sexual harassment and the substitution of a product component were being rewarded, their expectations that the company would support ethical behavior increased. Consequently, vicarious reward had an indirect impact on ethical decision-making behavior. However, observations of others being punished for committing sexual harassment and substituting a product component neither influenced outcome expectancies nor did they have an impact on ethical decision-making behavior.

The focus in the study by **Brief, Dukerich and Doran (1991)** was in exploring the role of accountability, i.e. pressures to justify one's opinions to others, in resolving ethical dilemmas. It was suggested that individual values may be of a secondary importance in ethical decision-making when compared to the expectations of members of the organization to whom employees are accountable. Three exploratory experiments were carried out to test this hypothesis. Individual values were represented by the extent to which the respondents indicated an economic ("Smithian") or a humanitarian value system when ranking terminal values in the Rokeach Value Survey (1968). As discussed chapter 2, the subjects participating in the experiment were asked to role-play the members of a board of directors of

a pharmaceutical company, and make a decision concerning the marketing of the potentially dangerous drug Panalba.

The accountability conditions were manipulated by different descriptions of the Chairman of Board of the pharmaceutical company. In the first experiment, the Chairman was described as being Humanitarian in one accountability condition and "Smithian" (emphasizing economic values) in the other. In both of these treatment conditions the subjects were asked to justify their decisions. In a control condition, no description of the Chairman was given, and the respondents were not asked to justify their decisions. The results of this experiment showed that in the control condition respondents who ranked high on a humanitarian value had a propensity to choose the most humanitarian option, i.e. immediately recall the drug and destroy it. Similarly, respondents who ranked high on a "Smithian" value had a propensity to choose most profitable options, i.e. to continue marketing Panalba. However, the association between the personal value system and the decision choice was only evident in the control condition, where no descriptions of the Chairman was given. In the two other treatment groups, individual values were unassociated with the decision choices. Probably, the influence of the Chairman's values mitigated the effects of the individual values of the subjects in these two treatment groups (ibid, 388-389). However, accountability did not have any significant main effect on how the Panalba dilemma was resolved in this experiment.

A second and third experiment were conducted to learn more about the effect of accountability on ethical decision-making. Both experiments used the Panalba case to represent an ethical dilemma. The purpose of these experiments was to investigate whether accountability would have a greater effect on the decision-

making when the view of the person to whom the subjects were accountable (i.e. the Chairman) was known explicitly. In both experiments, the subjects were randomly assigned to a nonexplicit accountability condition, where only the Chairman's values were known, and to an explicit accountability condition, where both his values and preferences concerning the marketing of Panalba were described. In the second experiment, the Chairman was described as being "Smithian" in the nonexplicit accountability condition. In the explicit accountability condition, the subjects were told both that the Chairman was "Smithian", and that he was in favor of continuing marketing Panalba and would prevent the drug from being banned. In the third experiment, the Chairman was portrayed as Humanitarian in the nonexplicit accountability condition. In the explicit accountability condition, the Chairman was described as being Humanitarian, and his preferences for recalling Panalba immediately and destroying it was made clear to the subjects.

The results of the second and third experiment showed that accountability had a greater effect on resolving the ethical dilemma when the choice of the Chairman was made explicit, than when only the values of the Chairman were known to the subjects. The effect of making the Chairman's preferences clear was significant both when the Chairman was described as being "Smithian" and "Humanitarian". This result led Brief, Dukerich and Doran (1991) to suggest that personal values might be unrelated to how an individual resolves an ethical dilemma when the individual is accountable to a higher authority, and when the choices of the authority are known explicitly.

3.3.2. The intensity of competition

An environmental factor that has been suggested to influence ethical decision-making is the intensity of competition in the market the company is operating in, also expressed as the extent to which there is scarcity of resources in the environment of the company.

Staw and Szwajkowski (1975) suggested that organizations facing resource scarcity in the environment would be more likely to commit illegal acts than organizations in munificent environments. The line of reasoning was that committing illegal acts could be seen as a way of acquiring additional resources from the environment. Procuring resources from the environment would be more critical under scarcity than under munificence (Katz and Kahn, 1978, Pfeffer and Salancik, 1978). We saw in chapter 2 that the Staw and Szwajkowski-study was conducted as a time series analysis of companies that had been investigated by federal and state courts for cases involving possible violations of the antitrust law and the Federal Trade Commission Act.

The scarcity/munificence hypothesis got support, as the financial performances of both the firms that had been investigated and their industries were significantly below that of all firms in the Fortune 500 list. The performance of the firms that had been investigated was not worse than the average performance in their industries. The latter result indicated that factors common to the whole industry, rather than company internal conditions, such as poor management, influenced the commission of illegal acts (ibid, 350).

In the experimental simulation carried out by **Hegarty and Sims (1978)**, the decision-making problem concerned the optimal number of salesmen to employ

in various time periods. The students who participated faced three different levels of competitiveness. At the first level, the students had no information about the performance of the other subjects. At the second level, information about how much profit the other students had made was made available to the subjects as the simulation ran through different time periods. At the third level, a monetary reward was promised and paid to the subjects who performed best in the exercise. As the authors had expected, the extent of competitiveness had a significant impact on the amount of kickback payments that were made by the subjects. More kickbacks were paid as the level of competitiveness increased.

Dubinsky and Ingram (1984), on the other hand, found no relation between the intensity of competition and the extent to which the salespeople included in their survey perceived ethical problems.

3.3.3. Conclusion - situational variables

The situational factors that have been most often investigated in empirical studies are the ethical policy of the company and the ethical attitudes/behavior of members of the top management. Even though several studies indicate that company policy can have an effect on ethical decision-making, it is not clear how the policy should be formulated and implemented. The managerial implication of the results of some studies has been that the company policy on ethics/the corporate code of ethics should be enforced through sanctions to have an effect on ethical behavior. Although punishing an employee who has behaved against the code might have an effect in terms of vicarious learning, the punishment need not make the employee behave more ethically. On the contrary, punishment might lead to aggression and apathy. Similar arguments have been set forth by Trevino (1986), and Gustafsson, (1990).

3.4. Implications for future research

Our knowledge on how individual and situational factors determine attitudes and behavior in organizational settings is still very much limited, as it is evident from the person-situation controversy referred to in the introduction to this chapter (Pervin, 1989, Schneider, 1983). Ethical decision-making behavior is a category of work-related behavior that we know particularly little about. Only a few pioneering studies, particularly the experiments carried out by Brief, Dukerich, and Doran (1991), Hegarty and Sims (1978, 1979), and Trevino and Youngblood (1990) have been carefully designed to test how dispositional and situational factors in combination could influence ethical behavior. In all these experiments, however, the subjects were students.¹⁷ There is a need for more experimental studies on ethical decision-making with managers and employees in companies as subjects.

Researchers in the United States have been pioneers in carrying out empirical studies on ethical decision-making. All the studies included in this review have been done in the U.S. More studies on ethical decision-making should be conducted in other parts of the world to test how generalizable the results are.

¹⁷ In the study of Lacznik and Inderrieden (1987), which also utilized an experimental design, MBA students with some managerial experience participated, but 48% of the students were as young as 25 to 29 years. The impact of individual variables on ethical decision-making was not assessed in this study.

4. FRAMEWORKS FOR THE TWO PHASES OF THE STUDY

4.1. Introduction

The purpose of this chapter is to put forth frameworks for describing and explaining ethical decision-making in the R&D process in pharmaceutical industry. As discussed in chapter 1, the purpose of the study is twofold. The first purpose is to **identify and describe** characteristics of moral dilemmas, while the second purpose is to **explain** how individual and situational factors influence ethical decision-making. In the first phase of the study, the descriptive aspects will be focused, whereas explanation will be emphasized in the second phase of the study. A loosely structured framework will be used in the first phase of the study, and a more structured conceptual model in the second phase.

4.2. Framework for the first phase of the study

The first part of the framework (figure 4.1a) is an answer to the questions: How can characteristics of moral dilemmas in the R&D process in the pharmaceutical industry be **described**, and to what extent do moral dilemmas and ethical value conflicts occur in the industry? The second part of the framework (figure 4.1b) is an answer to the question: Could demographic characteristics **explain** the extent to which employees in the R&D organization experience moral dilemmas at work?

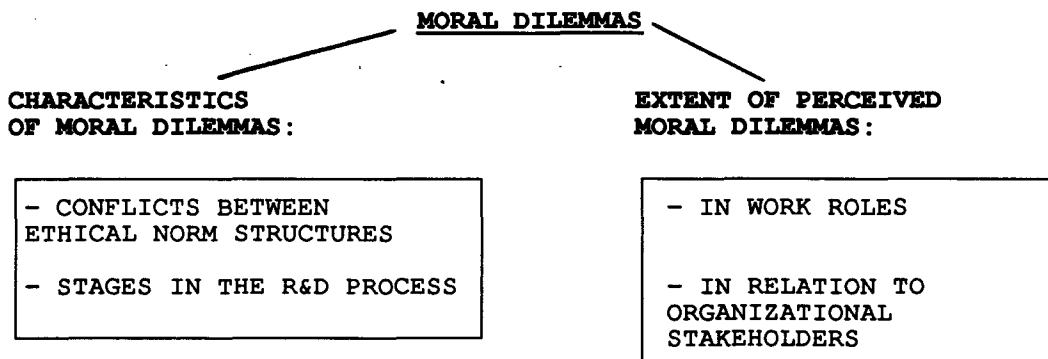


Figure 4.1a. Framework for describing moral dilemmas in the first phase of the study

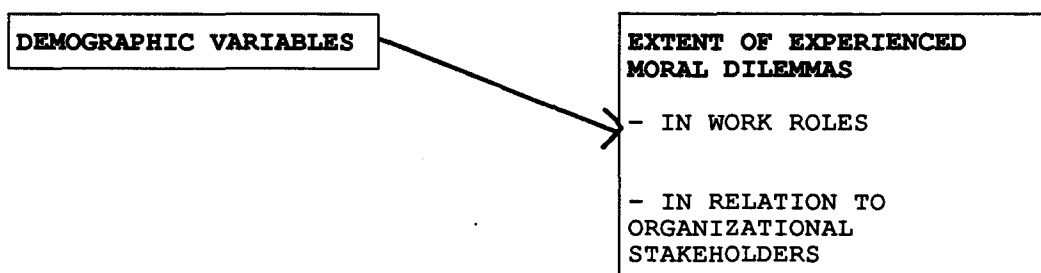


Figure 4.1b. Framework for exploring the impact of demographic variables on the extent of experienced moral dilemmas in the first phase of the study

4.2.1. Characteristics of moral dilemmas in the pharmaceutical industry

The conceptual analyses of examples of moral dilemmas in the pharmaceutical industry will be based on the ethical framework developed by Gustafsson (1988). As discussed in chapter 2, ethical norm structures that are of importance for business organizations could be categorized in five groups: Credibility ethics, humanity ethics, effectivity ethics, environmental ethics, and ritual ethics. In moral dilemmas, the courses of action derived from two or more ethical norm structures are mutually incompatible.

Examples of moral dilemmas will also be categorized according to the stages in the R&D process in which they occur. A description of the R&D process in the pharmaceutical industry will be presented in chapter 5.

4.2.2. Moral dilemmas in the work roles

As illustrated in figure 4.1a, a goal of the first phase of this study will be to analyze to what extent employees in the R&D organization experience moral dilemmas at work. Our knowledge about this topic is limited. Baumhart (1961) asked the respondents whether there had been times when they had experienced conflicts between the expectations of being efficient, profit-conscious businessmen and expectations of being ethical persons. Nearly half of the respondents gave an essay answer to the open-ended question. On the other hand, one out of every four executives reported that he had experienced no such conflict (ibid, 163). Posner and Schmidt (1984) found that 20% of the executive managers and 41% of supervisory managers they surveyed "strongly agreed" or "agreed" with the statement that "I find that sometimes I must compromise my personal principles to conform to my organization's expectations" (ibid, 211). Somewhat more managers (64%) "agreed" or "somewhat agreed" to a similar statement in Carrol's (1975) survey on American business executives.

In this study, a distinction will be made between to what extent moral dilemmas occur in **the day-to-day work** and in **concrete projects**. Further, moral dilemmas could arise as conflicts between company expectations and the employees' **private values** and/or **professional ethics**. Values can be defined as "normative beliefs about proper standards of conduct and preferred or desired results" (Fischhoff, Slovic, and Lichtenstein, 1980, Keeney, 1988, quoted in Nystrom, 1990a, 971), and "a rationalized normative system of preferences for certain courses of action or certain outcomes" (Beyer, 1981, 166). Professional ethics are the ethical codes and norms of the profession a person belongs to (see e.g. Abbot, 1983, 857). There will probably be some extent of overlap between a person's private values and his/her professional ethics.

4.2.3. Moral dilemmas in relation to stakeholders of the company

Business organizations will be influenced by the values of stakeholders internal and external to the company (Freeman and Gilbert, 1988).¹⁸ In some moral dilemmas, different stakeholders make claims that cannot all be satisfied (Cavanagh, Moberg, and Velasquez, 1981, Hunt and Vitell, 1986). However, we still know little about to what extent moral dilemmas occur in relation to the various stakeholders of a company. This research question will be explored in the first phase of the study.

4.2.4. The influence of demographic variables

Though the focus in the framework of the first phase of the study is on describing moral dilemmas, an attempt will also be made to analyze whether demographic variables characterizing the employee can explain to what extent employees experience moral dilemmas in their work roles, and in relation to important stakeholders of the company (figure 4.1b). The findings in previous studies on the relation between demographic variables and ethical decision-making are weak and in part contradictory, as it has been shown in chapter 3 of this study.

The demographic variables included in the first phase of the study will be gender, age, tenure, managerial position, and occupational group (researchers vs. technicians).

¹⁸A stakeholder group of an organization is analogous to an interest group. A stakeholder could be defined as "any individual or group who can affect or is affected by the actions, decisions, policies, practices, or goals of an organization" (Gatewood and Carrol, 1991, based on Freeman, 1984).

4.3. Conceptual model used in the second phase of the study

The conceptual model used in the second phase of the study to investigate factors influencing decision-making in moral dilemmas is a person-situation model. The independent situational variables are role expectations from superiors, job autonomy, and the market situation of the company. Organizational commitment is assumed to interact with role expectations from superiors in influencing the decision-making, and has the status of a moderator. The independent individual variables are professional commitment and tenure.

Thus, a choice was made to focus on contextual factors and variables linking the individual to the work organization, rather than on individual dispositions.¹⁹ This choice thus not reflect a denial that personality traits and/or individual value systems may have an influence on ethical decision-making. But all potentially relevant factors cannot be included in a single experiment. Since the experiment was conducted in a real-life company, we considered it convenient to focus on job-related constructs.

Role expectations from superiors, as an aspect of the ethical policy of the company, has been used in several previous studies on factors affecting ethical decision-making (see the review in the preceding chapter). Also the market situation of the company, expressed as the intensity of competition in the company's environment, and tenure, have been independent variables in some of

¹⁹ Davis-Blake and Pfeffer (1989), referring to O'Reilly and Roberts (1975), have argued that in empirical studies structural characteristics appear to be more directly linked to job attitudes than personality traits. The statement is based on results of empirical studies that have directly compared the influence of individual attributes and organizational structure on job-related attitudes. Still, the person-situation controversy has not been resolved (Pervin, 1989), and there is also evidence that individual dispositions could have an important impact on attitudes towards the work (cf. Keller et al., 1992, Staw and Ross, 1985, Staw, Bell, and Clausen, 1986).

the previous studies. Job autonomy, organizational commitment, and professional commitment have, however, not been used as explaining factors in any of the previous empirical studies of ethical decision-making we have identified.²⁰

The rest of this chapter gives a description of the variables that are included in the model (figure 4.2.). In chapter 8, hypotheses on the relationship between the variables will be specified.

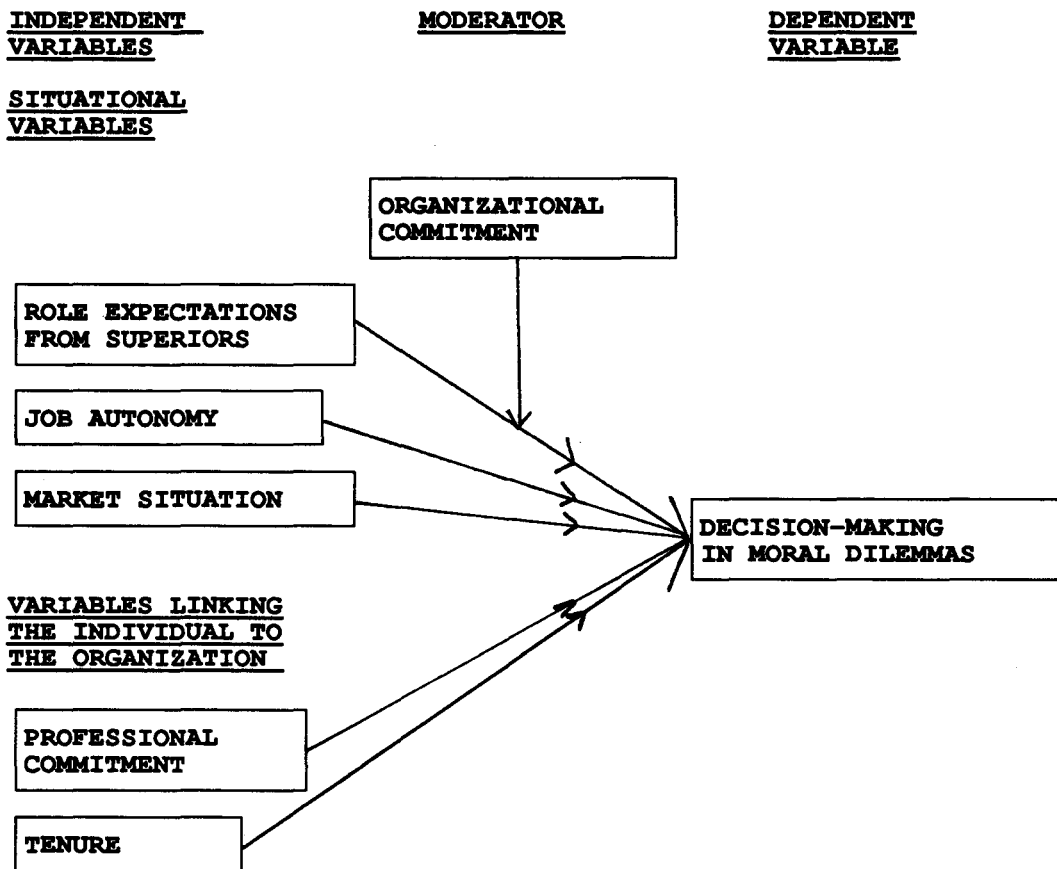


Figure 4.2. Conceptual model for explaining decision-making in moral dilemmas

²⁰ Hunt, Wood, and Chonko (1989) explored, however, the effect of ethical beliefs on organizational commitment in marketing.

4.3.1. Independent situational variables

As discussed in the previous chapter, the situational factors that influence ethical decision-making can be both characteristics of the work organization and the environment of the organization. Several business ethics researchers have emphasized that the ethical attitudes and behavior of superiors probably have a major influence on how their subordinates behave when confronted with ethical issues (Baumhart, 1961, Carrol, 1975). Consequently, the ethical policy of the company, as manifested in role expectations from superiors in ethical issues, is an important component of the conceptual model. Since characteristics of the particular job an employee is holding could be important in explaining attitudes and behavior in organizational settings (Davis-Blake and Pfeffer, 1989, Pierce, Dunham, and Cummings, 1984), perceived job autonomy (Hackman and Oldham, 1971) was also included in the model. The environmental dimension that we found it most interesting to focus on was the market situation of the company.

4.3.1.1. Role expectations from superiors

In this study, we assume that the moral norms²¹ in an organization are communicated to members of the organization according to the principles of role theory (Beyer, 1981, Kahn et al., 1964, Katz and Kahn, 1978, Kurtines, 1984). An individual in a work organization occupies a position. Associated with the position are constellations of rights and obligations, as well as specific rules of conduct (Kurtines, 1984, 306). A role occupant has a role set, that consists of other persons inside and outside the organization whom the role occupant is dependent on in performing the work activities (Merton, 1957). In decision

²¹Moral norms can be seen as rules of conduct, requiring that anyone in certain circumstances should do, or refrain from doing, certain kinds of action. Also, moral norms could be standards of evaluation, which we refer to when deciding whether something is good or bad, desirable or undesirable (Taylor, 1975, 2).

situations, the behavior that is expected of a role occupant is communicated to the person from members of his/her role set. The role occupant, after having perceived the role expectations, performs a role behavior that is either consistent or inconsistent with the role expectations (Katz and Kahn, 1978).

In practice, several members of an employee's role set, including both peers and superiors, may be sending role expectations in particular moral dilemmas (Zey-Ferrel and Ferrel, 1982). In this study we have chosen to concentrate on role expectations from superiors, since the attitudes of top management are considered a particularly important determinant of moral behavior in companies. In moral dilemmas, role expectations from superiors may exert a norm pressure on the employees to behave according to what is considered "the best" from the point of view of the organization.

4.3.1.2. Job autonomy

Autonomy is one of the proposed core job characteristics in Hackman and Oldham's (1971) model of job enrichment. Job autonomy has been defined as the degree to which the job provides freedom, independence and discretion to the employee in scheduling tasks and in procedures to be used in carrying out the tasks (Hackman and Oldham, 1980, quoted in Hellriegel, Slocum and Woodman, 1989).

There is evidence that characteristics of the immediate content of the job may have a major influence on work-related attitudes and behavior. Pierce, Dunham, and Cummings (1984) assessed the impact of job characteristics (autonomy and variety) and three other sources of environmental structuring (technology, work unit structure, and leader initiating structure) on work attitudes (job satisfaction,

job involvement, and internal motivation), and behavioral responses (performance, absenteeism, and amount of effort spent on job performance). The results of the study showed that the immediate content of the job provided the greatest explanatory power in accounting for variations in employee reactions. A likely explanation of this finding is that "the job is "closer" to the worker and is experienced on a more regular and direct personal basis than work unit structural properties, work unit technology dimensions, or leader behaviors" (ibid, 219-220).

Since, however, the relationship between job characteristics and decision-making in moral dilemmas is not the main focus of this study, the remaining three core dimensions of the job characteristics model (variety, task identity and feedback) are not included in the model. Autonomy will be regarded as a substitute for managerial position, which we did not register to protect the anonymity of the respondents.

4.3.1.3 The market situation

By the market situation of the company, we mean the intensity of competition in the markets the company is operating in, and how strong the company's position is relative to its competitors. The intensity of competition is reflected on how scarce or munificent the resources in the environment of the company are (Pfeffer and Salancik, 1978, Staw and Szwajkowski, 1975).

In the pharmaceutical industry, the research and development process is extremely costly. On the other hand, a company that is the first to introduce a patented medical innovation is likely to get higher profit margins than companies in most other industries (Fortune, 1991). The price competition is less intense in the pharmaceutical industry than in many other lines of industry. This is in part due

to the fact that doctors who prescribe drugs to patients do not have to pay the price themselves. As in other lines of industry, the market position of a pharmaceutical company will to a great extent be determined by the strength of existing products, and how successful the company has been relative to its competitors, in developing new products.

4.3.2. Variables linking the individual to the organization

In this study, individual variables are variables that link the individual employee to the organization. Two attitudes that reflect important role orientations of employees in research intensive organizations, organizational and professional commitment, are the only dispositional variables that will be used. To protect the anonymity of the respondents, strong restrictions were set on the number of demographical variables that could be included in the conceptual model. Tenure was considered of particular importance, since the length of service of an employee reflects how long he/she has been exposed to the norms and values of the organization.

Organizational commitment is a moderator in the conceptual model, assumed to interact with role expectations from superiors in influencing the decision-making in moral dilemmas. Professional commitment and tenure are independent variables.

4.3.2.1. Organizational commitment

Commitment is a well established concept in the organization behavior literature.

In recent years, several researchers have discussed various ways of defining commitment, and the relationship between commitment and other constructs (Allen and Meyer, 1990, Griffin and Bateman, 1986, Meyer and Allen, 1984, Morrow, 1983, Mowday, Porter and Steers, 1982, Oliver, 1990, Reichers, 1985, Scholl, 1981, Wiener, 1982). Organizational commitment has been conceptualized in two different ways:

In the **first** approach, commitment has been considered a tendency to stay with the organization due to the **perceived costs** associated by leaving it (Allen and Meyer, 1990, 2-3, Becker, 1960, Meyer and Allen, 1984). The term **continuance commitment** has been used to characterize this conceptualization of organizational commitment (Allen and Meyer, 1990, Meyer and Allen, 1984).²²

In the **second** conceptualization, commitment has been viewed as an **affective or emotional** attachment to the organization (Allen and Meyer, 1990, 2). This approach to organizational commitment was introduced by Porter and his co-authors (Porter et al., 1974, Mowday, Steers and Porter, 1979, Mowday, Porter and

²² In the literature on commitment, cost-induced commitment (Becker, 1960) has often been considered an aspect of behavioral commitment (Mowday, Steers and Porter, 1979, Mowday, Porter and Steers, 1982, Scholl, 1981). **Behavioral commitment** focuses on the process by which past behavior binds an individual to certain courses of action, such as maintaining membership in an organization or continuing to invest in projects they have made an initial commitment to (Kiesler, 1971, Salancik, 1977, Staw, 1976, 1981). Allen and Meyer (1990) have, however, viewed continuance commitment as a component of attitudinal commitment (ibid, 4). In previous literature on commitment, attitudinal commitment has encompassed only the affective component of organizational commitment, focusing on identification with the organization (Mowday, Steers and Porter, 1979, Mowday, Porter and Steers, 1982, Scholl, 1981).

Steers, 1982), and has been called **affective commitment** (Allen and Meyer, 1990, Meyer and Allen, 1984). Affective organizational commitment has been defined by Porter et al. (1974, 604) as "the strength of an individual's identification with and involvement in a particular organization"; characterized by three factors (ibid, 604):

- (a) A strong belief in and acceptance of the organization's goals and values;
- (b) a willingness to exert considerable effort on behalf of the organization;
- (c) a definite desire to maintain organizational membership.²³

In this study, only the concept of **affective commitment**, hereafter called **organizational commitment** (Porter et al., 1974), will be used. In most studies of organizational commitment, the concept is represented as a continuum, ranging from a low to a high level of commitment (Randall, 1986). Still, Reichers (1985) has suggested that employees are not committed to the organization as a "unitary whole", but rather to one or several interest groups inside or outside the company, such as the department they work with, peers, or professional groups. Thus, employees can have multiple commitments. Also Morrow (1983), in her extensive review of studies on work commitment, concluded that the likelihood of researchers' being able to develop a single, unidimensional and generic concept of work commitment is small (ibid, 497). In this study we will, in addition to organizational commitment, include another well established dimension of

²³ Wiener (1982) has presented a **normative** theory of commitment, focusing on the moral obligation to stay with and be loyal to the organization. Wiener (1982) viewed his model as "an extension and reconceptualization" (ibid, 418) of the affective approach to organizational commitment. Still, Allen and Meyer (1990) suggested that normative commitment be a distinguishable component of attitudinal commitment, in addition to affective and continuance commitment. The authors did not, however, succeed in developing scales that could discriminate between normative and affective commitment (ibid, 8).

commitment, viz. the commitment to professional norms. Thereby, we take into account the possible multiple character of the commitment concept.

4.3.1.2. Professional commitment

An employee's professional commitment is characterized by the identification with the employee's professional group, the commitment to his/her professional skills, and the extent to which the employee seeks social support from professional colleagues both within and outside the organization (Blau and Scott, 1962, 64). Historically, the idea of studying professional commitment has its roots in the works of Merton (1957) and Gouldner (1957, 1958) on local and cosmopolitan role orientations in organizations. Gouldner (1957) suggested that three variables would characterize the role orientations of professionals in organizations: the commitment to specialized role skills (hereafter referred to as professional commitment), the loyalty to the organization (referred to as organizational commitment) and whether the reference group orientation is internal or external. Gouldner thought that it would be possible to distinguish between cosmopolitans and employees that are local in their orientation along a unidimensional continuum. Cosmopolitans would have a high professional commitment, a low organizational commitment, and orientation toward an external reference group. Locals would have a low professional commitment, a high organizational commitment and orientation toward an internal reference group (Tuma and Grimes, 1981, 188). Thus, an employee could not simultaneously have a high organizational and professional commitment.

The results of studies conducted after Gouldner's (1957) analysis of social roles in organizations indicate that the local-cosmopolitan construct rather than being a unidimensional concept represents at least two separate dimensions of

commitment (Flango and Brumbaugh, 1974, Greene, 1978, Grimes and Berger, 1970, Gouldner, 1958, Hall, Schneider and Nygren, 1970, Jauch, Gluck and Osborne, 1978, Tuma and Grimes, 1981).²⁴ Thus, in a professional organization one could find employees who both have a high professional and a high organizational commitment ("cosmopolitan-locals"), as well as employees who both have a low professional and a low organizational commitment ("in-differents"), in addition to the "pure" cosmopolitans and locals (cf. the studies of Miller and Wager, 1971, and Sheldon, 1971).

4.3.3. The dependent variable - decision-making in moral dilemmas

The dependent variable is the choice of decision alternatives in moral dilemmas. As defined in chapter 2, a moral dilemma is a situation in which several moral principles suggest the choice of mutually inconsistent decision alternatives. An attempt will be made to formulate rather complex moral dilemmas where there is no clear most "ethical" option.

²⁴Most studies on role orientations of professionals in organizations have concluded that the construct is two-dimensional, where professional and organizational commitment constitute the dimensions. However, Tuma and Grimes (1981), suggested that professionals' role orientations have at least five conceptually distinct dimensions: professional commitment, commitment to organizational goals, organizational immobility, external orientation and concern with advancement (ibid, 204).

5. DESIGN OF THE FIRST PHASE OF THE STUDY

5.1. Methodological considerations

As stated in the introduction, the purpose of the first phase of the study was to identify and describe moral dilemmas in a business context.

When reviewing how ethical decision-making has been operationalized by scenarios and items in previous studies (chapter 2), we concluded that relatively few attempts had been made to discuss why the scenarios and items used were supposed to have an ethical content. Though the underlying logic of ethical conflicts in business organizations have been described more in-depth in textbooks on business ethics (e.g. Beauchamp and Bowie, 1988, Behrman, 1988, DeGeorge, 1982, Donaldson, 1982, Evans, 1981, Velasquez, 1988), our prior knowledge on the phenomena, as manifested in practical settings, is relatively limited.²⁵ Therefore, an exploratory research approach was chosen in the first phase of the study.

A goal of the first phase of the study was also to develop realistic experimental treatments for the second phase of the study. Still, the first phase should be seen as more than a pre-study for getting the experimental second phase started. We agree with Glaser and Strauss (1967, 12-18) that generating new theories and hypotheses through exploratory research is not less important than testing theories with more rigorous methodology.

An attempt was made in this study to use qualitative and quantitative methods in combination both to generate new hypotheses and to test hypotheses empirically.

²⁵ Still, moral dilemmas that might occur in clinical trials have been much discussed in the literature on medical ethics (see e.g. Gifford, 1986, Hovedkomiteen for norsk forskning, 1981, Miller, 1987, Wikler, 1981).

The description of moral dilemmas presented in the first phase of the study mainly relied on qualitative methods, whereas the second phase of the study was more quantitatively oriented.

5.2. Sample and questionnaire design

The pharmaceutical industry was chosen as the setting of the study, due to the importance of ethical issues in this line of industry. The sample unit was the company where the study was conducted. A judgemental sample strategy was used to select the sample unit, since the line of industry and the company was hand-picked to serve the research purpose (Churchill, 1991).²⁶ The company could be characterized as an ethical pioneer, and was large enough to provide a sufficient number of employees to be used as respondents. Implementing the study in a R&D organization made it possible to study commitment as a multiple construct (Reichers, 1985), since both professional and organizational commitment are well-established concepts in the organization behavior literature. The unit of analysis of the study was individuals working with R&D in the company.

In the first phase of the study, the data were collected through personal interviews with 15 employees working with R&D in the company. The respondents were selected by a stratified sampling procedure based on a list of employees made by the personnel department of the company. The employees included in the list were grouped according to which of the five major research areas of the company they were working with. The five research areas were chemistry, medicine/biology, pharmacy, control/analysis and clinical R&D.

²⁶ As Churchill (1991) has suggested, judgemental sampling is often appropriate in exploratory research: "When searching for ideas and insights, the researcher is not interested in sampling a cross section of opinions but rather in sampling those who can offer some perspective on the research question" (ibid, 540-541).

The list consisted of 10-25 employee names for each of the five research areas, together with information on the employees' tenure, age and gender. Information was also given about whether an employee included in the list was a researcher or a technician, whether the employee had a managerial position or not, and at which stage of the research and development process the employee was mainly working. The persons to be interviewed were selected by using random digit numbers, restricted by the following criteria:

- (i) From each of the five areas, three respondents.
- (ii) From each research area, at least one person working at an early stage of the research and development process (except for clinical R&D, since all employees in that unit work at a late stage of the process).
- (iii) From each research area, at least one technician, as opposed to researcher (in clinical R&D, however, all persons listed were researchers).
- (iv) From each research area, at least one employee with shorter tenure than two years.

A letter of introduction explaining the purpose and the main topics of the study was sent to the persons selected from the list, together with a recommendation from the Vice President of Personnel and the Vice President of Research. About one week later, appointments for the personal interviews were made by phone. All employees who were asked to participate agreed to be interviewed. One of the selected employees did, however, feel that his job had a purely technical character with no important ethical questions involved. The personal interview with this person was cancelled, but later on he answered the questionnaire by mail.

In addition to the 15 systematically selected respondents, another 10 key informants were interviewed about central topics of the study. The purpose with these interviews was to get assistance in designing the questionnaires, and to

collect additional examples of moral dilemmas. The key informants were managers and/or employees with long tenures.

A semi-structured questionnaire was used during the interviews (Appendix 4). The design of the questionnaire followed the framework for the first phase of the study developed in chapter 4. In **section 1**, the respondents were asked to give examples from moral dilemmas in the various stages of the research and development process.²⁷

In **section II**, four questions were asked about to what extent the respondents experienced moral dilemmas when working with the company. The questions were rated on a 7-point scale, with the anchors 1 (to a very little extent), and 7 (to a very large extent). An additional box was used for "never experienced".

The first two questions dealt with to what extent moral dilemmas occurred in the **day-to-day work** and in **concrete projects or tasks**, respectively. Next, the respondents were asked to what extent they experienced conflicts between their **private values** and what was expected of them in the company, and between their **professional ethics** and company expectations.

In **section III**, the questions dealt with to what extent the respondents experienced moral dilemmas in their relations with the internal and external stakeholders of the company.

²⁷ In the questionnaire, a moral dilemma was defined as a decision situation where several ethical principles, each of which is "right", contradict each other (based on DeGeorge, 1982, 65).

The **internal** stakeholders included in the questionnaire, were:

- Colleagues in the same profession,
- colleagues in other professions,
- superiors in the company,
- other organizational units within the company (project groups, departments, divisions),
- and the sales representatives of the company.

The **external** stakeholders were:

- Drug regulatory authorities,
- competitors,
- buyers of the company's products (hospitals, doctors),
- subjects participating in clinical trials,
- societal interest groups,
- doctors/researchers and R&D-units in hospitals which the company collaborates with,
- and licensees of the company.

6. ANALYSES OF THE EXAMPLES OF MORAL DILEMMAS

In this chapter, we will analyze the examples of moral dilemmas in the Research and Development (R&D) process that were given by the respondents in the first phase of the study. In order to facilitate our understanding of the examples, we start by giving a short description of some basic elements of the R&D process in the Nordic pharmaceutical company in which the study was conducted. In addition, a more general presentation of the stages in the R&D process is given.

6.1. The R&D process in a research based pharmaceutical company

The products and product ideas in this pharmaceutical firm are usually **chemical entities**. They may, however, be biological products in other companies. Since the product ideas in the company are not based on **gene technology**, ethical issues related to manipulation of genes are not discussed in this study.

The stages in the R&D process start with **idea generation and initial treatment of the idea**. The chemists in the company have the main responsibility for creating new substances that may have biological effects. Whether a new product idea will be accepted for further testing or not depends primarily upon biological characteristics, the market potential of the idea and to what extent it fits the company's strategy. In order to have the idea accepted, the product must also be likely to get a patent approval. Application for a patent is normally filed at an early stage of the R&D process, to protect the new product idea.

If a new product idea is accepted initially, it enters a **search phase**. In this phase, several variants of the product or analogues are developed and tested in vitro and

in animals.²⁸ If the results of the tests conducted in the search phase are promising, the project may be considered forwarded to the **development phase**.

In the development phase, further animal studies are carried out, until the critical decision of whether or not to start **clinical trials** is made.²⁹ Clinical trials are carried out in cooperation with doctors, normally doctors at hospitals. When a pharmaceutical company and doctors cooperate in conducting clinical trials, the company that initiates, organizes and supports the trial is called the **sponsor**. The doctors who participate in designing and conducting the trials are called **investigators** (Good Clinical Trials Practice. Nordic Guidelines, 1989, 33, 35). Similar formal agreements exist in other European countries.

Notifications of clinical trials conducted in the Nordic Countries are to be made to the national drug regulatory agency. Prior to the start of a clinical trial the conditions for the trial should be reviewed and recommended by a regional ethics committee. The work of the ethics committees is guided by updated versions of the so called Declaration of Helsinki from 1964, which contains recommendations guiding medical doctors in biomedical research involving human subjects (printed in Clinical Trials of Drugs. Nordic Guidelines, 1983, 22-24).

²⁸In vitro tests means studies that are carried out in a laboratory outside a living organism. The purpose of the studies conducted in the search phase is to gather information on the toxicological and pharmacological characteristics of the substance. Detailed guidelines exist for the documentation that is required by the Health Authorities in the in vitro and animal studies (Drug Applications. Nordic Guidelines, 1989, 41-54).

²⁹ Clinical trials can be defined as

"...systematic studies in humans in order to discover or verify the effects and/or adverse reactions of drugs (pharmacodynamics) and studies of the absorption, metabolism and excretion of drugs (pharmacokinetics)."
(Clinical Trials of Drugs. Nordic Guidelines, 1983, 6).

There are four consecutive phases in the clinical trials (Clinical Trials of Drugs. Nordic Guidelines, 1983, 6-7, Drug Monitoring in the Nordic Countries, 1989, 7). In **phase I**, the drug is given to a small number of healthy volunteers or patients suffering from the disease. **Phase II** consists of pilot studies with a small number of selected patients suffering from the disease for which the drug is intended.

In **phase III**, larger groups of patients are included in the trials, to determine the therapeutic effects of the drug and explore the pattern and frequency of adverse reactions. Investigations in phase III are in most cases conducted as controlled trials, frequently as **randomized clinical trials (RCT)**.³⁰

After phase III of the clinical trials, the company must decide whether or not it intends to market the new drug. In order for the drug to be marketed it must be approved and registered as a pharmaceutical speciality by the national drug regulatory authorities (Administrative Procedures of the Drug Regulatory Authorities in the Nordic Countries, 1988).

³⁰A randomized clinical trial is

"a controlled comparison of two treatments whose design uses the techniques of modern statistics." (Miller, 1987, 128).

In a RCT, the subjects are randomly assigned to treatment alternatives. The subjects in the experimental group receive the new drug that is being tried out. The patients in the control group preferably receive a placebo or a reference substance that is already known. It is thus possible to compare the effects of the new drug with existing treatments (ibid, 128-129). In cases where there is no existing treatment, or none of the existing treatments has had any effect, the control group may be given a placebo. A placebo is not believed to have any biological effect on a patient's illness. It is, however, used to control for the improving effect that the patient's believing he/she is receiving a treatment for the illness may have (ibid, 129).

If the registration approval is granted, the product enters a **launching and follow-up stage**. The **phase IV** of the clinical trials is based on studies in general clinical use, after the registration of the drug. In phase IV-studies, the researchers can gain additional knowledge on the efficacy of the drugs and adverse reactions associated with its use. More patients will be exposed to the drug over a longer period than in the premarketing trials, and the possibility for discovering interaction effects between the new drug and other drugs or other influences is greater (Drug Monitoring in the Nordic Countries, 1989, 7-8).

The national drug regulatory authorities can demand withdrawal of a registration, should a drug for example give rise to serious adverse reactions. Also, the manufacturer can withdraw a drug from the market for commercial or medical reasons (Administrative Procedures of the Drug Regulatory Authorities in the Nordic Countries, 1988).

The R&D process in the pharmaceutical industry is extremely time-consuming and costly. Normally, it takes about 10-14 years to develop a new drug. As illustrated in figure 6.1., it has been estimated that out of 10 000 chemical compounds in basic research, about 10 pass to preclinical testing on animals. Among those 10 compounds, one could be expected to become a succesful new product introduction (Corstjens, 1991, 131-134). The R&D costs per new product introduction might amount to \$ 50-100 millions for diagnostics and \$ 250-350 millions for therapeutics (key informant in the company, SCRIP, 1992).

YEARS	STAGE OF THE R&D PROCESS	NO. OF CHEM. COMPOUNDS
1	Basic research	10 000
2		
3	Pre-clinical	10
4	pharmacology ^a	
5		
6	Clinical trials,	5
7	Phase I-III	
8		
9		
10		
11		
12		
13	Application for approval ^b	
14	Introduction of new chemical entity in the market	1
	Clinical trials, phase IV	

^a Tests in animals

^b Applications for approval are filed to the health authorities

Figure 6.1. The Research and Development process in pharmaceutical industry (based on Erickson, 1987, Corstjens, 1991)

6.2 The moral dilemmas

Thirteen of the 15 interviewees gave examples of moral dilemmas in the pharmaceutical industry. The examples amounted to a total of 25. In addition, some of the same examples and 10 others were given by key informants who were interviewed in addition to the 15 systematically selected employees. Most of the examples had a general character, and can not be regarded as specific to the company where the interviews were carried out. Also, the respondents were free to give examples they had experienced in other companies in the industry.

The examples were in most instances closely linked to the work tasks the respondents were responsible for. Since tasks varied by respondents, few examples were mentioned by more than one interviewee. It is therefore difficult to relate the examples to the demographical characteristics of the respondents. In addition, it was considered important to avoid reporting background information that could make it possible to identify individual respondents. There was a tendency for the managers among the respondents to give some more examples on moral dilemmas than the nonmanagers, and for researchers to have a somewhat richer variety of examples than technicians. We could not identify examples that were typical for certain age groups, for females versus males, or for interviewees with a certain length of tenure in the company.

Consequently, in the analysis of the perceived moral dilemmas, the emphasis will be on the ethical principles that are brought into conflict in the situations, rather than what kinds of examples different groups have volunteered with.

The examples will be grouped according to the following categories, which are to some extent overlapping:

- Problems concerning conducting studies in animals and humans,
- Examples illustrating problems of balancing cost efficiency and quality under time and resource constraints,
- Dilemmas related to strategy,
- Dilemmas related to research ethics.

At the end of the chapter, the examples will be linked to the stages in the R&D process in which they occur.

6.2.1. Problems concerning conducting studies in animals and humans

Most of the examples dealt with the fundamental problem of establishing causal relations between the treatment by a drug and the consequences of the treatment,

both in terms of medical effects and adverse drug reactions. Both the preclinical animal studies and clinical trials in humans are carried out in order to reach likely estimates of the effects of the use of the drug (Drug Monitoring in the Nordic Countries, 1989, 7-14). In medical ethics, it is discussed to what extent and on what premises it is morally defensible to involve patients in clinical trials, particularly in randomized clinical trials (RCTs). The Declaration of Helsinki aims at protecting humans who participate in biomedical experiments.³¹

A review of the concrete examples of moral dilemmas given by the respondents reveals a high rate of the examples being related to the consequences of involving animals and humans in trials with new drugs. Several of the respondents stressed the importance of only conducting animal studies that are absolutely necessary. One respondent regarded it as an ethical problem to start clinical trials in cases where administration of the drug is not necessary for the subjects who take part in the study, for example the healthy volunteers. The respondent continued by describing the ethical problems that might arise when the researcher is interested

³¹ From a scientific point of view, RCTs are considered "the optimal method for establishing claims about the safety and efficacy of drugs..." (Gifford, 1986, 348). However, the doctors have an obligation to give the patients seeking medical care a treatment which yields the best possible chances of recovery. This responsibility of the doctors has been called the therapeutic obligation (ibid, 348). If the two treatments used in the experiment do not have the same expected outcomes when the experiment starts, or if interim data indicate that one treatment is superior to the other, the therapeutic obligation is violated (ibid, 348).

Thus, a crucial ethical issue regarding the initiation of RCTs can be stated as:

"Is it justifiable to sacrifice the interests of current patients by making them subjects in an RCT to determine what is most beneficial for future patients?" (Miller, 1987, 135).

In terms of normative ethical systems, the dilemma could be stated as a conflict between the right of current patients to receive the best possible treatment vs. the utility of future patients taking advantage of the new and better drugs that are being developed (Wikler, 1981, 440).

in measuring as accurately as possible the physical parameters, the efficacy and adverse drug effects on the subjects. Such accurate measurement may require instruments which might be burdensome to the patient, for instance an extra catheter to register the effects of a drug on the heart.

The respondent further characterized it as a moral dilemma to judge to what extent the researcher should accept the medication that the patient is currently using, if this medication makes it more difficult to register the effects of the drug being tested out. In these cases more subjects are needed for the studies. As an example from a concrete project, a patient who used a diuretic drug participated in a study. The diuretic drug would have influenced the results of the study. But if this drug were to have been taken away from the patient, the patient's blood pressure would have increased somewhat. The project management in that particular case had decided that the patient should be allowed to continue using the medication also in the period when the experiment was conducted.

In addition, some ethics committees are very restrictive to allow testing new drugs on children. However, testing on children is sometimes required by the health authorities, and some drugs might have effects on children that differ from those on adults (Hovedkomiteen for norsk forskning, 1979). Also, attempts are made to involve old people to a minimum extent in the testing of new drugs.

One respondent came up with the difficulty of discovering possible long-term toxic effects in clinical studies. Another interviewee was concerned with to what extent one should tolerate higher frequencies of adverse reactions - both short term and long term - for drugs that are developed to cure serious illnesses, such as cancer.

Still another respondent commented the problem of whether or not it is ethical to give a placebo. This respondent also mentioned that it is difficult for the project team to know when sufficient information has been gathered for making a decision to discontinue giving the placebo or the treatment that has the presumably weakest medical effect. This problem is also discussed in the literature on ethics in RCTs under when to terminate a clinical trial (Miller, 1987). Generally, a statistical significance level of 5% is required to establish it as likely that the experimental drug has better effects than the reference drug or the placebo. But what if the preliminary results of a trial strongly suggest, but not with a significance level of 5%, that the experimental drug is the better treatment? Should the trial be terminated, and all the patients given the experimental drug? The question is a difficult one, since terminating a project too early can have negative consequences (Gifford, 1986). Other researchers might wish to start similar trials in order to reach more conclusive results. In the long run more patients would be exposed to the risks associated with participating in the research. If the trial were allowed to continue, an initial trend in favor of the experimental drug could turn. Thus, stopping a trial prematurely can cause type I errors (ascribing to a drug effects that it does not have), but also type II errors (a failure to accept effects that are in reality caused by the drug). Both types of errors would result in inferior treatment for future patients (based on Drug Monitoring in the Nordic countries, 1989, 10-11, Gifford, 1986, 348-350, Miller, 1987).

In order to protect the right of the subjects who participate in clinical trials, the principle of **informed consent** has been adopted. Informed consent in clinical trials means that the subjects must give their consent to participate in the trial, based on complete information about the aims of the trial, its risks, benefits and the subjects' rights. One of the rights of a subject is that he or she is free to

withdraw at any time from the trial, without any negative effect on his or her treatment (Clinical Trials of Drugs, 1983, 11, Good Clinical Trial Practices, 1989, 9-10, 32).³²

The ethical aspects of informed consent will not be discussed in-depth here, since informing the patients is the responsibility of the investigators, i.e. the doctors who cooperate with the pharmaceutical company in conducting the trial (Good Clinical Trial Practice, 1989, 9). The company offers the doctors written proposals for the patient information. One of the interviewees regarded it as an ethical problem that the clinical research coordinators of the company do not know to what extent the proposals are being followed in practice.

Two additional examples of moral dilemmas in the relation between clinical research coordinators and the doctors participating in carrying out clinical trials were brought up in the interviews. Sometimes, a research coordinator wishes to discuss questions concerning a project with a doctor, but he/she cannot describe it in detail without revealing confidential information. Furthermore, some of the doctors are researchers themselves, and might be eager to publish results from a study earlier than the company that has developed the drug would be prepared for.

³²In the literature on medical ethics, several ethical issues concerning informed consent in RCTs are discussed (Kopelman, 1986, Miller, 1987). Among them are whether or not subjects should be informed that they will be assigned to a treatment at random, and whether the subjects should be informed of the preliminary results of the trial and have the option of withdrawal (Miller, 1987, 137). The Nordic Guidelines for Clinical Trials state that the subjects should be informed in case a placebo is being used in the trial (Clinical Trials of Drugs, 1983, 11).

In the development phase of the R&D process, clinical trials and additional animal studies are sometimes carried out simultaneously. One of the respondents commented on the interesting dilemma that arises when an adverse event occurs in an animal species. An adverse event is an undesirable event occurring to a subject, whether or not considered related to the drug³³ (Good Clinical Trials Practice, 1989, 31). If the event has occurred in an animal species, the researchers will make efforts to find out whether it is a reaction specific to that animal species, or whether the same reaction could be brought about in humans, as well.³⁴ A normal procedure is then to carry out additional animal studies to gather more information about the potential adverse drug reaction. Sometimes, clinical testing might be stopped while additional animal studies are undertaken. If the additional studies indicate that the drug's potential for creating severe adverse reactions is so high that it cannot be launched on the market, the project can be cancelled.

Stated in terms of the theory on business ethics set forth by Gustafsson (1988), the dilemmas presented so far have involved conflicts between courses of action derived from several ethical norm structures. **Humanity ethics** states that one should protect the integrity of the subjects taking part in clinical trials, and the animals that are used in the studies. On the other hand, humanity ethics also speaks in favor of developing new and better drugs that can benefit people who suffer from diseases in the future.

³³ Should an adverse event occur to a patient participating in a clinical trial, it is important to find out whether the event was a drug related reaction, whether it was caused by the procedures being utilized or by the patient suffering from an illness.

³⁴ The occurrence of an adverse event in an animal species after clinical trials had started was used as "Situation 2" in the experiment in the second phase of the study.

From the point of view of **credibility ethics**, it is important to conduct research that can help us gain knowledge that is as accurate as possible on the characteristics of new drugs. This might conflict with the interests of the subjects participating in trials. Also, it can be argued, based on credibility ethics, that the subjects participating in trials should be given the relevant information about the study. Finally, reasoning based on credibility ethics could be used to deal with the relationship between the sponsoring pharmaceutical company and the doctors participating in conducting the trials. According to principles of credibility ethics, the relationship should be based on honesty and mutual trust, but also on an acknowledgement of the company's legitimate interest in keeping confidential some of the information related to the trial, at least for an intermediate period of time. For instance, RCTs are often conducted as so called double blind studies, where neither the doctors nor the patients know whether the patient is receiving the experimental drug or a placebo/reference drug (Miller, 1987, 128).

The tradition of using a significance level of 5% in clinical trials could be an example of **ritual ethics**.

Norms of **effectivity** imply that a research-oriented pharmaceutical company is dependent upon developing new drugs for which there is market potential at a competitive price. It is definitely in the long term economic interest of the company to develop high quality drugs that have been thoroughly tested, so that products launched on the market have favorable efficacy and low toxicity. This will contribute to gaining trust among the users of the drugs. On the other hand, the R&D process is costly, and cannot last forever. Competitors are often working on developing similar drugs, and it might be of critical importance to be among the first companies to introduce an innovation. Thus, the management of the

company will have to exert time pressure and put limits to the resources used in the R&D process. If such time and resource pressure had not been exerted, many drugs that have benefitted society would probably never have been produced. Still, deadlines and resource constraints also bring about a number of moral dilemmas related to balancing cost efficiency and quality throughout the R&D process. This was clearly illustrated by the examples in the following section, which were given by different interviewees.

6.2.2. Examples illustrating time and resource constraints

In the search phase, the project group that works on the product idea deals with several analogues or variants of a chemical substance. Through conducting animal studies, the members of the project group try to identify the best analogue in terms of efficacy and low toxicity. The presumably best analogue will be transferred to the development phase if the results from the search phase satisfy the criteria set by the company. One researcher regarded it as a moral dilemma to decide when the project group has sufficient information to choose the analogue that is likely to be the best, and stop conducting further studies on the alternative analogues.³⁵

At an even earlier stage of the R&D process, when the company files a patent application, preliminary studies have to be conducted to document that the product idea has a potential for bringing about efficacy. These preliminary studies are called patent examples. Though the patent examples first and foremost are of a technical interest, a researcher reported that sometimes he thought more studies should be conducted to document the examples than what is required by the management of the company and the governmental authorities.

³⁵This example was used as "Situation 1" in the second phase of the study.

Also, one respondent regarded it as difficult to know how long the company should wait before it applies for approval to start testing a new drug on human beings.

After the clinical trials in the stages I-III have been conducted, there is an important turning point in the R&D process. This is when the company applies to the health authorities for approval of the new drug. Naturally, it is in the interest of the company that the application satisfies the requirements set by the health authorities. But according to some respondents, the research front in the leading companies is often ahead of the authorities. In any case, the health authorities might need time to adjust the legislation to technological changes and improvements in research procedures. As a result, the professional ethics of the researchers may set higher quality standards than the requirements by the government. Thus, as formulated by one of the managers in the research organization, the crucial ethical question for a serious company is how much time and resources it should spend on testing a new drug when it is already **in advance of** the standards set by the governments.

In the preceding examples, the company is confronted with how long to dwell on testing before concrete steps in the R&D process are taken: File a patent application, terminate the search phase and enter the development phase, start clinical testing, or apply for approval to get the drug registered as a pharmaceutical speciality. **Effectivity ethics** related to project economy often speak in favor of not dwelling too long before the next step is taken, given that relatively thorough studies on the new drug already have been done. Still, it could sometimes be effective in the long term to delay the process and work further on

testing the characteristics of the substance. Adjustments are more difficult to make after the drug has been released on the market.

Generally, both **credibility ethics** and **humanity ethics** imply that all efforts should be taken to find the best possible drug. However, humanity ethics also prescribes that the amount of animals and humans involved in studies on the new drug should not be greater than necessary.

Dilemmas concerning time and resource constraints also occur connected to **controlling** a new drug and **producing** it. These dilemmas, however, first and foremost occur in intermediate phases of the R&D process. An important function in the company is **control** over the chemical ingredients in the drugs being developed. In particular, it is essential to detect if any chemical impurities which could cause toxicological effects. Since the chemical processes may be new, the analysts must develop new methods to detect the potential unknown impurities. Should a chemical impurity be detected, the analysts will try to separate the impurity and test it in animals to find out to what extent it is toxic. The purity of the substance must be known before the substance is tested out in human beings.

In one of the interviews an analyst raised the ethical problem of deciding how much of the company's resources should be spent on detecting potential unknown impurities, when the requirements of the health authorities already have been satisfied. The analyst gave an example of a substance that had been analyzed with existing methods and believed to be sufficient pure to be produced for clinical testing. But the analysts in the company were working on developing a new method of testing, which indicated that there could still be an unknown impurity in the substance. In order to be sure, the analysts needed more time to further

develop the new method of testing. But if an unknown impurity should have been detected, it would have been necessary to submit the substance for test of toxicity in animal studies. This would have lead to a considerable delay in the project.³⁶

The technical process needed to produce a new chemical substance may be complicated. First, the new substance is produced in small scale batches for animal studies. Gradually, the production is increased to larger batches and longer series for clinical testing. Alternative combinations of the active ingredients and additives have to be tried out to make the first small scale batches stable and reproducible. One respondent reported that if much time pressure was put on the employees who develop the first batches, there is a risk that the optimal way of producing the batches will not be found. Should an impure batch be delivered to animal testing, the results would be erroneous.

When the production of a new substance is increased to a normal operating level for use of in further animal studies and clinical testing, it is advantageous to use existing production equipment until machines and equipment that are especially designed for the new product are available. According to one of the respondents, the ethical judgement to be made is whether the existing equipment, which is not especially designed for the new substance, is safe enough. Also, in the process of producing the substance for testing, it is important to keep the amount of the potentially poisonous emission at a minimum level. Issues of employee safety are most closely related to **humanity ethics**.

One respondent reported that in full scale industrial production, the company's policy is to pollute less than the maximum amounts permitted by the national

³⁶This example was used as "Situation 3" in the second phase of the study.

pollution control authorities. This is both to protect the environment and to provide a safety margin, as the amounts of pollution may vary. Conflicts between **effectivity ethics** and **environmental ethics** could occur when the company decides on how much to invest in reducing the pollution caused by the production processes.

6.2.3 Dilemmas related to strategy

Since the study did not concentrate particularly on marketing, the number of examples of moral dilemmas related to marketing is limited. The general impression from the interviews is, however, that the professionals in the R&D organization are less interested in product adaptations that are done based on marketing and strategic considerations, if they do not lead to improvements in efficacy. An interviewee mentioned special divisible packages and tablets as examples of adjustments in the product design that do not improve the efficacy. Another respondent brought up as an ethical conflict the question of how much resources a company in the industry should spend on developing a new product variant with the same efficacy as products which are already established in the market. The product will not be a major medical improvement, but it could make a strategic contribution.

The examples illustrate strategic decisions done by the management aimed at attracting consumers and positioning the company's product portfolio against that of competitors. They are effectivity considerations which the professionals in the R&D organization often regard as less relevant. Strategic judgements and humanity ethics might also be brought into conflict with each other if the company has a project idea that is medically promising, but offers little market potential.

6.2.4. Dilemmas related to research ethics

Several of the respondents mentioned ethical conflicts that were related to research ethics. One respondent stated that, as in any research project, it might be tempting to interpret the results selectively in favor of the new drug. In such a case self-interest on behalf of the researcher give rise to conflicts with credibility ethics. Also, interpreting the results selectively could undermine the company's position in the market, and thus be against effectivity ethics.

Despite the fact that all the studies conducted in the pharmaceutical industry have to be documented to the health authorities, it is left to the research management of the company to decide upon what should be presented on medical conferences and published. Thus, as stated by one of the respondents, an interesting ethical question is, to what extent disadvantageous results should be published.

One researcher described the difficulties a project group might have in stopping a project that seems to be unsuccessful, when much time and resources have been invested in it. It is more tempting to "try another year" than cancelling the project.

In the literature on behavioral decision-making, this problem is described as the propensity of individuals to escalate commitment to a previously selected course of action that is no longer rational (Bazerman, 1986, 67-80, Staw, 1976, 1981). Several psychological explanations can be given to the phenomenon (for a review, see Bazerman, 1986, 75-80). First, individuals have a propensity to protect the decisions they have made by selectively filtering information that supports the initial decision. Second, humans try to appear consistent in their decision-making, and provide others with information that confirms their initial decisions. Third, the literature on framing of risky problems suggests that individuals tend to be risk-

seeking for negatively framed problems. Rather than cancelling the project and accepting a sure loss of the hitherto invested resources, decision-makers try to recover the initial investments by continuing to allocate resources to the project, even though the two courses of action (cancelling the project/continue allocating resources) would have the same expected outcomes (ibid, 75-78). To continue to invest in projects that have little likelihood of succeeding may be tempting but it is in conflict with effectivity ethics, since it probably will lead to a waste of resources.

One of the interviewees discussed in an ethical perspective two different methods being used to register adverse drug reactions: spontaneous reporting by subjects and direct questioning. Direct questioning is similar to application of a closed-ended questionnaire. The patients go through a pre-specified list of possible adverse drug reactions, and register to what extent they have experienced the symptoms during the test period.

When spontaneous reporting is used, the registration has more in common with an open-ended survey. The subjects are asked to tell if they have had symptoms of adverse drug reactions, without being presented with any pre-specified list. The amount of adverse drug reactions registered is generally higher when direct questioning, instead of spontaneous reporting, is being used. Still, spontaneous reporting is most commonly used in order to mimic a routine clinical situation. It has also been shown that the use of direct questioning may result in the patients over-reporting the amount of adverse drug reactions.

Thus, the common use of spontaneous reporting may have methodological reasons, but the respondent who brought up the dilemma thought it may also have to do

with the potential for marketing a new medicament. If the adverse drug reactions of established products in the market have been registered through spontaneous reporting, and direct questioning is used when testing a new product, the results would not be directly comparable. Actually, there is a possibility that the new medicament would appear to have relatively more severe adverse drug reactions than the established ones, due to differences in the measurement methods. It is likely that the effects of differences in the measurement methods could be difficult to communicate to potential buyers of the new medicament. This could give an incentive to continue using spontaneous reporting, in addition to the above mentioned methodological advantages that a more open dialogue between the doctor and the patient may have.

6.3. The dilemmas related to stages in the R&D process

In figure 6.2. the examples of moral dilemmas that the respondents brought up are grouped according to the stage in the R&D process in which they occur. It is natural that relatively few examples were related to the basic research that is being conducted before the analogues are tested in animals and human beings. The majority of the examples dealt with ethical issues related to clinical trials, a field of applied ethics that has been much focused both in research and in the public debate.

STAGE IN THE R&D PROCESS	EXAMPLES
A. BASIC RESEARCH	<p>A1. How many studies should be conducted at the stage of patent application to document that the product idea has a potential for bringing about efficacy?</p> <p>A2. The detection of chemical impurities</p>
B. PRECLINICAL TESTING (ANIMAL STUDIES)	<p>A3-B1. Problems of making the first small scale batches stable and reproducible - time pressure</p> <p>B2. Only conducting animal studies that are absolutely necessary</p> <p>B3. When does one have sufficient information to choose the best analogue for further testing in animals?</p>
C. CLINICAL TRIALS	<p>C1. When does one have sufficient information to start testing in humans?</p> <p>C2. The administration of a drug in clinical trials to subjects who do not need it</p> <p>C3. Additional measuring instruments to register effects that might be burdensome to the patient</p> <p>C4. Accept current medication that might make it difficult to register effects</p> <p>C5. Testing new drugs on children or old people</p> <p>C6. Difficult to discover long-term effects in clinical trials</p> <p>C7. To what extent should one tolerate higher frequencies of adverse drug reactions for drugs that are developed to cure serious illnesses</p> <p>C8. When to terminate a clinical trial/discontinue giving a placebo</p> <p>C9. Does the investigator give the patients participating in clinical trials sufficient information?</p> <p>C10. A research coordinator cannot discuss a question with a doctor without revealing confidential information</p> <p>C11. Investigator wishes to publish results before the company does</p> <p>C12. An adverse event occurs in an animal species after clinical trials have started</p> <p>C13. When does one have sufficient information to file the registration approval?</p>
D. PRODUCTION*	<p>D1. Safety of the production equipment</p> <p>D2. Keep the amount of poisonous emission at a minimum level</p>
E. MARKETING/STRAT.*	<p>E1. Product adaptations that do not lead to medical improvements</p>
F. RESEARCH ETHICS*	<p>F1. Interpret results selectively in favor of a project</p> <p>F2. Difficult to stop a project that seems to be unsuccessful</p> <p>F3. Should disadvantageous results be published?</p> <p>F4. Should spontaneous reporting or direct questioning be used to register adverse drug reactions?</p>

* Examples could be relevant for several of the stages in the R&D process

Figure 6.2. Examples of moral dilemmas grouped according to stages in the R&D process

As illustrated in figure 6.2., some of the examples had relevance for several of the stages of the R&D process. The first judgements of the market potential of a new product idea are done at the stage of the initial treatment of the idea. The need for market adaptations is continuously considered both in the subsequent stages of the R&D process and through the whole life cycle of a commercialized product. Safety of the product equipment is relevant both when the first small scale batches of a substance are being produced and in full-scale production. Also, the question of when to stop a project that does not live up to the expectations could be brought up at several stages of the R&D process.

6.4. Discussion

Most of the examples dealt with the extent to which the company should make efforts to gaining accurate knowledge on the pharmacological characteristics of the drug, its efficacy and the adverse drug reactions that might be associated with using it. A "minimum efforts strategy" would be to do as much investigation as is required by the public health authorities. It should be noted that such a minimizing strategy would be no easy way to follow. The governmental requirements for the pharmaceutical industry are both detailed and wide-ranging. For example, an inspection by the U.S. Federal Drug Agency (FDA) is regarded as a most demanding test to pass.

Still, there are situations where the standards set by the health authorities have been satisfied, and it is left to the management of the company and the project group to decide how much additional effort should be made. A "maximum efforts strategy" would then be to leave the decision to the professionals involved. Then, they would have to determine how much time and resources should be spent on additional investigations. By such a strategy, the quality standards and accuracy

requirements of the professionals would in some instances be so high that the R&D process would unavoidably be delayed, as the professionals would search for additional information that is of primarily technical interest.

An ethically responsible company, like the one in which this study was conducted, must then try to find a middle way between the "minimum efforts strategy" and the "maximum efforts strategy". In this balancing task, the management of the company is faced with a series of complex moral dilemmas, where a wrong choice may have severe consequences both for patients using the medicament and for the image of the company.

Moral reasoning in favor of a "minimum efforts strategy" is based on effectivity considerations in the company. In addition, humanity ethics related to the animals and subjects participating in trials conducted to test the drug, can be used to argue in favor of not carrying out more studies than necessary. For future patients who could benefit from a new drug, it would be advantageous to get the product released on the market as soon as scientifically defensible.

The long term effectivity, by contrast, could be improved by following the "maximum efforts strategy", in case it would result in the company producing medicaments of higher quality. This would also be in the interests of the future patients. Furthermore, to make maximum efforts to learn about the effects and the characteristics of the drug is consistent with credibility ethics. In controlled trials, a significance level of 5% puts one limit to the information that is normally required - a limit that is in part based on conventions and ritual ethics. Also, arguments concerning environmental ethics could lead to the company spending

considerable resources on reducing the pollution caused by the production processes.

It is the responsibility of the management of the company, both the top management and the management of the R&D organization, to handle the ethical conflicts that arise in the R&D process. An interesting observation made during the discussions with employees and managers in the company was, however, that it was not only the top management that set time and resource constraints on the professionals. Also, members of different professions and different organizational units put pressure on each other to speed up the R&D process. A chemist who has come up with a new idea is eager to get it tested on animals as soon as possible. The researchers conducting pharmacological/toxicological studies in animals would like to see the substance produced in small scale batches immediately, though this might be technically complicated. Further, it may be difficult for the other members of a project team to understand why the clinicians need so much time to test a drug in humans. And in all stages of the R&D process, the researchers and technicians responsible for analyzing and controlling the substances must do their meticulous studies.

Clearly, an understanding among the professionals of the tasks and responsibilities of the members of other professions and organizational units is necessary for the R&D process to progress smoothly. The ethical dilemmas that the members of each profession face are to a high extent similar: To keep up with the ethical standards of the profession under time pressure and resource scarcity.

7. THE EXTENT OF EXPERIENCED MORAL DILEMMAS

7.1. Introduction

Due to the the exploratory character of the first phase of the study and the small sample size, any interpretations of the data are tentative. The results will be presented in two steps. First, we will report the frequencies of the responses to each item. Second, we will explore how the demographic variables (occupational group, managerial position, gender, tenure and age) relate to the extent of experienced moral dilemmas. Frequencies will not be reported for any of the demographic variables, to protect the anonymity of the respondents.

There were ten researchers and five technicians among the respondents. Four out of the ten researchers held managerial positions. Technicians do not have managerial positions in the research organization. Seven of the respondents worked mainly in the development phase of the research and development process, three worked mainly in the search phase and four worked both in the search and development phases. There were eight men and seven women in the sample. Seven of the participants had a shorter tenure than 3 years, and eight had a tenure of 3 years or above. Eight interviewees were younger than 40 years, and seven were 40 years or older.

7.2. Moral dilemmas in the work roles

None of the respondents reported that they had moral dilemmas in the **day-to-day work** above the mean level of a 7-point scale (table 7.1.). Two respondents had never experienced moral dilemmas in their day-to-day work.

The extent of perceived moral dilemmas was somewhat stronger in **concrete projects**, where the highest rating was above the mean level of the scale (table

7.1.). The mean values for all 15 respondents were 2.1 in concrete projects and 1.6 in the day-to-day work. The difference between the means is statistically significant $\{t(13) = -1.99; p=0.07\}$.³⁷ This finding is not surprising, since moral dilemmas in specific projects will be more concrete and have a greater magnitude than dilemmas in the day-to-day work. Therefore, moral dilemmas related to specific projects will also be easier to recall.

Employees that experience moral dilemmas in concrete situations can still be committed to the company. But if an employee continuously feels he/she is not able to resolve severe moral dilemmas related to work with the company, he/she is likely to try to find another job. If he/she had to stay with the company because of lack of alternatives, it is likely that the employee become more committed to the company (Salancik, 1977). Based on theories on cognitive dissonance, increased commitment to the company due to lack of alternatives would contribute to changing the employee's attitudes, so that the attitudes become more consistent with his/her day-to-day behavior in the company. Thereby, the extent of experienced moral dilemmas may be reduced (Festinger, 1957, Kiesler, 1971, Salancik, 1977).

Most of the respondents had never or to a very little extent experienced **conflicts between company expectations and private values** (table 7.1.). The mean value for all respondents of experienced **conflicts between company expectations and professional ethics** was only a little higher than for conflicts between company expectations and private values $\{X[\text{private values}] = 1.5, X[\text{professional ethics}] = 1.8\}$. The difference is not statistically significant.

³⁷ The term $\{X[\text{variabel}]\}$ indicates the mean value of the variabel in brackets.

Ratings	In day-to-day work	In concrete projects	Confl. with priv. values	Confl. with prof. ethics
Never ^a	2	0	2	2
1	6	6	8	7
2	4	4	2	1
3	2	2	1	2
4	0	1	1	2
5	0	1	0	0
6	0	0	0	0
7	0	0	0	0
Mean:	1.6	2.1	1.5	1.8
St.dev:	.76	1.27	.94	1.19

'1': experienced moral dilemmas to a very low extent
 '7': experienced moral dilemmas to a very high extent

^a: For calculation of the means, 'Never' has been coded as '1'

N=14

Table 7.1. Extent of experienced moral dilemmas/value conflicts reported by the respondents

Professional ethics was defined in the questionnaire as the ethical codes and norms of the profession the respondent belonged to (see e.g. Abbot, 1983, 857). The concept of private values was not explicitly define. The interpretation of the item concerning conflicts between company expectations and private values was thereby completely left to the respondent.³⁸ It is likely that the interviewees perceived values as related to their view of life when asked about conflicts concerning private values in an ethical context. One could also expect that a person who has chosen to work in a pharmaceutical company to some extent feels a consistency between the purpose of developing new drugs for the benevolence of people and

³⁸In the literature, values have been defined as "normative beliefs about proper standards of conduct and preferred or desired results" (Fischhoff, Slovic, and Lichtenstein, 1980, Keeney, 1988, quoted in Nystrom, 1990a, 971), and "a rationalized normative system of preferences for certain courses of action or certain outcomes" (Beyer, 1981, 166). Fimbel and Burstein (1990) pointed to the importance of people's religious background in influencing their personal ethics. As an example, they discussed a moral dilemma in which a drug company planned to distribute an abortive product. The vice president of the company, who was a Christian, disapproved of selling the product based on the Sixth Commandment against killing.

his/her personal values. In addition, selection and socialization processes would presumably contribute to creating a coherence between personal values and company norms. Therefore, it is natural that the observed levels of conflicts between company expectations and personal values were low.

On the other hand, one could have expected that conflicts between company expectations and professional ethics should occur to a somewhat higher extent than what was reported by the interviewees, since professional ethics is directly related to the work roles of the employees working with R&D. The inherent conflict between professional and bureaucratic orientations in organizations employing professionals is a widely recognized phenomenon in the organization literature (see e.g. Gouldner, 1957, 1958). A likely explanation for the low reported level of conflicts between company expectations and professional ethics is that such conflicts occasionally occur in concrete project situations, but are to a little extent present in the day-to-day work.

7.2.1. Moral dilemmas in the work roles - discussion

To summarize the results, the respondents reported that they experienced moral dilemmas and conflicts between company expectations and their ethical values to a low extent. This finding can be interpreted in several ways. First, it can indicate that ethical conflicts are few and rarely occur in the pharmaceutical industry. The respondents did, however, give examples of a wide range of important **potential** moral dilemmas in the industry, which decrease the plausibility of this interpretation.

Second, it might be that the management of the company where the study was conducted pays much attention to dealing with ethical issues and gives the researchers a lot of ethical autonomy.

Third, it is possible that the respondents will have a tendency to under-report the extent of experienced moral dilemmas. This would happen if the respondents considered experiencing moral dilemmas socially less desirable. Considering the sensitivity of the research topic the tendency to under-report is likely to be present (Randall and Fernandes, 1991). Moreover, only 15 subjects took part in the first phase of the study. Also, personal interviews, which are less anonymous than mail surveys, were used.

A high ethical standard of the company combined with under-reporting by the employees is the most likely interpretation of the low level of experienced moral dilemmas that was reported. Several of the interviewees reported that the potential for ethical conflicts in the industry in general, and also at their work, was high. Still, they themselves did not report experiencing moral dilemmas to a high extent, due to the ethical policy of the company.³⁹ To the extent that moral dilemmas occurred, they were mostly linked to specific events in concrete projects, and infrequently an inherent part of the day-to-day work.

7.3. Moral dilemmas in relation to the constituencies of the company

The respondents generally reported that moral dilemmas in relation to external actors occurred to a little extent. This finding could be explained by the fact that most of the respondents were nonmanagers. Moral dilemmas related to external

³⁹ A separate question should have been included to cover the relevance of ethics for the pharmaceutical industry in general.

stakeholders can be expected to be more strongly experienced by the managers, since they have the major responsibility for dealing with the external contacts. As many as 13 to 14 of the 15 respondents reported that they had experienced moral dilemmas to a very little extent, or had never experienced moral dilemmas in relation to the following external constituencies: Drug regulatory authorities, competitors, buyers of the products, patients, societal interest groups and researchers/R&D-units in hospitals which the company collaborated with. Included in these numbers are a few respondents who skipped these items and indicated that the items were not relevant for them.

Although only three of the respondents worked in the department of Clinical R&D, six of the interviewees had experienced moral dilemmas in relation to persons who participated in clinical trials (X [subjects in clinical trials]=1, highest reported score '5' on a 7-point scale). Five respondents had experienced moral dilemmas in relation to patients (X [patients]=1.4, all ratings below '3'). Six interviewees reported that they had experienced moral dilemmas in relation to licencees of the company (X [licencees]=1.6, highest reported value '5').

Among the **internal** constituencies (table 7.2.), ethical conflicts occurred to a particularly low extent in relation to **colleagues in the same profession** (X [colleagues in the same profession]=1.3). There was a somewhat higher degree of perceived conflict in relation to **colleagues in other professions** (X [colleagues in other professions]=2.0). The difference between the two mean values is statistically significant ($t(14)=-1.91$; $p=0.08$). This finding could be expected, since moral dilemmas in a research organization will partly have the character of professional disagreement. The research organization of the company is organized according to research areas, which to a great extent coincide with professional

groups. Thus, researchers in one profession often work together as a team within the same department, though the project groups are organized according to a matrix principle with different professions represented. It is likely that the consensus is greater within the academic disciplines represented in the company than between the disciplines. The mean value of experienced moral dilemmas in relation to other organizational units was approximately the same as for colleagues in other professions.

Ratings	Colleagues in own profession	Colleagues in other prof.	Other org. units	Superiors
Never ^a	6	2	3	2
1	7	8	6	5
2	1	1	3	2
3	0	1	1	3
4	1	0	0	1
5	1	3	2	2
6	0	0	0	0
7	0	0	0	0
Mean:	1.3	2.0	1.9	2.3
St.dev:	.80	1.65	1.41	1.49
<p>'1': experienced moral dilemmas in relation to the actor to a very little extent '7': experienced moral dilemmas in relation to the actor to a very high extent ^a: 'Never' has been coded as '1'</p>				
N=15				

Table 7.2. Extent of experienced moral dilemmas in relation to internal actors

Moral dilemmas were experienced to a slightly stronger degree in relation to superiors than to the other internal actors (X [superiors]=2.3). Only four respondents had to some extent experienced moral dilemmas in relation to the sales representatives of the company. Two of the four rated the conflict level as '1', and two as '4' on a seven point scale.

Thus, the results indicate that the employees in the research organization mostly experience moral dilemmas in relation to superiors and colleagues in other professions. It is likely that many moral dilemmas come into existence due to different points of view between professions, and because of conflicts between effectivity considerations mediated by the superiors and other ethical norm structures. Among the external constituencies, moral dilemmas were experienced to some extent in relation to persons participating in clinical trials and licencees of the company.

The analysis of the examples the respondents came up with, shows, however, that the moral dilemmas to a great extent are structurally inherent characteristics of the process of developing new drugs. No manager or doctor can remove the conflict between the rights of the subjects participating in clinical trials to get the best possible treatment, or ignore the welfare of the future patients who can benefit from the medical knowledge accumulated as a result of the trials. This ethical conflict would be present whether the clinical trials were sponsored by a pharmaceutical company, a voluntary organization for supporting cancer research or a university hospital. Therefore, it would be wrong to assume that superiors and colleagues in other professions are causing the moral dilemmas. To a large degree, they are mediating structural conflicts. Still, it is an ethical imperative both for the managers and the professionals who influence and participate in the R&D process to try to solve the moral dilemmas that occur in the best possible manner.

7.4. Findings related to the demographic variables

In this section, we will discuss differences in the extent of experienced moral dilemmas (dependent variable) related to the respondents' occupational group (researchers vs. technicians), level in the organizational hierarchy (managerial position), gender, tenure, and age (independent variables). The results must be interpreted cautiously due to the small sample size and multicollinearity among the independent variables. By cross-tabulating the demographic variables, the following patterns of multicollinearity were detected:

- Four out of the 5 technicians were women.
- Most of the technicians had worked with the company for 3 years or longer, whereas most of the researchers had a tenure shorter than 3 years.
- All technicians were younger than 40 years, whereas more than one half of the researchers were older than 40 years or older.
- Most of the females had a tenure of 3 years or longer, whereas most of the males had worked with the company for a period shorter than 3 years.

In addition, none of the technicians were managers. Due to the small sample size partial analyses were not conducted. Instead, we had to give priority to the demographic variable that would presumably be most strongly related to the extent of experienced moral dilemmas. Though comparisons between technicians and researchers had not been reported in the previously reviewed studies⁴⁰, there were strong reasons to believe that among the demographic variables the respondents' occupational group would be a particularly good predictor of the extent of perceived ethical conflict. The work of the technicians is more likely to be product-oriented than that of the researchers. The researchers perform more

⁴⁰ In the survey of marketing researchers conducted by Hunt, Chonko, and Wilcox (1984), the respondents' job title was registered (junior analyst, analyst, assistant manager/director, manager/director, vice president, president/owner). The distinction between junior analyst and analyst could be comparable to the technician-researcher distinction. Still, no direct comparisons between junior analysts and analysts were reported in the Hunt, Chonko, and Wilcox-study.

complex tasks and have more responsibility, and are therefore likely to deal with ethical decisions to a greater extent. In addition, researchers have a longer education and more clear professional codes and norms than technicians. Technicians are likely to have been trained in a more mechanistic, straight-forward way of thinking. On this background, the findings on occupational group will be reported first, followed by managerial position, gender, tenure, and age.

7.4.1. Occupational group (researchers vs. technicians)

As expected, researchers reported systematically higher levels of experienced moral dilemmas and value conflicts than technicians (table 7.3.).⁴¹ The difference between the mean ratings of the two occupational groups was statistically significant for the question dealing with conflicts between company expectations and professional ethics. In fact, the technicians reported that they had never or only to a very little extent had conflicts with their professional ethics {X [researchers]=2.2, X [technicians]=1.0; $t(8)=2.8$; $p=0.02$ }. There was also a significant difference between the extent to which researchers and technicians experienced moral dilemmas in relation to superiors {X [researchers]=2.7, X [technicians]=1.4; $t(12.5)=2.0$; $p=0.06$ }.

⁴¹ Two-tailed t-tests were used to analyze the extent of experienced moral dilemmas in groups of the nominal demographic variables (occupational position, managerial position, gender). For age and tenure (ordinal-scale variables) Spearman's rank correlation coefficient was calculated. In addition, the mean values of the extent of experienced moral dilemmas in the different categories of age and tenure were inspected. The results have been analyzed by procedures in SPSS-X (1988).

	Researchers		Technicians	
	Mean score	Standard dev.	Mean score	Standard dev.
1. Moral dilemmas in the day-to-day work (ns)	1.7	.87	1.4	0.55
2. Moral dilemmas in concrete projects (ns)	2.2	1.30	1.8	1.30
3. Conflict between company expectations and private values (ns)	1.7	1.12	1.2	0.45
4. Conflict between company expectations and professional ethics (**)	2.2	1.30	1.0	1.00
5. Moral dilemmas in relation to colleagues in the same profession (ns)	1.4	.97	1.0	.00
6. Moral dilemmas in relation to colleagues in other professions (ns)	2.2	1.93	1.6	.89
7. Moral dilemmas in relation to other organizational units (ns)	2.0	1.63	1.6	.89
8. Moral dilemmas in relation to superiors (*)	2.7	1.57	1.4	.89
Two-tailed tests				
*	T-test statistically significant at the 0,10 alpha level			
**	T-test statistically significant at the 0,05 alpha level			
***	T-test statistically significant at the 0,01 alpha level			
ns:	Not statistically significant			
N=14 for the items 1 to 4, N=15 for the items 5 to 8				

Table 7.3. Extent of experienced moral dilemmas by occupational group

7.4.2. Managerial position

Managers reported a higher ethical conflict level than subordinates on all items except for conflicts between company expectations and professional ethics. The mean scores of the managers were, however, relatively low. They were all below the medium level of 4 on the 7-point scale. The results must be interpreted cautiously, for there were only 4 managers in the sample. None of the differences between the mean ratings of managers and subordinates were statistically

significant. The extent of experienced moral dilemmas for managers were most pronounced in concrete projects, and in relation to superiors and colleagues in other professions (mean values between 2.8 and 3.3).

These results would indicate that the responsibility for complex decisions attached to the managerial roles may result in the managers' experiencing moral dilemmas more strongly than subordinates. However, nonmanagers felt the same conflict level as managers between company expectations and professional ethics. As stated in the beginning of chapter 7, all managers in the company were also researchers. Furthermore, the researchers who were subordinates experienced even somewhat higher conflict levels with their professional ethics than the managers (X [researchers/subordinates]=2.6, X [managers]=1.8), the difference is not statistically significant). This result could indicate that the nonmanagers among the researchers identify themselves more strongly with their professional roles than the researchers who have managerial positions, even though it is likely that the managers have been selected based on their senior researcher performance. Consequently, the managers are influenced in two directions: On the one hand, they might identify more strongly with the values of the firm and the ethics of the managerial profession than the subordinates, who presumably have a purer professional role orientation (Powers and Vogel, 1980). On the other hand, managers may experience stronger conflicts with their personal ethical values, since they have greater responsibility for more complex decisions than nonmanagers. This interpretation would be consistent with the argument put forward by Smith and Carrol (1984), according to which professionals employed by large organizations will focus on cultivating their specialization, and try to "delegate" ethical responsibility to their managers (ibid, 99).

In this study, only first-level managers were interviewed. Therefore, the results on the relation between managerial position and perceived ethical value conflicts cannot be directly compared to the findings of Harris (1990) and Posner and Schmidt (1984) to the effect that top managers feel a lower pressure to compromise their values than middle and first-level managers.

7.4.3 Gender

On most of the items, males experienced to a somewhat higher extent ethical conflicts than females. This finding may, however, be due to most of the technicians being women.⁴² Thus, the results do not reveal any conclusive pattern in terms of how males and females experience moral dilemmas. This result is in accordance with those of the previous studies that have found few differences between the ethical values of males and females (Fimbel and Burstein, 1987, Hegarty and Sims, 1978, 1979, Kidwell, Stevens, and Bethke, 1987, McNichols and Zimmerer, 1985, Tsilakis and Ortez-Buonafina, 1990). The findings do not lend support to the so-called "gender-socialization" approach (cf. chapter 3.2), according to which females should be more sensitive towards ethical issues than men, as indicated in some previous studies (Akaah, 1989, Betz, Connel, and Shepard, 1989, Ferrel and Skinner, 1989, Jones and Gautschi, 1988, Kelley, Ferrel, and Skinner, 1990, Ruegger and King, 1992, Shepard, and Hartenian, 1991). A follow-up investigation with a larger sample would, however, have been needed to explore the relationship between gender and ethical values more in-depth.

⁴² Only one of the differences between the mean ratings of the genders was statistically significant. Males had conflicts between company expectations and professional ethics to a significantly stronger extent than females {X [males]=2.5, X [females]=1.3; $t(7)=2.0$, $p=0.09$ }. As discussed in chapter 7.4.1., the technicians had also reported a statistically significant lower level of conflict with professional ethics than the researchers.

7.4.4. Tenure

Tenure was on most of the items negatively correlated with the extent of experienced moral dilemmas.⁴³ This result may indicate that the perceived ethical conflict is greatest for those who have the shortest length of service in the company. A likely explanation would be that a socialization process takes place, such that the employees gradually adapt to the ethical values of the company. As expressed by one of the key informants in the company, it takes some time before the newcomers, who have their professional background in the natural sciences, get used to being in a business organization. However, the overrepresentation of technicians in the group with the longest tenure could serve as an alternative explanation of the findings.

7.4.5. Age

There was a tendency for the older respondents to perceive somewhat higher ethical conflict levels than the younger ones⁴⁴. This result could, however, be due to the overrepresentation of researchers in the age categories above 40 years. In addition, there were few respondents in each age category, e.g. only two of the

⁴³ The respondents with the longest tenure experienced a significantly higher extent of experienced moral dilemmas in the day-to-day work (Spearman's $r=-.50$, $p=.07$) and in relation to colleagues in the same profession (Spearman's $r=-.55$, $p=.03$). Also, there was a statistically significant correlation in the same direction between tenure and perceived conflicts between company expectations and professional ethics (Spearman's $r=-.60$, $p=.02$). The results should, however, be cautiously interpreted. There were few respondents in each of the six categories of tenure. The mean value of the ratings in a single tenure category was not higher than 3.0 on a seven-point scale for the above mentioned items.

⁴⁴ There was a statistically significant rank correlation between age and the extent of experienced moral dilemmas in relation to superiors (Spearman's $r=.60$, $p=.02$) and other organizational units (Spearman's $r=0.59$, $p=.02$). In addition, the older respondents perceived a significantly higher ethical conflict level with professional ethics than the younger respondents (Spearman's $r=.46$, $p=.10$).

interviewees were 50 years or older. Therefore, we will not draw any conclusions about the relationship between age and the extent of experienced moral dilemmas based on this study.

7.4.6. Demographic variables - conclusion

Due to the small sample size and the confound between the demographic variables, it is difficult to assess the impact of the demographic variables on the extent to which moral dilemmas were experienced. Managers, researchers, newcomers, the oldest respondents⁴⁵ and males perceived the highest levels of ethical conflicts. A likely interpretation of the results is, however, that the occupational group the respondent belonged to (researchers vs. technicians) best explained the differences in the extent to which moral dilemmas were perceived. Based on the low ratings of perceived moral dilemmas by most of the technicians, and their limited influence in the project groups, it was decided not to include them in the second phase of the study. In the second phase, however, the opportunity was used to further explore the relationship between tenure and ethical decision-making. Also, autonomy, as a substitute measure for managerial position, was included in the second phase of the study.

⁴⁵There was no association between the respondents' age and tenure.

8. HYPOTHESES

At this stage, we have developed a conceptual model based on the logic that decision-making in moral dilemmas will be influenced by situational and individual factors. The moral dilemmas we will study are related to the research and development process in a pharmaceutical company, and constitute situations where there is a choice between conducting or not conducting additional studies under time and resource constraints. Generally, we would expect that being in favor of conducting additional studies reflects an emphasis on professional ethical considerations, whereas preferring not to conduct additional studies reflects an emphasis on effectivity considerations. In this chapter, we will set forth some hypotheses on the relationship between the independent situational and individual variables, and the dependent variable, the propensity to prioritize effectivity vs. professional ethical considerations in moral dilemmas. These hypotheses will later on be tested empirically to gain increased knowledge on factors influencing decision-making in moral dilemmas related to R&D.

Hypotheses 1 through 3 address the influence of the situational variables, role expectations from superiors and market situation on the propensity to take effectivity considerations. Hypothesis 4 focuses upon the interaction effect between role expectations from superiors and organizational commitment on the decision-making, whereas hypothesis 5 concerns the relationship between professional commitment and the choice of decision-alternatives. Hypotheses 6 and 7 address the relationship between autonomy (H6) and tenure (H7) and the propensity to be in favor of conducting additional studies.

HYPOTHESIS 1:

Role expectations from superiors emphasizing time and resource constraints will decrease the propensity to be in favor of conducting additional studies.

According to social learning theory, role models may have an influence on ethical behavior (Trevino, 1986, Trevino and Youngblood, 1990). In daily work behavior, employees are more likely to imitate the behavior of a manager than a peer, since those holding managerial positions normally have status, experience and prestige (Manz and Sims, 1981, 109). In addition, superiors can use rewards and punishments to directly reinforce the kind of ethical behavior they find most appropriate (ibid, 109).

Stated in the terminology of theories of social power, superiors can use various power bases to influence the behavior of their subordinates; the power to reward and punish, legitimate power, expert power and reference power (French and Raven, 1959).

In the literature on ethical decision-making there is a relatively strong agreement on top managers' having a great potential to influence ethical behavior in organizations. Carrol (1975) found that young managers would be loyal to their superiors in matters related to judgement of morality (Carrol, 1975, cited in Ferrel and Weaver, 1978). The studies of Akaah and Riordan (1990), Baumhart (1961), Brenner and Molander (1977), Brief, Dukerich, and Doran (1991), Hegarty and Sims (1979), Hunt, Chonko, and Wilcox (1984), and Posner and Schmidt (1984) also indicate that top managers have an impact on ethical decision-making behavior.

We do, however, know relatively little about explicitly how the role expectations from superiors should be formulated to influence decision-making in moral dilemmas (Brief, Dukerich, and Doran (1991).

HYPOTHESIS 2:

Effectivity considerations will be more pronounced when the market situation is unfavorable than when the market situation is favorable.

The basis for this hypothesis is the argument put forward by Staw and Szwajkowski (1975) that when the environment is scarce, it is more important for a company to acquire additional resources than when the environment is munificent. Thus, a company is likely to pay more attention to saving costs when the intensity of competition in the market is high, than when it is low and when the financial performance of the company is not good. Also, to the extent that there is a conflict between professional ethical considerations and effectivity, it is expected that professional ethics will have to be compromised to a greater extent when the company has a weak position related to its competitors than when the position is strong. The hypothesis is supported by the findings of Staw and Szwajkowski (1975) and Hegarty and Sims (1978). Dubinsky and Ingham (1984) did not, however, find any relation between intensity of competition and ethical decision-making.

HYPOTHESIS 3:

Role expectations from superiors emphasizing time and resource constraints will have a greater influence on the propensity to emphasize effectivity considerations when the market situation unfavorable than when the market situation is favorable.

In this hypothesis we suggest that there will be an interaction effect between role expectations from superiors and the market situation on the propensity to be in favor of conducting additional studies. The rationale for the hypothesis is that pressure put on employees to follow role expectations emphasizing cost saving is likely to be stronger when the company is in a difficult market position than when the market position is good.

HYPOTHESIS 4:

Organizational commitment will be more strongly related to the propensity to emphasize effectivity considerations when there are role expectations from superiors stressing time and resource constraints than when no explicit role expectations from superiors are sent.

We assume that there will be an interaction effect between role expectations from superiors and the organizational commitment of an employee. As discussed in chapter 4.3.2., employees with a high level of affective organizational commitment have been hypothesized to have a strong identification with the organization and its goals. In a conflict situation, they could let corporate dictates override their own ethics or societal dictates. This line of reasoning has on theoretical grounds been put forward by Randall (1987, 466), but has hitherto not been tested empirically.

When an employee identifies himself/herself with his superiors, the employee's orientation of involvement in the organization is what Etzioni (1975) has called **moral** (Griffin and Bateman, 1986, 167). Then, superiors have a strong potential for influencing the employee's behavior through the use of referent power (Raven and Kruglanski, 1970). Since the use of referent power is likely to have a great potential for changing attitudes and behavior (Raven and Kruglanski, 1970), the possibility of superiors' achieving conformity to norm pressure in moral dilemmas should be the strongest with the highly committed employees, who identify themselves with the organization.

The cost-induced, so-called continuance commitment (cf. chapter 4.3.2.), closely fits the **calculative** orientation of involvement in the organization identified by Etzioni (1975). The use of rewards and punishment become more important bases for power, and the potential for exerting referent power is weakened. It has been argued that affective, continuance, and normative commitment develop somewhat independently of each other, so that employees can experience each of the three commitment components to some varying degrees (Allen and Meyer, 1990, 4). Still, it is likely that if an employee has a low level of affective commitment, the employee's orientation of involvement in the organization is primarily calculative or alienative (Etzioni, 1975). Thus, referent power will have the strongest potential for influencing the behavior of employees who have a high level of affective organizational commitment.

HYPOTHESIS 5:

The higher the professional commitment, the greater the propensity to be in favor of conducting additional studies.

The rationale behind this hypothesis is that in situations where there is a potential conflict between effectivity considerations and professional ethics, employees who are highly committed to professional norms and skills, and have other professionals as an important reference group, are more likely to emphasize professional ethics than employees with a low professional commitment. It is likely that an emphasis on professional ethics will be positively associated with the propensity to be in favor of conducting additional studies under time and resource constraints.

HYPOTHESIS 6:

The higher the autonomy, the greater the propensity to emphasize effectivity considerations.

In the first phase of the study, we found that the researchers who were subordinates felt somewhat higher conflicts between company expectations and professional ethics than researchers with managerial positions. This lead us to hypothesize that the researchers who were subordinates identified themselves stronger with their professional roles than the managers. Managers, on the other hand, may identify themselves stronger with the values of the firm and the managerial profession than subordinates. As discussed in chapter 8, autonomy will be used as a substitute measure for the employee's hierarchical position in the organization. We could then expect that researchers with the highest autonomy will pay most attention to the managerial norms of effectivity. Consequently, they will have the lowest propensity to be in favor of conducting additional studies.

On the other hand, if it is the best researchers that are recruited as managers, there is a possibility that managers will emphasize professional ethical considerations more than nonmanagers. In this case, researchers with a high autonomy would probably be more in favor of conducting additional studies than those with a low autonomy.

HYPOTHESIS 7:

The higher the tenure, the lower the propensity to be in favor of conducting additional studies.

With increasing tenure the researchers are likely to get socialized into company values emphasizing effectivity considerations. The findings in the first phase of the study to the effect that the extent of experienced moral dilemmas was greatest for the respondents with the shortest length of service would support a prediction based on socialization to business norms. At the same time, working on highly scientific projects in the company might increase the commitment to professional norms (Sheldon, 1971). In the latter case, we would expect that the researchers with increasing length of service would emphasize more professional ethical considerations, and be more in favor of conducting additional studies.

9. DESIGN OF THE SECOND PHASE OF THE STUDY

9.1. Introduction

The purpose of this chapter is to describe the research method that was used to empirically test out the hypotheses set forth in the preceding chapter. First, the design of the experimental study will be presented. Then, a description of the sample and data collection procedure will be given. The final section gives a detailed description of how the variables have been operationalized.

9.2. Experimental design

The second phase of the study was conducted as an experiment. Researchers and managers of the chosen companies served as subjects. The experiment followed a 2x2-factorial design, with manipulation of role expectations from superiors (no explicit expectations, time and resource constraints stressed) and the market situation (favorable, unfavorable) of the company. Thus, a causal design was chosen. Even if the design could be characterized as a causal design, the second phase of the study should be regarded as basically explorative in nature. There are relatively few previous studies testing similar hypotheses, and only one experiment in a single company was conducted.

A questionnaire was used to collect the data. The questionnaire was structured, but had in addition a few open-ended questions. The treatment groups were randomly assigned to one of the four treatments, i.e. to the questionnaires with different manipulations of the market situation and superiors' role expectations (figure 9.1.).

		ROLE EXPECTATIONS FROM FROM SUPERIORS	
		NO EXPLICIT EXPECTATIONS	STRESSING TIME AND RESOURCE LIMITS
MARKET SITUATION	FAVOR- ABLE	G1	G2
	UNFAVOR- ABLE	G3	G4

Figure 9.1. The treatment groups in the experiment

The questionnaire (Appendix 5) consisted of two sections. In the first section, the participants were given one of two versions of a scenario, describing a pharmaceutical company with its market situation. Next, three decision situations were presented, where there could be a conflict between effectivity considerations and professional ethics. Each situation was described in two different versions. One version contained explicit role expectations from superiors, that exerted norm pressure on the professionals. Another version had no explicit role expectations. A manipulation check followed after the three decision situations. In the manipulation check, the respondents were asked to what extent they felt pressure from the management in the three situations, and to what extent they perceived the market situation as being good.

The second section of the questionnaire contained items to measure the respondents' organizational commitment, professional commitment and job autonomy. Since ethical questions are of a highly sensitive character, protecting the respondents' anonymity was given priority. Therefore, the only demographic variable that was registered was tenure.

9.3. Sample and data collection procedure

The sampling frame was all the researchers and the first and second level managers in the company's research units. The sampling frame was defined by the research administration's mail distribution list for researchers and managers. Persons who had been interviewed in the first phase of the study were not asked to participate in the experiment. Based on the low level of experienced moral dilemmas expressed by technicians in the first phase of the study, this occupational group was not included in the second phase.

The researchers and managers were asked to participate in an experiment on ethical decision-making in a letter that was distributed five weeks before the experiment was going to take place. The letter was signed by the academic researcher. Enclosed was a letter from the company's Vice President of Personnel and the Vice President of Research, encouraging participation in the study. A reminder letter was distributed ten days before the scheduled date of the experiment. For practical reasons, the experiment was conducted in two separate sessions during the same day, one session for the research coordinators and managers belonging to the clinical research unit, and one session for the researchers and managers in the other research units.

The mail distribution list of researchers and managers contained ca. 100 names. Among the 100, ten had participated in the first phase of the study, and one person had been interviewed separately as a key informant. Thus, the size of the targeted population was estimated to be 90 persons. No sampling was done. All members of the targeted population were contacted.

On the day the experiment was scheduled for, a total of 33 persons participated in the two sessions. The academic researcher gave a short oral introduction into the experiment, and a debriefing session followed after all the subjects had completed their questionnaires. Each session took ca. 1 1/4 hours.

In order to increase the number of respondents, some of the participants took with them questionnaires and gave them to colleagues who had not been present. These questionnaires were to be returned by internal mail to the secretary of the Vice President of Personnel. In addition, it was decided, in cooperation with the company, to distribute the questionnaires to all the researchers and first and second line managers again, so that those who had not been able to participate on that particular day could also have a possibility to respond. The questionnaires were distributed by company internal mail the day after the experiment was conducted. A letter from the academic researcher explaining the purpose of mailing the questionnaires was enclosed. Those who had already participated in the experiment on the day before, and those who had been interviewed in the first phase of the study, were asked to ignore the questionnaire. Those who had not participated before were asked to return the questionnaire by internal mail to the secretary of the Vice President of Personnel, or to mail them directly to the researcher.

The additional number of managers and researchers who returned the mailed questionnaires was 26. Thus, the total number of subjects participating in the experiment amounted to 59, yielding a response rate of 66%.

The distribution of respondents on the tenure variable is shown in table 9.2. About 2/3 of the respondents had a tenure shorter than two years. It was confirmed by the Vice President of Personnel that the tenure distribution of the respondents was

approximately representative for the total population of managers and researchers in the company. However, the exact tenure distribution of all the researchers and managers was not made known to the academic researcher.

Length of service	Number of respondents
< 2 years	22
2-< 4 years	20
4-< 6 years	4
6-< 8 years	3
8-< 10 years	7
≥ 10 year	3
Total	59

Table 9.1. The tenure distribution of the respondents

The results of the study were discussed twice with the ethical council of the company, in a meeting with the management group of the company, and in an information meeting where all the researchers and managers who had participated in the experiment were invited.

9.4. Operationalization of variables

In this section we will explain how the theoretical constructs in the research model were operationalized.

9.4.1. Role expectations from superiors

Role expectations from superiors were operationalized by signals from the management emphasizing time and resource constraints. The signals were built

into each of the three decision situations.⁴⁶ A brief description of how the superiors' role expectations were formulated is given below. A complete description of the role expectations is printed in **bold** in each of the three decision situations, as they are described in chapter 9.5.

In the first decision situation, the role expectations were given by the Vice President of Research, who stressed the importance of entering a product idea from the search phase into the development phase soon, since a competitor was working on a similar product idea. According to the Vice President of Research, the project would get approval for continuing in the development phase and additional resources based on the results that were available.

In the second situation, the pharmaceutical company and a licensee were conducting clinical trials on a new product simultaneously, when an adverse drug reaction occurred in an animal species. In this situation, the norm pressure was that the management of the company mediated to the project group the licensee's concern of getting the product approved for registration as soon as possible, without conducting additional testing.

In the third situation, the management of the company was concerned about a project that was behind its time schedule, and expressed scepticism towards any further delays in the project due to additional adjustments of a new test method that had been developed.

⁴⁶ As described in chapter 9.2, the treatment groups were randomly assigned to one of the four treatments, i.e. to questionnaires with different manipulations of the superiors' role expectations and the market situation. Thus, only two of the four treatment groups had superiors' role expectations built into the decision situations.

9.4.2. The market situation

The market situation was operationalized as a dichotomous variable by two different scenarios of the company. In the first scenario, the company was described as having a strong market position and paying importance to ethical considerations. In the second scenario, the company was characterized as having a weak market position and strictly emphasizing effectivity considerations. The two scenarios are described below.

Scenario 1 ('favorable market situation')

"In this section we ask you to judge how you would personally have acted in three decision situations, if these situations had really occurred. The conditions for the company are as follows, and we ask you to take this into consideration when you judge the three decision situations.

You are working with R&D in a pharmaceutical company. The company is part of a corporation with a relatively great variation in its activities. The pharmaceutical company has had a rather good return on its investments in R&D. In recent years it has strengthened its market position considerably both in its home country and abroad through growth and acquisitions, and is often considered the flagship of the corporation.

The management of the company has, with support from the management of the corporation, traditionally emphasized the ethical aspects of the activities of the company. This has been based on the attitude that it is important for pharmaceutical industry to be socially responsible. The management's philosophy is also that a high ethical standard will increase consumers' and public authorities' confidence in the company, and contribute to create long-term profitability. Respect for the personal integrity of the employees and professional ethical judgements are important elements of the corporate culture."

Scenario 2 ('unfavorable market situation')

"In this section we ask you to judge how you would personally have acted in three decision situations, if these situations had really occurred. The conditions for the company are as follows, and we ask you to take this into consideration when you judge the three decision situations.

You are working with R&D in a pharmaceutical company. The company is part of a corporation with a relatively great variation in its activities. The pharmaceutical company had for a long time a quite good return on its investments in R&D. It gained a strong market position both in its home country and abroad through growth and acquisitions, and was considered the flagship of the corporation. But in recent years the trend has turned. It appears that the value of

the product ideas in some the companies that have been acquired abroad have been considerably overestimated. In some of the internal development projects, competitors have managed to be the first on the market. In addition, the company has not sufficiently emphasized generating new product ideas that could give long-term renewal.

With the market conditions that the company is facing the management of the company and the corporation strictly emphasize the principle of profitability."

9.4.3. Organizational commitment

The Organizational commitment questionnaire (OCQ) developed by Porter, Steers and Mowday (for overviews, see Mowday, Porter and Steers (1982) and Mowday, Steers and Porter (1979) was used to measure organizational commitment. The questionnaire consists of 15 items (questions 13-27 in section II of the questionnaire, Appendix 5). The items were translated into the language of the Nordic country in which the study was conducted.

9.4.4. Professional commitment

The scale for measuring professional commitment consisted of eight items, rated on a 7-point scale. Five items were adapted from a scale used by Miller and Wager (1971) to measure professional orientation among scientists and engineers (questions 1, 4, 5, 6, 8 in section II of the questionnaire, Appendix 5). Three items were developed by the academic researcher in collaboration with key informants in the company and one of the committee members (questions 2, 3, 7 in section II of the questionnaire).

9.4.5. Job autonomy

Job autonomy was measured by four items, based on parts of a modified version of the Job Diagnostic Survey (JDS, see Hackman and Oldham, 1975) used by Rousseau (1977). One item was used without significant changes in the formulation (question 9 in section II of the questionnaire, Appendix 5). The three

remaining items (questions 10-12 in section II of the questionnaire, Appendix 5) were developed by the academic researcher in collaboration with one of the committee members and key informants in the company. However, also these three items were more specific formulations of one of the job characteristic items used by Rousseau, namely the item 'The job gives me considerable opportunity for independence and freedom in how I do the work'. All the items were translated into the language of the Nordic country in which the company was located.

9.4.6. Tenure

Tenure was measured by two-year intervals for employees with length of service up to nine years. A separate category was made for those with a length of service of ten years or more. For the purposes of data analysis, it would have been better to measure the tenure in one-year intervals, thus obtaining a rating-scale variable. Still, we preferred to develop the ordinal-scale variable in order to reduce the possibility of identifying respondents, in particular those with a long tenure.

9.4.7. Decision-making in moral dilemmas

Immediately after the scenarios describing the pharmaceutical company and its market situation, the subjects were presented with three different decision situations that their colleagues had identified as moral dilemmas in the first phase of the study. In each situation, there was a conflict between effectivity considerations and professional ethics. The subjects were asked to assess on a 7-point scale the probability that they "definitely would" or "definitely would not" choose the decision alternative most consistent with professional ethics. In addition to this structured way of rating the choices of decision alternatives, the subjects were asked in open-ended questions to give their supplementary comments to each choice.

To check the content validity of the three decision situations, the subjects were asked to rate on 7-point scales to what extent they perceived each situation as being a moral dilemma, and to what extent professional ethical judgements came into consideration.

The three decision situations are described below. In each situation, the manipulation of role expectations emphasizing time and resource constraints is printed in **bold**.

Situation 1

You are working on a project in the search phase, where several analogues have been developed based on a product idea. The substances have been tested in simple animal experiments. One of the substances seems to be somewhat better than the others, even though there is not a complete agreement in the project group on the interpretation of the data. The project group is now considering entering the development phase. Even though the test results so far are generally good, it is uncertain based on the available data that the analogue that the project group intends to continue with it is actually the best one.

The project leader has got signals from the Vice President of Research that it is important to launch a product on the market soon, since a competitor is also working on a similar product idea. In addition, the Vice President of Research does not consider it likely that better analogues will be found. To the project leader the Vice President of Research has indicated that the project will get approval for continuing and increased resources based on the already available results.

In a meeting in the project group, a decision is to be made of whether to apply for approval to enter the development phase now, or wait until other analogues have been investigated. You are asked to give your personal opinion of what you think would be the best.

In this situation, how likely is it that you would go for conducting more studies with the analogues?

(No, absolutely no more studies = 1

Yes, absolutely more studies = 7)

Situation 2

You are working with the same company on a project that has come to clinical trials, phase III, and expect that it will last 1/2 year until the company can apply for approval to get the product registered. The substance has been very promising so far, both in animals and human beings. One hundred percentage of the substance is separated in unmetabolic form through the kidneys. But in an animal experiment that is being run simultaneously with the clinical trials, it has been discovered that the substance has a tendency to accumulate in the liver, and 10% is separated through the gall. Everything points to the tendency being limited to this particular animal species, and that there is no danger that something similar should happen with human beings. If, however, the accumulation should occur in human beings, materials that are parts of the substance could change their toxicity. The risk that the substance should cause danger for the subjects participating in the trials is by a unified project group considered to be so small, that the clinical trials will not be stopped. Still, there is disagreement about whether the phase III-trials should be expanded compared to the original plans in order to investigate whether signs of accumulation effects could be found in a sample greater than the one originally planned. This would extend prolongue the development phase for 1 1/2 year.

A foreign licensee is simultaneously conducting clinical trials on the product. The licensee has planned to finish its trials within 1/2 year, and then apply for approval to get the product registered. The management in the company you are working with informs the project group that the licensee will consider an extension of the clinical trials, with the result of delayed application for registration approval, most inconvenient. The licensee does not see any reason for conducting more trials to test the accumulation effects. The licensee expects that the FDA standards of documentation will have been fulfilled within 1 year, and regards this as sufficient.

In a meeting in the project group, you are asked to judge whether the trials should be expanded in phase III, or continued according to the original schedule.

In this situation, how likely is it that you would go for deviating from the original plan, and conduct additional testing?

(No absolutely not additional testing = 1

Yes, absolutely additional testing = 7)

Situation 3

You are working with the same company on a project early in the development phase. The preclinical testing is about to be finished, and has been very promising. But recently there has been some disagreement in the project group. The chemists who are working with synthesis and process development have worked out a new process method which they firmly believe is better than the one that has been used before. The synthesists are ready to start escalating the production to the substance quantities that will be needed for human testing as soon as possible, so that substance from the escalated production can be analyzed in the near future.

The participants in the project group from Chemical analysis/control, however, have another opinion. They have analysed the first batches that have been produced following the new process, both with established methods and with a new method that has recently been developed in the department. The preliminary results with established analysis methods indicate that the new process gives greater purity than the process that has been used until now. Based on the test results with the established analysis methods, nothing should prevent the group from starting escalating the production immediately. But the new test method that the Chemical analysis/control department has developed, gives substantially less certain results. The members of the project group from Chemical analysis/control believe that the new analysis method indicates that they have traced a hitherto unknown impurity. In order to reach more conclusive results, the members from Chemical analysis/control ask for three months additional time to develop the new test method and try it on the substance, before large-scale production is started.

There is agreement in the project group that one should not apply for approval to start clinical trials until substance from the new process has been more closely analyzed. The disagreement concerns whether to wait until the Chemical analysis/control department has further developed its new test method, or whether to rely on the established test methods. If the suspicions that the new test method could uncover a hitherto unknown impurity should turn out to be correct, the impurity has to be tested separately for toxicity in animal studies. The total delay of the project could be two to three years.

The management of the company is somewhat sceptical of such an extension, since the project is already behind its planned schedule. It is calculated that the new drug would start producing sales income in the year of 1993.⁴⁷

In this situation, how likely is it that you would trust the established test methods, and not wait until the Control/analysis department has developed its new test method?

(No, absolutely not wait for the new analysis method = 1

Yes, absolutely wait for the new analysis method = 7)

⁴⁷ The study was conducted in Spring, 1990.

10. VALIDATION

10.1. Introduction

In this chapter we will discuss to what extent the selected research design allows for obtaining valid results. The discussion will be related to the four types of validity covered by Cook and Campbell (1979): Statistical conclusion validity, internal validity, construct validity and external validity. **Statistical conclusion validity** addresses the extent to which there is statistical evidence for establishing that the independent and dependent variables are related, i.e. that there is covariation between them (ibid, 37). **Internal validity** concerns determining whether there is a causal relationship between variables that covary (ibid, 38). **Construct validity of putative causes and effects** deals with whether the empirical indicants of a construct measure represent what they intend to measure. Finally, **external validity** refers to the possibility of generalizing the findings of the study to and across different populations, settings, and times (ibid, 39). The discussion of statistical conclusion validity will be integrated into the presentation of the results. External validity is the least emphasized validity type in experiments (ibid, 84), and will be briefly addressed in the discussion chapter. In this chapter we will initially deal with some threats to internal validity, and then focus on construct validation.

10.2. Threats to internal validity

In this study we have used an experimental design where the respondents have been randomly assigned to treatment groups. Generally, randomized experiments are the most appropriate research method for assessing causal relationships between variables. In experiments, the treatments can be administered before the outcomes are measured. Therefore, the possibility of establishing the direction of a causal relationship between the treatment and outcomes is increased compared

to simple correlational studies. Thus, in this study, the market situation of the company and the role expectations from superiors were introduced to the respondents before they made decisions on the moral dilemmas. Through the random assignment procedure the respondents in the treatment groups should be comparable to each other with respect to personal and demographical variables, except for sampling error. Thereby, the threat to internal validity due to selection bias is reduced (ibid. 56, 84, 341).

In spite of the basic strengths of randomized experiments, there were some practical problems connected to implementing this study, which constitute threats to internal validity. In laboratory experiments, the respondents receive as similar testing conditions as possible. As described in the design chapter, the experiment should have been carried out in two separate sessions on the same day for participants in different departments. Since somewhat fewer employees than expected participated in the two sessions ($N=33$), the questionnaires were also distributed by internal mail to all the researchers and managers on the day the experiment was conducted. The number of respondents who answered the questionnaire by mail was 26. Thus, we were left with two subsamples of about equal size. Clearly, those who answered by mail had different testing conditions compared to those who participated in the laboratory sessions, though all respondents were randomly assigned to treatment groups.

Only those who participated in the planned sessions got oral instructions from the researcher in addition to the guidelines written in the questionnaire. Also, the experimental conditions were more controlled in the planned sessions, since all the subjects responded within a certain time limit without communicating with each other. In addition, they had a possibility to ask the researcher if something was

unclear in the questionnaires. However, only two respondents had questions to ask. Principally, those who responded by mail had a possibility to discuss both with each other and with colleagues who had participated in the planned sessions and got a debriefing about the experiment. Still, in the planned sessions, the importance of not discussing the experiment with colleagues who would respond later was stressed. Since the respondents were used to dealing with sensitive information at work and were used to conducting research themselves, it is likely that they respected this request.

History effects could be a problem if important events related to ethics had occurred in the time interval between the planned sessions and when the questionnaires were returned by mail (*ibid*, 51). However, as far as we know, no such important ethical events took place in the maximum of two-month interval. When considered relevant, we will, however, in the continuation test for differences between the two subsamples.

10.3. Construct validity

The construct validation will be conducted in three steps. First, we will undertake a manipulation check of the situational independent variables, role expectations from superiors and the market situation. Next, we will explore to what extent the decision situations presented were perceived to be moral dilemmas. Finally, we will explore the construct validity of the independent variables linking the individuals to the organization; organizational commitment, professional commitment, and autonomy.

10.3.1. Manipulation check

The treatments in this experiment were role expectations from superiors exerting norm pressure on members of project groups, and the market situation. The questionnaire was structured such that the respondents first read two different versions of a scenario describing a pharmaceutical company (the market situation manipulation). After having read the scenarios, the respondents made decisions in three situations, where role expectations from superiors were manipulated. After all the three decisions had been made, the respondents were asked to what extent they felt that there had been pressure from the management in the decision situations, and to what extent the market situation of the company was favorable. The manipulation check was not made after each situation to avoid hypothesis-guessing (Cook and Campbell, 1979, 66).

In advance, we had reason to believe that there could be a confounding effect between the two treatments, since different descriptions of the ethical policy of the company were included in the scenarios describing the market situation. In the "favorable market" scenario, the company was characterized as being concerned about the professional ethical aspects of its activities. In the "unfavorable market" scenario, the management was described to emphasize first and foremost profitability.

We took this possible confound between the treatments into consideration by examining whether there were interaction effects between role expectations from superiors and the perceived market situation on perceived pressure from management and the perceived market situation (Appendix 2).

10.3.1.1. Perceived pressure from management

The mean values of perceived pressure from management under the two conditions of role expectations from superiors are illustrated in table 10.1.

NUMBER OF RESPONDENTS	ROLE EXPECTATIONS FROM SUPERIORS	
	NO EXPLICIT EXPECTATIONS	NORM PRESSURE
ALL RESPONDENTS (N=59) Missing cases: 1	3.8 (1.71) (N=32)	5.1 (1.20) (N=26)
PLANNED SESSIONS ^a (N=33)	4.6 (1.86) (N=16)	5.2 (1.17) (N=17)
RESPONDED BY MAILED QUESTIONNAIRES ^b (N=26) Missing cases: 1	3.1 (1.12) (N=16)	5.0 (1.32) (N=9)

1=Very little pressure from management
7=Very much pressure from management

^a: Respondents who participated in the planned sessions

^b: Respondents who returned the questionnaire by mail

Table 10.1. The effect of role expectations from superiors on perceived pressure from management. Mean values. (Standard deviations in brackets)

Superiors' role expectations had a statistically significant influence on perceived pressure from management both for all 59 respondents ($F(1)=9.69$, $p<.01$) and for those who responded by mail ($F(1)=15.1$, $p=.001$). For the respondents who participated in the planned sessions the effect of the signals from superiors was in the expected direction, but not statistically significant ($F(1)=.84$, ns).⁴⁸ In

⁴⁸ The analyses of variance which explored the joint effects of superiors' role expectations and the market situation on perceived pressure from management, revealed that there was an interaction effect between the two treatments for the respondents who participated in the planned sessions. For these respondents, superiors' role expectations had a statistically significant effect on perceived pressure from management only when the market situation was described as favorable. A similar interaction pattern was revealed for all 59 respondents (see Appendix 2).

summary, the manipulation of superiors' role expectations seemed to operate as intended, though the effect of the role expectations on perceived pressure from management was statistically significant only when the market situation was described as favorable.

Also, the effect of the role expectations was strongest for those who returned the questionnaire by mail.⁴⁹

10.3.1.2. Perceived market situation

Perceived market situation did vary by the market situation manipulation as expected.⁵⁰ There was a statistically significant main effect of the described

⁴⁹ An assumption made in applying analysis of variance is equal variance in the cells defining the treatment groups (Bray and Maxwell, 1985, 33, Hair, Anderson, and Tatham, 1987, 163). The homogeneity of variance was tested by the univariate Bartlett-Box test. The assumption that the variances in the two cells (no explicit role expectations - norm pressure) should be equal was slightly violated both for all respondents (Bartlett-Box $F(1.91)=3.26$, $p=.07$) and for the respondents who participated in the planned sessions (Bartlett-Box $F(1.29)=3.17$, $p=.08$).

This is not so surprising, considering the small number of the respondents. If variances are unequal, one could transform the data or use nonparametric tests, which require limited distribution assumptions of the data (Norusis, 1983, 113, 127-128). Since this single analysis was not of central importance to the study, no attempts at transforming the data or use a nonparametric test was made. The most appropriate nonparametric test would probably have been the Kruskal-Wallis one-way analysis of variance (Norusis, 1983, 129).

The homogeneity of variance assumption was not violated for those who returned the questionnaire by mail (Bartlett-Box $F(1.12)=0.27$, $p=.60$).

⁵⁰ Still, analyses of variance with both the described market situation and superiors' role expectations as factors showed that there was also a significant main effect of role expectations on perceived market situation (Appendix 2). Thus, when role expectations from superiors emphasized time and resource constraints, the market situation was perceived to be less favorable than when no explicit role expectations were communicated.

respondents ($F(1)=9.35$, $p<0.01$), for those who participated in the planned sessions ($F(1)=3.16$, $p<.10$), and for those who responded by mail ($F(1)=6.46$, $p<.05$).⁵¹

NUMBER OF RESPONDENTS	MARKET SITUATION	
	FAVORABLE	UNFAVORABLE
ALL RESPONDENTS (N=59) Missing cases: 6	4.8 (1.39) (N=24)	3.6 (1.29) (N=29)
PLANNED SESSIONS ^a (N=33)	4.7 (1.46) (N=17)	3.8 (1.22) (N=16)
RESPONDED BY MAILED QUESTIONNAIRES ^b Missing cases: 6	5.0 (1.29) (N=7)	3.4 (1.39) (N=13)

1=Very unfavorable market situation
7=Very favorable market situation

^a: Respondents who participated in the planned sessions

^b: Respondents who returned the questionnaire by mail

Table 10.2. The effect of described market situation on perceived market situation. Mean values. (Standard deviations in brackets)

The fact that six of the 26 respondents who returned the questionnaire by mail left unanswered the question about how favorable the market situation was, might indicate that some of the respondents had not fully understood that they should imagine themselves working in a company with the described market situation. Instead, they might have answered as they would have done under the real market conditions of the company they were working with. The problem with missing data on the question about the perceived market situation did not occur among the respondents who participated in the planned sessions, where the researcher explained that they should act as if working in the described company.

⁵¹ The assumption of homogeneity of variance was not violated in any of the analyses of the effects of the described market situation on perceived market situation (Bartlett-Box $F(1.76)=.13$, $p=.72$ for all respondents, Bartlett-Box $F(1.29)=.45$, $p=.50$ for those who participated in the planned sessions, and Bartlett-Box $F(1.71)=.04$, $p=.85$) for those who responded by mail.

respondents who participated in the planned sessions, where the researcher explained that they should act as if working in the described company.

10.3.1.3. Conclusion from the manipulation checks

Both manipulations worked as intended. Superiors' role expectations led to higher perceived pressure from management, and there was a consistency between the **manipulated** and the **perceived** market situation. Still, the results of the manipulation checks show that there has been a confounding effect between the two treatments. First, role expectations from superiors had a statistically significant main effect on the **perceived** market situation. Second, there was an interaction effect between role expectations and the manipulated market situation. The effect of role expectations on perceived pressure from management was most distinct when the market situation was described as favorable. Also, there was a statistically significant simple effect of the market situation on perceived pressure from the management when there were no role expectations from superiors. This simple effect of the market situation is probably due to the fact that different descriptions of the company's ethical policy were included in the market scenarios. The treatments would have been purer if the paragraphs about the company's ethical policy had not been included in the market situation scenarios. On the other hand, the statistically significant main effect of role expectations on the **perceived** market situation indicates that norm pressure from superiors emphasizing time and resource constraints is directly associated with an inferior market situation. This interpretation is supported by comments from managers of the company on the market situation scenarios. The combinations "**favorable market**" - **high ethical standard** and "**unfavorable market**" - **emphasis on profitability** were perceived as being empirically realistic. Thus, even though the mixture between the market situation and role expectations emphasizing time and resource

constraints is a technical problem for the experimental design, it might be closer to empirical reality.

A conclusion from the manipulation checks is that the treatments were perceived sufficiently equal in the two experimental conditions (planned sessions vs. responding by mail) for all responses to be analyzed together. The relatively small differences between the the two subsamples in terms of how role expectations influenced perceived pressure from management is not surprising, considering the small number of subjects in each treatment group when the sample is split.

10.3.2. Were the decision situations perceived as having an ethical content?

The interviews in the first phase of the study had indicated that there were personal differences concerning whether a decision situation was perceived as being a moral dilemma or not. To gain evidence of whether the decision situations used in the experiment were perceived as having an ethical content, the respondents were asked to rate to what extent each situation was perceived as being a moral dilemma and to what extent professional ethical judgements came into consideration. The ratings on these two items are shown in the tables 10.3. and 10.4.

Score	SIT. 1	SIT. 2	SIT. 3
1	10	2	5
2	24	4	11
3	7	3	4
4	4	3	6
5	7	9	13
6	6	17	14
7	1	21	6
Mean	2.9	5.5	4.3
St.dev	1.69	1.71	1.91
1=perceived moral dilemma to a very little extent			
7=perceived moral dilemma to a very high extent			

Table 10.3. To what extent the three decision situations were perceived as being moral dilemmas

As table 10.3. shows, the extent of perceived moral dilemma varied much between the three decision situations. Situation 1 (choice of the best analogue) was perceived as being a moral dilemma to an extent below average. Two respondents stated in comments to this situation that they considered it a professional/scientific problem, not a moral dilemma. Situation 3 (new test method for detecting a potential unknown impurity) was considered a moral dilemma to a moderate extent. Situation 2 (adversary drug reaction in an animal species) was to a very high extent perceived as being a moral dilemma.

Score	SIT. 1	SIT. 2	SIT. 3
1	2	0	1
2	11	2	2
3	5	3	1
4	9	2	9
5	13	8	7
6	10	17	23
7	9	27	16
Mean	4.5	6.0	5.7
St.dev	1.80	1.33	1.40

1=professional ethical judgements came into consideration to a very little extent

7=professional ethical judgements came into consideration to a very high extent

Table 10.4. To what extent the three decision situations were perceived as having professional ethical relevance

The professional ethical relevance of the situations were perceived somewhat higher than the extent to what moral dilemmas came into consideration (table 10.4.). Professional ethical judgements came most strongly into consideration in situation 2 and most weakly in situation 1. Undoubtedly, experimenter expectancies (Cook and Campbell, 1979, 67) may have caused the ratings to be somewhat too high because the study was presented as concerning ethics and conducted by the academic researcher. Since the study was carried out in

cooperation with the company, it was, however, not possible to mask the ethical content of the study.

The assessments of ethical relevance varied a lot between the respondents, although they were all professionals working in the same company. In all three situations, the range of the ratings on the extent of perceived moral dilemma was between 1 and 7. The ratings on the extent of professional ethical relevance varied between 1 and 7 for situation 1 and 3, and between 2 and 7 for situation 2.

The data support the findings from in the first phase of the study which suggested that ethical relevance would increase the closer the R&D process comes to testing on human beings. The ethical relevance was perceived as being highest for situation 2, where clinical trials had already started. Situation 1, where the R&D process was still at the stage of animal testing, was rated as having least ethical relevance. In situation 3, clinical trials were about to be started within a short time.

"Moral dilemmas" in particular, but also "professional ethics", are wide ranging concepts that are hard to define precisely. Therefore, it is not surprising that the ratings on the items concerning the extent of ethical relevance varied to a great extent both between respondents and between the three decision situations. Indeed, it would have been a surprise if "ethical relevance" had come out as a unidimensional concept with high reliability. To further analyze the relations between the extent of perceived ethical relevance in the three situations, the correlation matrix between the items was studied (table 10.5.).

	MD1	PE1	MD2	PE2	MD3	PE3
MD1	1.00	0.47 (***)	0.03 (ns)	0.11 (ns)	0.48 (***)	0.36 (***)
PE1		1.00	-.13 (ns)	0.08 (ns)	0.02 (ns)	0.21 (*)
MD2			1.00	0.20 (*)	0.28 (**)	-.10 (ns)
PE2				1.00	-.08 (ns)	0.18 (*)
MD3					1.00	0.27 (**)
PE3						1.00

One-tailed test

(*): $P \leq 0.10$
(**): $P \leq 0.05$
(***): $P \leq 0.01$
(ns): Not statistically significant

MD1-MD3: Extent of perceived moral dilemmas in situation 1-3
PE1-PE3: Extent of perceived professional ethical relevance in situation 1-3

Table 10.5. Correlation matrix for the extent of perceived moral dilemmas and the extent of perceived professional ethical relevance in the situations 1-3

First, the correlation matrix shows that the extent of perceived moral dilemmas and ethical relevance were significantly correlated in situation 1 and situation 3, situation 2 and situation 3, but not in situation 1 and situation 2. Second, in each situation, the correlation between the extent of perceived moral dilemma and professional ethical relevance was statistically significant.

As a conclusion, the three decision situations seem to have had different content and ethical relevance. They did not constitute a unidimensional construct of "moral dilemma". Rather, it seems that each situation should be considered unique and be treated separately in the further analysis. Both situation 2 and situation 3 were regarded as having high ethical relevance. Situation 1 was to a little extent

perceived as being a moral dilemma, but the score on professional ethical relevance was above the mean on a 7-point scale. All the three situations will be included in the further analysis.

10.3.3. Construct validity of the individual variables

10.3.3.1. Introduction

When a construct is operationalized by multiple indicants, as was the case for the variables organizational and professional commitment, and autonomy, the construct validation consists of two steps: The first step entails investigating the **internal association**, i.e. the "pattern of interrelationships among the indicants designed to measure a concept" (Zeller and Carmines, 1980, 15). The second step consists of examining **external association**, i.e. the "pattern of relationships between indicants designed to measure a concept and other variables" (ibid, 15).

To establish the **internal consistency** of a scale both the dimensionality and the reliability of the scale have to be taken into account (Gerbing and Anderson, 1988). Reliability has traditionally been measured by the Cronbach's coefficient alpha. To obtain the best possible reliability of a scale, it has been recommended by some researchers that one should delete items that have low item-to-total correlations until a satisfactory coefficient alpha is achieved. Then, factor analysis could be applied "to confirm whether the number of dimensions conceptualized can be verified empirically" (Churchill, 1979, 69). Other researchers have recommended the use of exploratory or confirmatory factor analysis before Cronbach's alpha is calculated, for the computation of coefficient alpha assumes that the items form a unidimensional set, which one cannot be sure of obtaining by selecting the items that maximize coefficient alpha (Gerbing and Anderson, 1988, 190). Since the multiple indicant composites in this study have a relatively

low complexity, it is not of crucial importance whether we start the analysis of reliability by factor analysis or by deleting items that have low items-to-total correlation and subsequently calculate Cronbach's alpha. However, we choose to follow the procedure for reliability assessment suggested by Zeller and Carmines (1980), starting by exploratory factor analysis to establish the dimensionality of the construct, and then proceed by calculating the reliability coefficient.⁵²

Convergent validity, discriminant validity and nomological validity are used to determine external association. Convergent validity is "based on the correlation between responses obtained by maximally different methods of measuring the same construct" (Peter, 1981, 136, based on Campbell and Fiske, 1959). Since the constructs used in this study are all measured by paper-and-pencil self-rating scales, no attempts will be made at investigating convergent validity (Peter, 1981, 137). Discriminant validity is determined by "demonstrating that a measure does not correlate very highly with another measure from which it should differ" (Peter, 1981, 137, based on Campbell, 1960). In this study, we will investigate discriminant validity by examining to what extent the constructs organizational commitment, professional commitment, and autonomy are correlated.

Nomological (i.e. lawlike) validity derives from theory and entails investigating both "the theoretical relationship between different constructs and the empirical

⁵² When items do not satisfy the assumptions that coefficient alpha are based upon (i.e. the items are not strictly parallel, or at least tau-equivalent, the value of alpha only sets a lower bound on the reliability. Alternatively, two other reliability coefficients could be calculated based on factor analysis: The coefficient theta in combination with principal component analysis, and the coefficient omega when common factor analysis is applied (Zeller and Carmines, 1980, 59-63). In this study we will rely on coefficient alpha, though it might be too conservative an estimate of the reliability.

relationship between measures of those different constructs" (Peter, 1981, 135, based on Campbell, 1960). The possibilities of finding evidence for nomological validity are limited in this study, since the relationships between the independent and dependent variables have been investigated to a little extent previously. Still, nomological validity will be implicitly addressed when we analyze and discuss the results of the study.

10.3.3.2. Organizational commitment

The reliability and validity of the Organizational Commitment Questionnaire (OCQ) that was used in this study, has been thoroughly evaluated by Morrow (1979). The evaluation was based on studies including over 2500 employees in nine divergent work organizations. The reliability of the scale turned out to be very high, with Cronbach's alpha ranging from 0.82 to 0.93 (ibid, 231-232). Factor analysis performed on six samples resulted in one factor solutions, or two factor solutions where the eigenvalue of the second factor never exceeded 1.0. The percentage of variance associated with the first factor was between 83.2 and 92.6 (ibid, 234).

In most of the studies reviewed by Mowday, Steers, and Porter (1979), the employees were not professionals, contrary to the researchers participating in this study.⁵³ It is likely that internal consistency of the OCQ-scale is somewhat lower for professionals, who both have an organizational and professional role

⁵³ An exception is the study reported by Steers (1977), which was based on two samples. One sample included a highly professional group, with scientists and engineers working in a research laboratory. The coefficient alpha, which was 0.88, was only reported for the two samples together. No factor analysis to assess the dimensionality of the construct was reported. The mean commitment levels were lower for the research laboratory sample (4.4., with 7.0 representing the highest possible level of commitment) than for the hospital sample (5.1) (ibid, 50).

orientation (see the discussion in chapter 4). The mean values and standard deviations of the items in the OCQ are shown in table 10.6.

Item No.	Mean	St.dev.	Formulation
1.	5.3	1.33	I am willing to put a great deal of effort beyond that normally expected in order to help this organization be successful.
2.	5.5	1.07	I talk up this organization to my friends as a great organization to work for.
3.	5.9	1.43	I feel very little loyalty to this organization. (R)
4.	1.7	1.00	I would accept almost any type of job assignment in order to keep working for this organization.
5.	4.2	1.16	I find that my values and the organization's values are very similar.
6.	5.2	1.40	I am proud to tell others that I am part of this organization.
7.	4.3	1.82	I could just as well be working for a different organization as long as the type of work was similar. (R)
8.	4.3	1.54	This organization really inspires the very best in me in the way of job performance.
9.	5.4	1.52	It would take very little change in my present circumstances to cause me to leave this organization. (R)
10.	5.0	1.46	I am extremely glad that I chose this organization to work for over others I was concerning at the time I joined.
11.	5.9	1.27	There's not too much to be gained by sticking with this organization indefinitely. (R)
12.	3.9	1.56	Often, I find it difficult to agree with this organization's policy on important matters relating to its employees. (R)
13.	6.0	1.12	I really care about the fate of this organization.
14.	3.7	1.59	For me this is the best of all possible organizations for which to work.
15.	6.6	1.06	Deciding to work for this organization was a definite mistake on my part. (R)
All items	4.8	0.67	

1=strongly disagree
7=strongly agree

An "R" denotes a negatively phrased and reverse-coded item.

Table 10.6. Mean scores and standard deviations of the items in the Organizational Commitment Questionnaire (N=59 for all items)

The mean score for all items, 4.8, is comparable to the means reported by Mowday, Steers, and Porter (1979, 230), which were between 4.0 and 6.1, and typically slightly above the midpoint of the 7-point scale. An inspection of the means reveals that the mean of item 4 ("I would accept almost any type of job assignment in order to keep working for this organization") is atypically low. The reason for this is probably that the item is perceived somewhat differently in a research organization than in less professionalized work organizations. The professional autonomy of the researchers could be violated if they were to accept almost any type of work assignment. Also, since the item is put forward in an ethics study, the low ratings could indicate that the researchers would not accept work assignments being in conflict with their ethical values.

The Cronbach's alpha for the whole scale was 0.77, which is higher than what Nunnally (1967, 245) has suggested as a satisfactory level for exploratory research purposes (alpha greater than 0.70). A factor analysis indicated, however, that the items did not constitute a unidimensional scale (Appendix 2, table 10.12.). Based on the results of the factor analysis, the items-to-total-correlations (Appendix 2, table 10.13.), and the coefficient alpha of the scale if an item should be deleted a choice was made to use six of the items in the subsequent analyses of results (the items 2, 5, 6, 8, 13, 14). The coefficient alpha for these items was .79. Further details on the validation of the organizational commitment items are given in Appendix 2.

10.3.3.3. Professional commitment

The mean scores and standard deviations of the items used to measure professional commitment are shown in table 10.7.

Item No.	Mean	St.dev.	N	Formulation
1.	4.9	1.44	58	To keep my professional identity it is important for me to publish my research in professional journals. (M. & W.)
2.	3.5	1.87	48	It is important for me to be an inventor/co-inventor of a patented invention.
3.	4.9	1.93	43	It is important for me to bring an idea forward to patent approval regardless of whether I am an inventor/co-inventor.
4.	5.6	1.44	59	In the long run it is important for me to be respected among leading specialists within my field. (M. & W.)
5.	5.6	1.29	59	It is important for me to be able to do the kind of research that will contribute to scientific knowledge. (M. & W.)
6.	5.0	1.70	59	It is important for me that I can try out my own research ideas. (M. & W.)
7.	4.6	1.90	59	It is important for me to give presentations on meetings and conferences.
8.	4.5	2.10	59	It is important for me to publish an article in a leading journal within my field, though the topic might be of minor interest to the company (M. & W.)
All items	4.6	1.23		
Item 1,4-8	5.1	1.27		

1=strongly disagree
7=strongly agree

A "M. & W." denotes that the item has been adapted from Miller and Wager (1971).

Table 10.7. Mean scores, number of responses and standard deviations of the items in the professional commitment scale

Items number 2 and number 3, that dealt with patented inventions, were not included in the further analyses, since a high number of respondents indicated that

these items were not relevant for them. The coefficient alpha for the remaining six items was 0.82. A factor analyses with VARIMAX rotation on the six items gave a solution with only one factor that had an eigenvalue greater than 1 (3.37). The factor accounted for 56.2 per cent of the variance. Thus, it was established that the scale was unidimensional and had a satisfying reliability.

10.3.3.4. Autonomy

The mean values and standard deviations of the items used to measure autonomy are shown in table 10.8.

Item No.	Mean	St.dev.	Formulation
1.	5.4	1.33	I can decide on my own hand how to perform my work.
2.	2.7	1.68	I can decide which research area I will be working on.
3.	2.8	1.47	I can decide which projects I will be working on.
4.	5.5	1.58	I can influence the design of the studies that are conducted in projects I am working on.
All items	4.1	1.11	
Items 2, 3	2.7	1.46	

1=strongly disagree
7=strongly agree

Table 10.8. Mean scores and standard deviations of the items in the autonomy scale (N=59)

The mean scores indicate that the four items can be grouped into two categories. The respondents to a relatively little extent chose their research area and the projects they would be working on (item 2 and 3). This is logical, since new researchers were often recruited to concrete projects, and a high number of the respondents had a short tenure. On the other hand, the possibilities of influencing

how to perform the work in general (item 1), and specifically the design of studies that were conducted within the projects (item 4), were rated as being quite high.

A factor analysis of the four items confirmed that two factors could be identified, with items 2 and 3 loading high on factor 1, and items 1 and 4 loading high on factor 2 (Appendix 2, table 10.14.). It was decided to use only the items that loaded high on factor 1, i.e. the items concerning the possibilities of choosing research area and projects, in the subsequent analyses of results. It is likely that these two items to some extent reflect hierarchical position, since managers to a greater extent than nonmanagers can determine their work positions. The coefficient alpha for the two items was .83, whereas the coefficient alpha for all items was 0.69, slightly below the suggested limit of 0.70 for exploratory research purposes (Nunnally, 1967).

10.3.3.5. External associations

The evidence of discriminant validity that we have in this data set is to what extent the independent individual variables, which are intended to measure different constructs, are correlated. The correlation matrix is printed in table 10.9.

There was a rather weak negative correlation between **organizational** and **professional commitment**. For the items that would maximize coefficient alpha (COMM2), the correlation was statistically significant ($p < 0.10$). For the items that loaded strongly on factor 1 (COMM1), the correlation with professional commitment was not statistically significant. The correlations between the constructs of organizational and professional commitment are sufficiently weak that they could be considered independent constructs. This result is consistent with the findings of Flango and Brumbaugh (1974), Greene (1978), Grimes and Berger

In summary, based on the evidence we have in the data set, the independent individual variables had a satisfactory discriminant validity.

11. RESULTS OF THE ANALYSES OF FACTORS INFLUENCING DECISION-MAKING IN MORAL DILEMMAS

11.1. Introduction

In this chapter, we first present the results of the tests of the hypotheses put forward in chapter 8. In each of the three situations that were presented in the experiment, the respondents were asked to decide whether sufficient information had been gathered so that the project could enter the next stage of the R&D process, or whether additional studies should be carried out to increase the safety and/or efficacy (cf. chapter 9). We expected that preferring not to conduct additional studies would reflect an emphasis on effectivity considerations, whereas being in favor of conducting additional studies would reflect an emphasis on professional ethical considerations.

As discussed in chapter 8, hypotheses 1 to 3 dealt with the effect of the treatment variables, role expectations from superiors and the market situation, on the propensity to emphasize effectivity vs. professional ethical considerations in the decision situations. First, these three hypotheses will be tested by analysis of variance. Next, we analyze the effects of organizational commitment, professional commitment and autonomy (hypotheses 4-6) on choices of decision options by

regression analysis. The effects of tenure (hypothesis 7) will be analyzed both by regression analysis and analysis of variance.⁵⁴

11.2. Tests for assumptions in analysis of variance

First, a decision was made whether to use multivariate or univariate analysis of variance. Whereas univariate analysis of variance would be appropriate for assessing group differences in each decision situation separately, multivariate analysis could be used to assess group differences across the three decision situations (Hair, Anderson, and Tatham, 1987, 147). Since there is no reason to use multivariate analysis of variance unless the dependent variables are correlated (Norusis, 1985, 203), the correlation matrix of the responses to the three decision situations was first studied (table 11.1.) There was a statistically significant correlation only between situation 1 and situation 3. Thus, it would be inappropriate to use multivariate analysis with the decisions in all the three situations as dependent variables. This was confirmed by applying Bartlett's test of sphericity (Bartlett's test of sphericity (3) = 4.22 p=0.24).⁵⁵ Thus, the observation made in

⁵⁴ When two-factor experiments are analyzed, the first step is to test for interaction between the factors (Keppel, 1982, 209). If there is no significant interaction effect, the attention will be directed to the analysis of the main effects. If, on the other hand, a significant interaction effect occurs, main effects are of less interest. Instead, the focus will be on studying what specific conditions contributed to the interaction (ibid, 209). This will be done by analyzing simple effects, where we study the influence pattern of role expectations under the two different categories of market situation separately (ibid, 235-236). Also, separate analysis will be conducted for the influence of the market situation under the two levels of norm pressure. Though the analyses of variance that were performed only had one dependent variable and thus were univariate, the analyses were run with the SPSS-X (1988) MANOVA program. The advantage of the MANOVA program compared to the univariate programs for analysis of variance (ANOVA and ONEWAY) is that MANOVA allows for studying simple effects by using nested designs (SPSS-X, 1988, 573). The regression analyses will be conducted by the regression program of SPSS-X.

⁵⁵ Though the correlation coefficients between the decisions in situation 1 and 3 were significant, we chose to analyze each situation separately. The Bartlett's test of sphericity indicated that this was an appropriate decision (Bartlett's test of sphericity (1)=2.16, p=.14).

chapter 10 that the situations were perceived so differently that each should be analyzed separately got statistical support. Subsequently, only univariate analyses will be conducted.

	SIT 1	SIT 2	SIT 3
SIT 1	1.00	0.07 (ns)	0.22 (*)
SIT 2		1.00	-.13 (ns)
SIT 3			1.00

Two-tailed tests

(*): $p < 0.10$
(**): $p < 0.05$
(***): $p < 0.01$
(ns): Not statistically significant

SIT 1-3: Decision-making in situation 1-3

Table 11.1. Correlation matrix for the decision-making in situation 1, 2 and 3

The statistical assumptions needed for univariate analysis of variance are the following (Bray and Maxwell, 1985, 32-33, Hair, Anderson, and Tatham, 1987):

- (i) The units, i.e. in this study the individual respondents, should be randomly sampled from the population of interest.
- (ii) The observations should be statistically independent of each other.
- (iii) The dependent variables should be normally distributed.
- (iv) The variances should be the same for all treatment groups.

The first two assumptions were met by the way the study was designed. The normality assumption will be tested by examining the distribution of the responses to each decision-situation (table 11.2.).

Score	SIT. 1	SIT. 2	SIT. 3
1	1	1	2
2	9	7	4
3	7	8	2
4	4	3	4
5	9	6	9
6	21	15	21
7	8	18	7
Mean	4.8	5.1	5.5
St.dev	1.69	1.87	1.64
Skewness	-.45	-.60	-1.37
Curtosis	-1.22	-1.17	1.16

1=No, absolutely not conduct additional studies
7=Yes, absolutely conduct additional studies

Table 11.2. Decision-making in the situations 1-3. Frequencies

It is clear from the data in table 11.2. that the responses to the decision situations were all skewed to the right, in particular the decisions in situation 3. However, as departures from the normality assumption have only slight effects on the result of analysis of variance (Bray and Maxwell, 1985, 33), the analyses will still be conducted.

The homogeneity of variance assumption was met in all three decision situations (Bartlett Box $F(3.50)=0.90$, $p=0.44$ in situation 1, Bartlett Box $F(3.50)=0.33$, $p=0.81$ in situation 2, and Bartlett Box $F(3.50)=0.45$, $p=0.71$ in situation 3).

11.3. The effects of role expectations and the market situation

(Hypotheses 1-3)

The effects of the treatment variables on the decision-making in the three situations were tested by analysis of variance. We will present the results for each of the three situations separately.

11.3.1. Situation 1

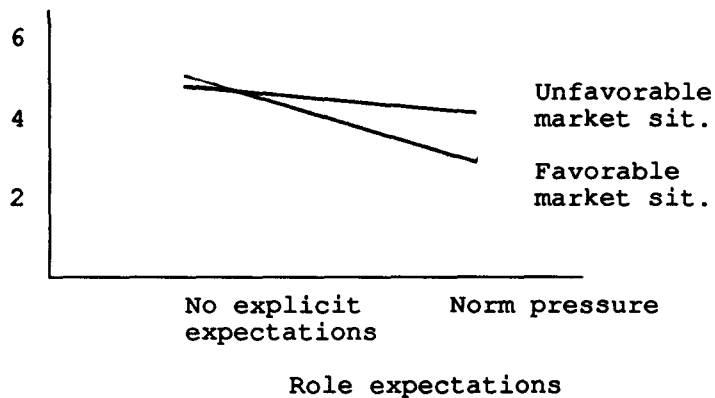
For situation 1, the mean values and standard deviations in the treatment groups are shown in table 11.3. The mean values are plotted in figure 11.1.

		ROLE EXPECTATIONS FROM SUPERIORS	
		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
MARKET SITU- ATION	FAVOR- ABLE	5.5 (1.16) (N=14)	3.4 (1.76) (N=13)
	UNFAVOR- ABLE	5.4 (1.61) (N=19)	4.6 (1.81) (N=13)

1=No, absolutely no more studies
7=Yes, absolutely more studies

Table 11.3. The effect of role expectations from superiors and the market situation on decision-making in situation 1. Mean values. (Standard deviations in brackets)

Propensity to be in
favor of conducting
additional studies



1=No, absolutely no more studies
7=Yes, absolutely more studies

Figure 11.1. Plot of mean values illustrating the effect of role expectations from superiors and the market situation on decision-making in situation 1

As it is indicated by the plot of the mean values, there was an interaction effect between role expectations and the market situation on the decision-making in situation 1. The interaction effect was close to being statistically significant ($F(1)=2.62, p=0.11$). There was a clear significant main effect of role expectations

($F(1)=11.6$, $p=0.001$), such that the respondents emphasized more effectivity considerations when the Vice President of Research had been described to recommend continuation of the project and no further search for other analogues. Through this finding, hypothesis 1 got support. Still, an analysis of simple effects showed that role expectations only had a statistically significant effect in the favorable market situation ($F(1)=11.8$, $p=0.001$). In the unfavorable market situation, the effect of role expectations was also in the expected direction, but not statistically significant ($F(1)=1.72$, $p=0.20$). Thus, hypothesis 3, according to which norm pressure from superiors would have a greater effect under unfavorable than favorable market conditions, did not get support.

There was no statistically significant main effect of the market situation on the decision-making in situation 1. When there were no role expectations from superiors, the mean values for the favorable and unfavorable market situations were almost the same (5.5. and 5.4. respectively). A result contrary to hypothesis 2 occurred in the condition with role expectations. The respondents emphasized somewhat more professional ethical considerations when the market situation was unfavorable than when it was favorable ($F(1)=3.9$, $p=.05$). We will discuss possible explanations of this finding in connection with the qualitative comments that were given to each decision situation (cf. chapter 11.7.).

11.3.2. Situation 2

In situation 2 (table 11.4. and figure 11.2.) there were neither statistically significant main nor interaction effects. In the favorable market condition, the effect of role expectations was in the expected direction, but not statistically significant. The respondents emphasized somewhat more effectivity considerations when the project group was told by the management that a licensee was eager to

get the new medicament approved for registration as soon as possible. In the unfavorable market situation, however, the respondents had a slightly greater propensity to be in favor of conducting additional studies when they were told about the plans of the licensee. Thus hypothesis 3, stating that norm pressure from superiors would have the greatest effect when the market situation was bad, did not get any support in this decision situation.

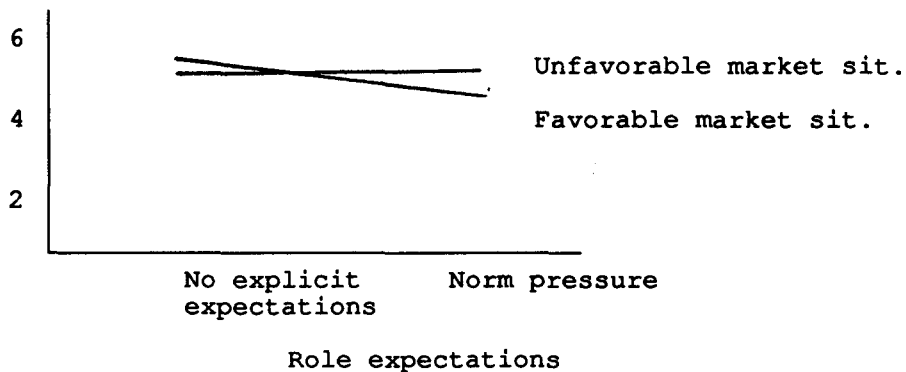
		ROLE EXPECTATIONS FROM SUPERIORS	
		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
MARKET SITU- ATION	FAVOR- ABLE	5.5 (1.83) (N=14)	4.8 (2.24) (N=13)
	UNFAVOR- ABLE	5.0 (1.78) (N=18)	5.2 (1.79) (N=13)

1=No, absolutely not additional testing
7=Yes, absolutely additional testing

Missing cases: 1

Table 11.4. The effect of role expectations from superiors and the market situation on decision-making in situation 2. Mean values (Standard deviations in brackets)

Propensity to be in favor of conducting additional studies



1=No, absolutely not additional testing
7=Yes, absolutely additional testing

Figure 11.2. Plot of mean values illustrating the effect of role expectations from superiors and the market situation on decision-making in situation 2

The effect of the market situation was in the expected direction when there were no role expectations from superiors. As was the case in situation 1, when the management stressed time constraints, the respondents emphasized somewhat more professional ethical considerations in the unfavorable market situation than in the favorable market situation. Though not statistically significant, this finding was inconsistent with hypothesis 2.

11.3.3. Situation 3

The effects of the treatment variable on the decisions in situation 3 were about the same as in situation 2 (table 11.5. and figure 11.3.). Neither statistically significant main effects nor simple effects were found. The effect of role expectations stressing budget constraints was as expected in the favorable market condition. Effectivity considerations were emphasized more. In the unfavorable market condition, however, the respondents emphasized somewhat more professional ethical considerations when the management pointed to the need of staying within the budget constraints.

As hypothesized, the respondents emphasized more effectivity considerations when the market situation was unfavorable than when it was favorable in the condition when there were no role expectations from superiors regarding budget constraints. The mean values for the two market situations were approximately the same when resource constraints were stressed.

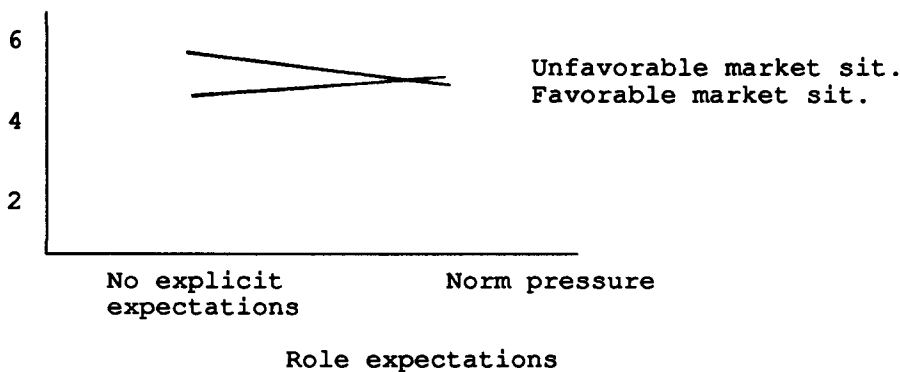
**ROLE EXPECTATIONS
FROM SUPERIORS**

		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
MARKET SITU- ATION	FAVOR- ABLE	5.9 (1.64) (N=14)	5.4 (1.50) (N=13)
	UNFAVOR- ABLE	5.1 (1.88) (N=19)	5.5 (1.45) (N=13)

1=No, absolutely not wait for the new analysis method
7=Yes, absolutely wait for the new test method

Table 11.5. The effect of role expectations from superiors and the market situation on decision-making in situation 3. Mean values (Standard deviations in brackets)

Propensity to be in favor of conducting additional studies



1=No, absolutely not wait for the new analysis method
7=Yes, absolutely wait for the new test method

Figure 11.3. Plot of mean values illustrating the effect of role expectations from superiors and the market situation on decision-making in situation 3

11.3.4. Summary of the effects of the treatment variables

In summary, when the market situation was favorable, the respondents emphasized more effectivity considerations when role expectations from superiors stressed time and resource constraints. Thus, hypothesis 1 got some support as far as the favorable market situation was concerned. The simple effect of role expectations in the favorable market condition was, however, only statistically significant in

situation 1, where the signals from the Vice President of Research had a direct professional relevance.

A somewhat surprising finding was that the effect of role expectations from superiors was weaker in the unfavorable than in the favorable market condition in all three decision situations. Thus, the findings of the study did not lend support to hypothesis 3.

No statistically significant main effects were found for the market situation. In all three situations, when superiors did not stress time and resource constraints, the respondents emphasized somewhat more effectivity considerations when the market situation was unfavorable than when it was favorable, as expected (hypothesis 2). None of the differences were statistically significant. However, when superiors put norm pressure on the project groups, the respondents emphasized professional ethical considerations more in the unfavorable than in the favorable market condition in situation 1 and 2. This simple effect of the market situation under conditions of role expectations from superiors was statistically significant only in the first decision situation.

11.4. Tests for the effects of the continuous covariates and tenure

11.4.1. Introduction

In this section, we will test the effects of the covariates (organizational commitment, professional commitment, autonomy) and tenure (Hypotheses 4-8). The covariates are continuous variables, whereas tenure is measured as a categorical variable. A central assumption in the analysis of covariance is that the effects of a covariate on the dependent variable are the same for all levels of the categorical independent variables, i.e. that the slope of the regression line of a covariate is the

same for all treatment groups (Wildt and Ahtola, 1978, 27, 89). In case the regression coefficients of a covariate are not equal for all levels of a categorical independent variable, an interaction effect occurs, and the effects of the covariate should be studied separately within each category of the other independent variable (ibid, 27).⁵⁶

The effects of the covariates will be established through regression analysis, where the categorical independent variables (superiors' role expectations, the market situation, and tenure) will be represented as dummy variables. In the regression perspective of covariance analysis, it is assumed that the covariates and the categorical variables are of equal interest. The effects of both the categorical and the continuous variables are assessed after adjusting for all the other independent variables (Wildt and Ahtola, 1978, 9). Thus, through the regression analysis, we can also explore how the effects of the treatment variables, that have been analyzed in the previous section, are influenced by the introduction of the covariates.⁵⁷

We will start by presenting tables with the results of the overall regression analyses, and comment on how the effects of the treatment variables are

⁵⁶ The tests of the homogeneity-of-regression hypothesis of the covariates will be conducted in the MANOVA program of SPSS-X (1988, 573), by specifying the three way interaction term between role expectations, the market situation and the covariate in question. Tenure is a categorical independent variable, though not a treatment variable. Separate analyses will be conducted for the interaction effects between tenure and the treatment variables.

⁵⁷ The regression analyses were carried out in the REGRESSION program of SPSS-X (1988). Stepwise selection of the independent variables was used. Due to the explorative character of the study, the F-to-enter criteria (PIN) and the F-to-remove criteria (POUT) were set somewhat higher than the default values (when nothing else is remarked, PIN=0.10, POUT=0.12).

influenced by the introduction of the covariates and tenure. Next, we will analyze the effects of each covariate and tenure.

11.4.2. The overall regression analyses

The correlations between the covariates and the decision-making in situations 1 to 3 are presented in table 11.6. The sizes of the correlation coefficients show the impact of each covariate on the decision-making without taking the other independent variables into consideration.

	SIT 1	SIT2	SIT 3
COMM	-.02 (ns)	-.15 (ns)	.09 (ns)
PROF	-.17 (ns)	-.02 (ns)	-.17 (ns)
AUT 1	-.01 (ns)	-.29 (**)	.24 (*)
AUT 2	-.07 (ns)	-.31 (**)	.16 (ns)

Two-tailed tests
 *: $p < .10$
 **: $p < .05$
 ***: $p < .01$
 ns: Not statistically significant

SIT 1-3: Decision-making in situation 1-3
 COMM: Organizational commitment
 PROF: Professional commitment
 AUT1: Items 2 and 3 in the autonomy scale
 AUT2: All four items in the autonomy scale

Table 11.6. Simple correlations between the covariates and the dependent variables

The results of the regression analyses of the decisions in the situations in the three situations are shown in the tables 11.7.-11.9. The tests of the homogeneity-of-regression assumption for the covariates are presented in table 11.18. (Appendix 3).

There were no statistically significant main effects or interaction effects between the treatment variables on the decision-making in the situations 2 and 3 when the covariates were introduced. These results are consistent with the findings from the analyses of variance of the effects of the treatment variables without covariates in section 11.3. The introduction of the covariates strengthened the interaction effect that had been observed in the analysis of variance between role expectations from superiors and the market situation on the decision-making in situation 1 ($p < 0.05$).

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
Role expect.	-.60	1.6	-4.15	.0001
Role expect. x market situation	.32	1.6	2.24	.03
Professional commitment	-.21	1.0	-1.76	.08
Constant	6.87 (B)		7.9	.0000
<u>Var. not in the equation:</u>				
Market situation	-.01	1.9	-.01	n.s.
Organizat. commitment	.04	1.1	-.30	n.s.
Autonomy (items 2&3)	.03	1.0	.27	n.s.
Tenure	-.08	1.0	-.66	n.s.
R ² =.26, Adj R ² =.22, F(3,55)=6.47, p=.0008				
VIF: Variance inflation factors				
(N=59)				

Table 11.7. Regression analysis illustrating the effects of the independent variables on the propensity to be in favor of conducting additional studies in decision situation 1

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
Autonomy (Items 2&3)	- .29	1.00	-2.30	.03
Constant	6.16 (B)		12.1	.0000
<u>Var. not in the equation:</u>				
Role expect.	-.06	1.0	-.49	n.s.
Market situation	-.01	1.0	-.04	n.s.
Role expect. x market situation	.01	1.0	.15	n.s.
Organizat. commitment	-.15	1.0	-1.15	n.s.
Professional commitment	.06	1.0	.45	n.s.
Tenure	-.08	1.0	-.65	n.s.
R ² =.09, Adj. R ² =.07, F(1,56)=5.29, p=0.03				
VIF: Variance inflation factors				
N=58				

Table 11.8. Regression analysis illustrating the effects of the independent variables on the propensity to be in favor of conducting additional studies in decision situation 2

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
Autonomy (items 2&3)	.24	1.00	1.87	.07
Constant	4.73 (B)		10.7	.0000
<u>Var. not in the equation:</u>				
Role expect.	.01	1.0	.01	n.s.
Market situation	-.12	1.0	-.94	n.s.
Role expect. x market situation	.03	1.0	.26	n.s.
Organizat. commitment	.08	1.0	-.21	n.s.
Professional commitment	-.21	1.0	-1.65	n.s. (.11)
Tenure	-.16	1.0	-1.28	n.s.
R ² =.06, Adj. R ² =.04, F(1,57)=3.51, p=.07				
VIF:	Variance inflation factors			
N=59				

Table 11.9. Regression analysis illustrating the effects of the independent variables on the propensity to be in favor of conducting additional studies in decision situation 3

11.4.3. The effects of organizational commitment

The results of the regression analyses presented in the tables 11.7.-11.9. show that the respondents with a high level of organizational commitment emphasized slightly more effectivity considerations than those with a low level of organizational commitment in situation 1 (beta = -.08, not sign.) and in situation 2 (beta = -.15, nonsign.), and slightly more professional ethical considerations in situation 3 (beta=.08, nonsign.). In this study, we were, however, more concerned with the

emphasized somewhat more effectivity considerations than those with a low level of organizational commitment.

These findings lend some support to hypothesis 4, since the respondents with a high level of organizational commitment emphasized somewhat more effectivity considerations than those with low level of organizational commitment in situations 2 and 3 only when there were role expectations from superiors.

	Beta	VIF	T	Sig. T
ROLEXP	-.59	29.7	-.88	n.s.
COMM	-.01	1.73	-.03	n.s.
ROLEXP x COMM	.19	31.4	.28	n.s.
ROLE EXP:	Role expectations from superiors			
COMM:	Organizational commitment			
ROLEXP x COMM:	Interaction term			
VIF:	Variance inflation factor			

Table 11.10. Regression analysis illustrating the interaction effect between role expectations and organizational commitment on the decision-making in situation 1

	Beta	VIF	T	Sig. T
ROLEXP	1.40	29.5	2.00	.05
COMM	.08	1.7	.47	n.s.
ROLEXP x COMM	-1.5	31.1	-2.1	.04

ROLE EXP: Role expectations from superiors
 COMM: Organizational commitment
 ROLEXP x COMM: Interaction term
 VIF: Variance inflation factor

Table 11.11. Regression analysis illustrating the interaction effect between role expectations and organizational commitment on the decision-making in situation 2

	Beta	VIF	T	Sig. T
ROLEXP	-.19	29.7	1.68	.10
COMM	.28	1.7	1.65	.10
ROLEXP x COMM	-.26	31.4	-1.72	.09

ROLE EXP: Role expectations from superiors
 COMM: Organizational commitment
 ROLEXP x COMM: Interaction term
 VIF: Variance inflation factor

Table 11.12 Regression analysis illustrating the interaction effect between role expectations and organizational commitment on the decision-making in situation 3

	B	BETA	T	SIG T
<u>NO ROLE EXPECT.</u>				
COMM	.13	.09	.47	n.s.
CONSTANT	4.45		2.70	.01
<u>WITH ROLE EXPECT.</u>				
COMM	-.79	-.43	-2.32	.03
CONSTANT	9.69		4.73	.0001

Table 11.13. The effect of organizational commitment on the propensity to be in favor of conducting additional studies in situation 2 under varying conditions of role expectations from superiors

Propensity to be in favor of conducting additional studies

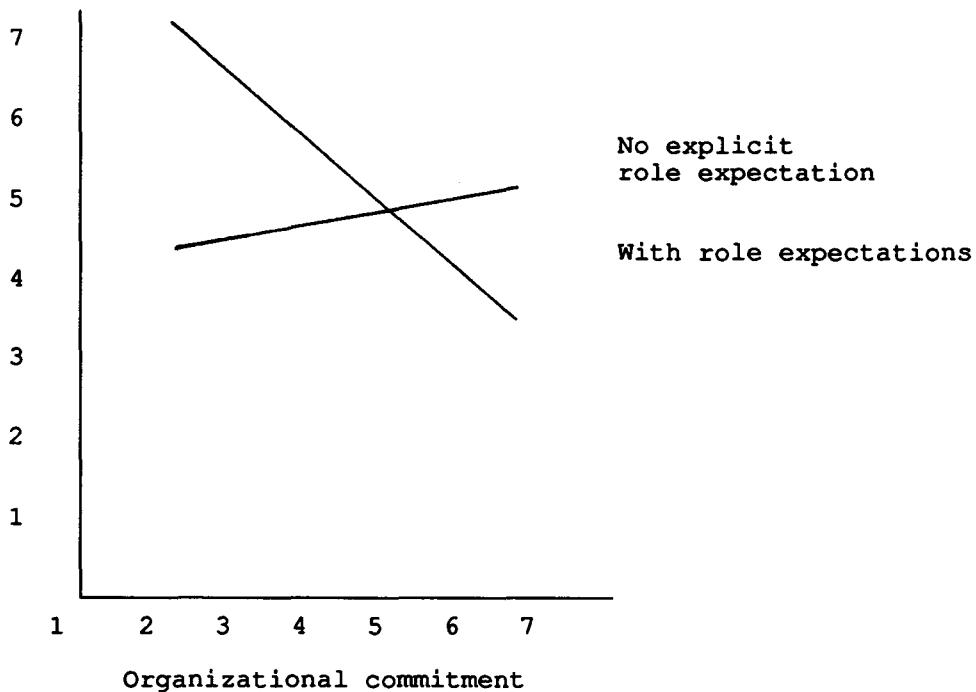


Figure 11.4. Plot illustrating the effect of organizational commitment on the propensity to be in favor of conducting additional studies in situation 2 under the two conditions of role expectations from superiors

	B	BETA	T	SIG T
<u>NO ROLE EXPECT.</u>				
COMM	.42	.27	1.53	n.s.
CONSTANT	3.07		1.9	.06
<u>WITH ROLE EXPECT.</u>				
COMM	-.26	-.19	-.97	n.s.
CONSTANT	6.99		4.34	.0002

Table 11.14. The effect of organizational commitment on the propensity to be in favor of conducting additional studies in situation 3 under varying conditions of role expectations from superiors

Propensity to be in favor of conducting additional studies

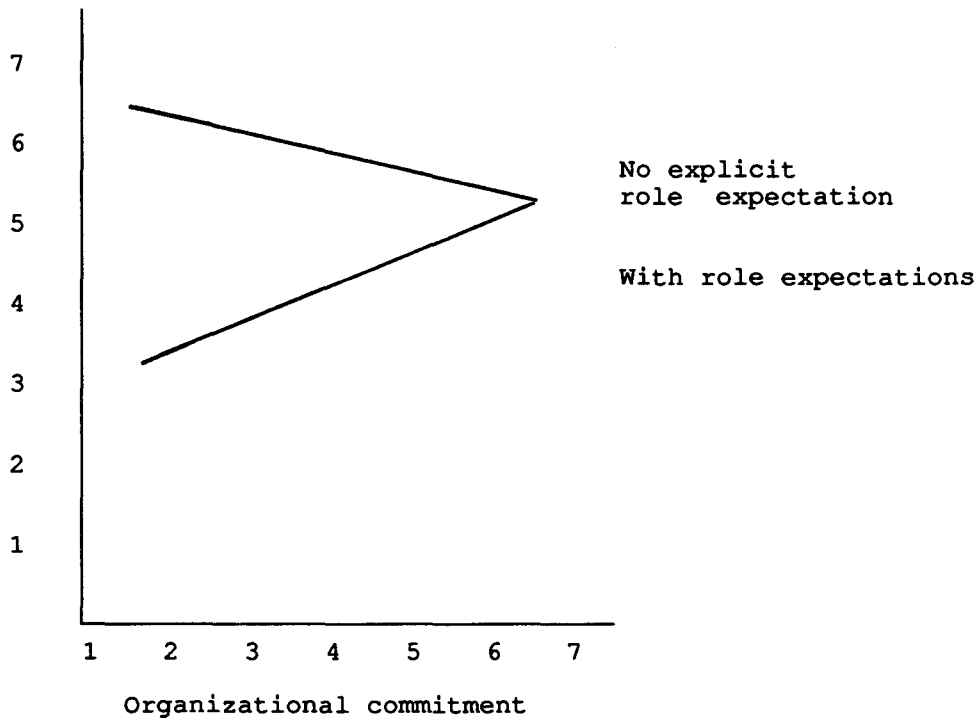


Figure 11.5. Plot illustrating the effect of organizational commitment on the propensity to be in favor of conducting additional studies in situation 3 under the two conditions of role expectations from superiors

11.4.4. The effects of professional commitment

Contrary to the expectations in hypothesis 5, those who had the highest level of professional commitment emphasized the least professional ethical considerations in situation 1 ($\beta = -.29, p < .10$) and in situation 3 ($\beta = -.21, p = .11$). These results are difficult to interpret. One possibility is that the descriptions of the situations did not give enough information to help the respondents decide what would be the most professional ethical alternative. We will return to the interpretation of the effects of professional commitment when analyzing the qualitative comments to the situations in chapter 11.5.

In situation 2, professional commitment was almost unrelated to propensity to emphasize professional ethical considerations ($\beta = .06$, nonsign.).

11.4.5. The effects of autonomy

Autonomy was the only variable that had a statistically significant impact on the decision-making in situation 2 ($\beta = -.29, p < .05$). The effect was such that those who had a high level of autonomy emphasized more effectivity considerations than those who had a low level of autonomy. This result was consistent with hypothesis 6. However, autonomy also had a statistically significant influence on the decision-making in situation 3, but in an opposite direction ($\beta = .24, p < .10$). In situation 3, those with a higher level of autonomy emphasized more professional ethical considerations than those with a low level of autonomy.

In situation 1, autonomy was practically unrelated to the decision-making ($\beta = -.01$, not sign.). Thus, the effect of autonomy, and managerial position, to the extent

that autonomy was an indicator of this, on the decision-making, remains unclear based on the data in this study.⁵⁹

11.4.6. The effects of tenure

For the purposes of the regression analyses, the respondents were grouped according to median split on the tenure variable (tenure shorter than 2 years vs. tenure of 2 years or more). Thereby, the ordinal-scale tenure variable was transformed into a dummy variable. When no interaction terms between tenure and the treatment variables were introduced, tenure was weakly negatively related to the extent of professional ethical considerations in all three decision situations (the tables 11.7. to 11.9.), such that those with a longer tenure took signals from the management more into account than those who had been recently recruited. However, none of the effects appeared statistically significant (beta= -.09, not sign.

⁵⁹ The test for homogeneity-of-regression showed that the regression coefficients of autonomy were not equal for the four treatment groups in situation 1 ($F(1)=5.02$, $p<.05$) (table 11.18, Appendix 3). Regression analysis of the relationship between autonomy and the decision-making in situation 1 for each of the four treatment groups showed no theoretically interpretable interaction pattern between the treatment variables and autonomy. In the treatment groups with "no role expectations"/"favorable market situation" and "role expectations"/"unfavorable market situation", autonomy was positively related to the extent of professional ethical considerations, whereas the relationship was the opposite in the two remaining groups ("role expectations"/"favorable market situation" and "no role expectations"/"unfavorable market situation"). The effect of autonomy on the decision-making was not statistically significant in any of the treatment groups.

Due to the difficulties in interpreting the effects of autonomy measured as above (by the items 2 and 3, hereafter called AUTONOMY 1), an analysis with all four items that were used to measure the construct (hereafter called AUTONOMY 2) were also conducted. The influence pattern for AUTONOMY 2 was very much the same as for AUTONOMY 1 (see also the correlation coefficients in table 11.6, where both AUTONOMY 1 and AUTONOMY 2 have been included). The same interaction pattern as for AUTONOMY 1 appeared in situation 1. In situation 2, AUTONOMY 2 had very much the same significant effect as AUTONOMY 1 (beta=.31, $p<.05$). In situation 3, AUTONOMY 2 was positively related to the extent of professional ethical considerations, but the impact was not statistically significant (beta=.18, nonsign.).

in situation 1, $\beta = -.08$, not sign. in situation 2, and $\beta = -.16$, not sign. in situation 3). The effects were too weak to lend support to hypothesis 7.

We had no a priori expectations on possible interaction effects on the decision-making between tenure and the treatment variables. Still, analysis of possible interaction effects was run in the MANOVA program of SPSS-X (1988). Should interaction effects be found, they would help us gain new insight into the nature of the data, and give ideas to hypotheses in future studies.

A three-way analysis of variance with role expectations, the market situation and tenure as factors indicated a possible interaction effect between role expectations and tenure in situation 1 ($F(1)=2.50$, $p=.12$). In situation 2, a similar interaction effect between role expectations and tenure was statistically significant ($F(1)=4.09$, $p=.05$). No statistically significant main or interaction effects were found in situation 3. There were no statistically significant interaction effects between the market situation and tenure in the three-way analysis of variance.

To gain further insight on the nature of the observed interaction effects between role expectations and tenure in the situations 1 and 2, univariate analysis of variance with only role expectations and tenure as factors was conducted. No violations of the assumption about equal variances in the cells were observed (Bartlett Box- $F(3.44)=.78$, $p=.51$ in situation 1, and Bartlett Box- $F(3.43)=.76$, $p=.52$ in situation 2). The results of the analyses are shown in the tables 11.15. and 11.16, and illustrated in the figures 11.6. and 11.7.

When the market situation was not taken into consideration, the interaction effect between role expectations and tenure was statistically significant both in situation

1 ($F(1)=4.39, p=.04$) and situation 2 ($F(1)=5.44, p=.02$). The strong observed effect of role expectations on the propensity to be in favor of conducting additional studies in situation 1 was only present for respondents with a length of service of 2 years or more ($F(1)=16.15, p=.000$). The results in situation 2 were very much similar. Superiors' role expectations resulted in the respondents' with a tenure of 2 years or more emphasizing effectivity considerations somewhat more also in situation 2 ($F(1)=2.9, p=.10$). For those with a tenure shorter than 2 years, however, the role expectations in both situations resulted in the respondents' emphasizing slightly more professional ethical considerations ($F(1)=.15$, not sign. in situation 1, $F(1)=2.4$., not sign. in situation 2).

Those with a tenure of 2 years or more took significantly more effectivity considerations when there were role expectations from superiors in both situations ($F(1)=4.46, p=.04$ in situation 1, $F(1)=4.78, p=.03$ in situation 2). In the absence of explicit role expectations from superiors, those with a tenure of 2 years or above took slightly more professional ethical considerations. When there were no role expectations, those with the shortest tenure emphasized slightly more effectivity considerations in both situations ($F(1)=.86$, not sign. in situation 1, $F(1)=.64$, not sign. in situation 2).

These results indicate that the role expectations from superiors in situation 1 and 2 had the greatest effect on the respondents with a tenure of 2 years or more. A socialization effect might have taken place, such that those with a longer tenure emphasized signals from the management more into account than those who had been recently recruited. Hypothesis 7, according to which there should be a positive relation between tenure and the extent of effectivity considerations, got

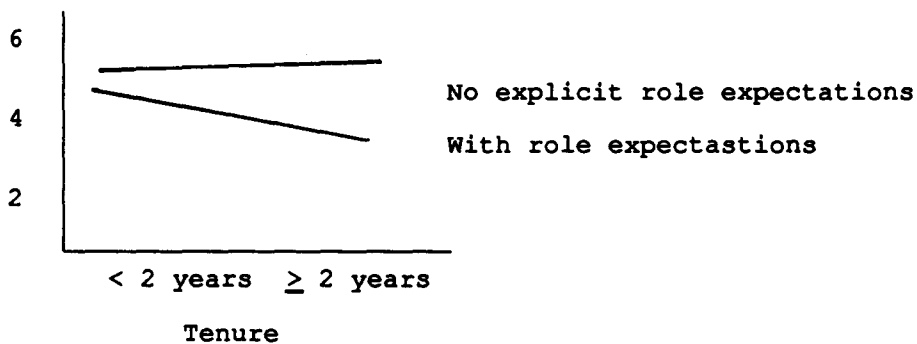
support in situation 1 and 2 only under the conditions of role expectations from superiors.

		ROLE EXPECTATIONS FROM SUPERIORS	
		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
TENURE	< 2 YEARS	5.2 (1.8) (N=13)	4.9 (1.45) (N=9)
	≥ 2 YEARS	5.6 (1.50) (N=20)	3.5 (1.91) (N=17)

1=No, absolutely no more studies
7=Yes, absolutely more studies

Table 11.15. The effect of role expectations from superiors and tenure on decision-making in situation 1. Mean values. (Standard deviations in brackets)

Propensity to
be in favor of
conducting
additional
studies



1=No, absolutely no more studies
7=Yes, absolutely more studies

Figure 11.6. Plot of mean values illustrating the effect of tenure and role expectations from superiors on decision-making in situation 1

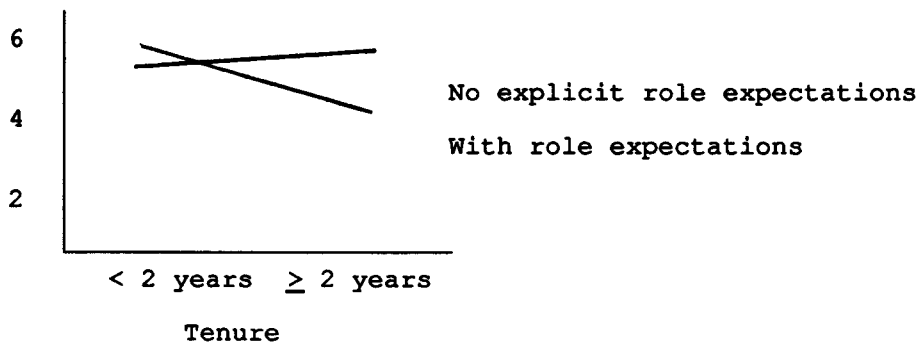
**ROLE EXPECTATIONS
FROM SUPERIORS**

		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
TENURE	< 2 YEAR	4.9 (1.77) (N=13)	6.1 (1.27) (N=9)
	≥ 2 YEARS	5.5 (1.81) (N=19)	4.4 (2.09) (N=17)

1=No, absolutely no more studies
7=Yes, absolutely more studies

Table 11.16. The effect of role expectations from superiors and tenure on decision-making in situation 2. Mean values. (Standard deviations in brackets)

Propensity to
be in favor of
conducting
additional
studies



1=No, absolutely no more studies
7=Yes, absolutely more studies

Figure 11.7. Plot of mean values illustrating the effect of tenure and role expectations from superiors on decision-making in situation 2

11.4.7. Summary of the effects of the continuous covariates and tenure.

Direction of further analyses

As expected in hypothesis 4, the effects of **organizational commitment** to some extent varied with the presence of role expectations from superiors. Both in situation 2 and 3 respondents with a high level of organizational commitment emphasized more effectivity considerations than respondents with a low level of organizational commitment only when there were explicit role expectations ($p < .05$ in situation 2, not sign. in situation 3). In the absence of role expectations, those with a higher level of organizational commitment emphasized slightly more professional ethical considerations in both situations (not sign.). In situation 1, organizational commitment was almost unrelated to the extent of effectivity considerations regardless of whether there were role expectations or not. The findings in situation 2 and 3 lend support to hypothesis 4. It is also understandable that the organizational commitment, which represents the employees' orientation of involvement towards the organization, had a greater effect on the decision-making when the role expectations from superiors were based on administrative (situation 2 and 3), rather than professional concerns (situation 1).

The effects of **professional commitment** gave no support to hypothesis 5, that there would be a positive association between professional commitment and the propensity to be in favor of conducting additional studies. On the contrary, the relationship was negative in situation 1 ($p < .10$) and in situation 3 (not sign.). We will look into possible interpretations of these findings. There is a possibility that the decision situations did not tap sufficiently well the dimensions "professional ethical" vs. "effectivity" considerations. We will search for indications of this interpretation in the qualitative comments to the situations. In addition, we will

explore how another dimension of the value-orientation of the professionals, viz. the extent to which the situations were perceived as being moral dilemmas and having professional ethical relevance, was related to professional commitment and the decision-making.

As expected in hypothesis 6, respondents with a high level of **autonomy**, as compared to those with a low level of autonomy, emphasized more effectivity considerations in situation 2 ($p < .05$), whereas the relation was the opposite in situation 3 ($p < .10$). Thus, there was no clear relationship between autonomy and the decision-making. Additional data on the managerial position of the respondents could have helped us in interpreting these findings.

The expected positive relation between tenure and the extent of effectivity considerations (hypothesis 7) was only found when there were role expectations from superiors in situation 1 and 2 ($p < .05$ in both situations). Thus, a socialization effect may have been present in the sense that when the values of the management were communicated directly, those with the longest tenure had the greatest propensity to conform to the expectations of the management.

Across the three situations, the best fitted regression model was found in situation 1 (adj. $R^2 = .22$, $F(3,55) = 6.47$, $p < .001$). In this situation, both role expectations from superiors, the interaction term between role expectations and the market situation, and professional commitment had statistically significant effects on the decision-making. The regression models had poorer explanatory power in situation 2 and 3, where only autonomy had a statistically significant impact on the decision-making (adj. $R^2 = .07$, $F(1,56) = 5.29$, $p < .05$ in situation 2, and adj. $R^2 = .04$, $F(1,57) = 3.51$, $p < .10$ in situation 3). Still, the relatively low goodness of

fit of the models was comparable to the explanatory power of models in other studies on ethical decision-making (Akaah and Riordan, 1990, Hunt, Chonko, and Wilcox, 1984).

At this stage of the analysis, we are left with the following questions unanswered:

- Why did the respondents emphasize more professional ethical considerations in the unfavorable than in the favorable market situation (chapter 11.3.)?
- Why was professional commitment unrelated or negatively related to the extent of professional ethical considerations in the decision situations?
- Why was autonomy inconsistently related to the decision-making, with almost no association in situation 1, a positive association with effectivity considerations in situation 2, and a negative association with effectivity considerations in situation 3?

We will search for possible answers to these questions by analyzing the qualitative comments that was elicited from the respondents to the decision situations (chapter 11.5.), and by introducing the effects of the extent of perceived moral dilemmas and professional ethical relevance of the situations in further analyses (chapter 11.6.).

11.5. Analysis of the qualitative comments to the decision situations

11.5.1. Introduction

In this section, we will analyze the qualitative comments that were given on the three decision situations.⁶⁰ The comments were coded according to the aspects of the decision situations they were related to, the treatment group the respondent belonged to and the rating on the decision in question. Recall that a rating of "1" implied emphasis on effectivity considerations (definitely no additional studies/testing), whereas a rating of "7" implied emphasis on professional ethical considerations ("definitely more studies/testing"). The treatment groups were categorized as follows:

- Group 1: No role expectations from superiors, favorable market situation
- Group 2: Role expectations from superiors, favorable market situation
- Group 3: No role expectations from superiors, unfavorable market situation
- Group 4: Role expectations from superiors, unfavorable market situation.

We start by analyzing comments related to professional aspects of the decision situations, and continue with strategic considerations and comments on the market situation.

11.5.2. Comments concerning professional aspects

The comments concerning professional aspects of the decision situations primarily dealt with the fact that the descriptions were not sufficiently detailed to give the amount of information that would have been available in real-life project situations.

⁶⁰ Of the 59 respondents, 32 gave comments on the first situation, 31 commented on the second situation, and 25 on the third situation. The respondents who participated in the planned sessions gave more comments than those who responded by mail.

11.5.2.1. Situation 1

In situation 1 (choice of the best analogue), twelve respondents remarked that an important piece of information lacking was whether the possible improvements that could have been obtained by searching for better analogues concerned reduction of toxicity or improvements of efficacy. We quote two of the comments concerning this aspect:

"The question of whether it is the best analogue in terms of efficacy or toxicity is essential. The score would have been lower if it had concerned efficacy, than if it concerned the toxicity aspect. In this case, safety about the best substance is probably thought of as a trade-off between efficacy and toxicity. I assume that the toxicity could also be improved." (Group 4, rating 5).

"This is difficult to answer since there normally would have been more information available that I could base my judgement on. If there had been reasons for doubts about the substance's safety (tolerance), I would have voted for more studies. If there were possibilities for marginal improvements in the efficacy, they really would not matter much neither for the result of the company nor for the patients. I would not have gone for further studies, if there was no doubt about the safety of the substance (tolerance)." (Group 1, rating 4).

Another uncertainty in situation 1 concerned how much knowledge the project group had gathered on the other analogues, and how much the other analogues differed from the one some members of the project group intended take to the development phase. Eight respondents commented on this aspect of the decision.

We have picked out one example:

"One could not generally say 1 or 7 in this situation, since there could be a short way to more studies with other analogues, and the degree of uncertainty about the best analogue would have to be judged professionally in each case." (Group 1, rating 4).

Four of the respondents wrote that it would be possible to save time by continuing with the project in the development phase at the same time as the project group continued searching for the best analogue:

"It is possible that one could enter the development phase at the same time as new analogues are judged/what has been found is verified. This could be time saving. No doubts about continuing if one at the same time will be further checking up on the analogues." (Group 1, rating 5).

"The other alternatives could be examined more closely while entering the development phase with the one." (Group 3, rating 2).

Note that the ratings of the two respondents quoted above were quite different, though they discussed the same assumption.

One respondent wrote as a comment to all three situations that the choice would depend upon the type of medicament that was involved (quotation from the comment to situation 1):

"I would let the decision about more animal studies to some extent be dependent on the type of medicament. If it were a diagnostic, where the purpose is to do the method of investigation even better, I would be particularly "strict" before I would let the substance/project enter the development phase. For therapeutics (pioneering new ones) for treatment of life threatening diseases, the judgement would have been somewhat "milder". (Group 1, rating 6).

Recall that the role expectations from superiors had the greatest impact in situation 1, where the Vice President of Research did not consider it likely that better analogues would be found. It is possible that some respondents relied on the professional judgement of the Vice President of Research, and e.g. assumed that the possible improvements concerned efficacy and not toxicity. Still, the following comment shows that not all respondents interpreted the situation in the same manner:

"The members of the project group have the best knowledge about substances, not the Vice President of Research - he has broadly knowledge about the background for the facts, not the background for the judgements. It would be right that the members of the project groups through consensus choose substance for the further progression (group cohesiveness)." (Group 2, rating 6).

11.5.2.2. Situation 2

In situation 2 (adverse drug reaction in an animal species), the respondents had been asked whether or not ongoing clinical trials, i.e. phase III, should be expanded compared to the original plans. The reason for expanding the clinical trials would have been to investigate whether signs of the accumulation effects, that had been observed in an animal species, could be found in a sample of patients greater than the one originally anticipated. As many as 14 of the respondents wrote that a natural course of action would be to conduct further studies in animals to test whether the accumulation effect was specific for the animal species in which it had been detected:

"I would have gone for additional testing in other animal species, to see whether this was a species-restricted phenomena. It is not correct to expose even more humans than those who are already included in phase III to this possible chance of accumulation of toxic products. It is possible to withdraw the approval for registration if the animal studies indicate that this would also happen in humans." (Group 2, rating 3).

"One should here work actively to find mechanisms that make this happen in a specific animal species. This could be considered even more important than conducting an extended phase III study." (Group 1, rating 7).

"I would have recommended further animal studies to establish that the effect is specific for the animal species." (Group 4, rating 3).

Note that also in this situation the ratings varied among respondents who made the same recommendations.

Four respondents argued in favor of doing more intensive research on the patients already involved in clinical trials, phase III, instead of extending the trials:

"With a satisfying sample in the existing phase III-plans, I would study the accumulation in that sample, and not extend before it was apparent that this would be necessary." (Group 3, rating 3).

Two respondents were of the opinion that it would be important to know to what extent the possible toxicological effect implied danger for human beings. One respondent suggested that the analysis method that gave the result 100% unmetabolic separation in humans be accurately judged:

"The degree of certainty of this method is decisive. The study cannot continue disregarding this liver accumulation hypothesis." (Group 4, rating 6).

Only three respondents wrote that more clinical trials in combination with animal studies should be conducted:

"One could well conduct more phase III-studies focusing on liver parameters, at the same time as the approval for registration is being prepared." (Group 1, rating 7).

"If it has been established that 100% is separated through the kidneys in clinical trials until phase III, the probability that some (a few) patients have another separation rate could not be determined based on an extended phase III-program only. I would have gone for conducting the program as planned, included more species in the animal pharmacology, and considered clinical follow-up trials in addition to the registration documentation." (Group 2, rating 2).

Four of the respondents who rated that additional tests to a little extent were necessary, wrote that they, based on the text, considered it established that the substance was good enough:

"In the description it is said that 100% separation in unmetabolic form is documented with sufficient certainty in studies that have already been conducted, and that there was no doubt about these results." (Group 4, rating 2).

"My interpretation of the exercise is that it has already been established that everything is separated through the kidneys. With the usual sample sizes in such studies, it should be verified that these results are right. If it would turn out that the results are based on too few patients, we would have to document them in more patients." (Group 1, rating 2).

The above qualitative comments indicate that some of the respondents who rated low on the decision in situation 2, recommended other courses of action than those presented in the description, or understood the text such that a sufficient number of studies had already been conducted. In fact, 12 of the 16 respondents who gave a rating "3" or lower in situation 2, commented on their choice. Thus, ambiguity in the text created variance in the answers that could not be accounted for by the independent variables.

11.5.2.3. Situation 3

In situation 3 (possible unknown impurity), 11 of the comments stressed the necessity of waiting until the new test method had been further developed:

"If it really is an impurity, it is important that this is detected as early as possible. If it is detected later, even more time will be lost." (Group 2, rating 6).

Three respondents were concerned with the importance of not disregarding knowledge about a possible impurity:

"Impurities can create problems on a longer term, it is important that this is investigated thoroughly. Cannot accept to "disregard" things that one has a hunch of." (Group 4, rating 7).

Seven respondents mentioned that it would be of importance to know the chemical content or/and the human toxicity of the product:

"An assumption for the answer is that it is expected with some probability that the impurity will be of toxicological importance. If the substance with great certainty means little for the safety of the patients, my propensity to wait will be lower." (Group 2, rating 6).

Five respondents pointed to a lacking piece of information in the description of the situation, viz. whether or not the possible impurity could be present not only in the new process method that the synthesists had developed, but also in established process methods:

"It has not been mentioned whether the substance contains the unknown impurity when produced with the "old" process method. My answer - to wait for the analysis method - assumes that substances both from the new and the old process contain the impurity. If not, they could start in a small scale with clinical trials using substance from the old process, and simultaneously work on improving the new process when they know how the pollution comes about and possibly what it is." (Group 2, rating 7).

One respondent stated that it would be of importance to know how well the analysis method that was used earlier had been evaluated. Two respondents argued in favor of working further with the analyses and simultaneously conducting clinical trials. One respondent proposed that identity between the two substances should be established in preclinical testing. Another respondent suggested that if isolation of the impurity were possible, the substance could be submitted to accelerated biological studies to minimize the delay by the development of a new analysis method.

As it is evident from the above comments, also the description of situation 3 contained some ambiguity. Six of the twelve respondents who rated "4" or lower on this situation, explained their choices in the comments. Obviously, some of the variance in the decisions in situation 3 could be accounted for by the assumptions the respondents had made and their interpretations of the description, as was the case with situation 1 and situation 2.

11.5.3. Comments related to strategic considerations and the market situation

Most of the comments related to strategic considerations and the market situation were given in situation 1.⁶¹ This is natural, since the market scenario was common for all the decision situations, and described before the first situation. Therefore, the respondents had the market situation fresh in mind when they worked with the first decision situation. In addition, some respondents might have

⁶¹ Eleven comments related to strategic considerations/the market situation were given in situation 1, four in situation 2, and none in situation 3.

given comments to the market condition in the first situation only, but assumed that these comments also had relevance for the next two situations.

Recall that an unexplained finding from the previous section was that the respondents, when being given role expectations from superiors, took more professional ethical considerations when the market situation was unfavorable than when it was favorable in situation 1 and 2. The strongest evidence for this finding was found in situation 1. Some of the comments related to strategic considerations in situation 1 could shed light on this finding. The following comments were all given from respondents who had received the "unfavorable market" scenario:

"Based on the economic situation of the firm, market/economic aspects will govern the research management's point of view and decisions to a far higher degree than the professional, medical/natural scientific and ethical. In such a situation it is important that the project management take consider also other aspects of the decision." (Treatment group 4, rating 6).

"If one comes late, one should be the best or have the best product" (Group 3, rating 7).

"It is important to find the best analogue before one continues, since it is so expensive to develop a pharmaceutical product, and it would be an economic disaster if the decision was wrong. In addition, one would perhaps never be able to launch a product of this type if one in the first round went for a wrong analogue (the company has economic problems)." (Group 3, rating 7).

"It is crucial to start running the track in a right direction from the beginning. It will make things easier later on. Total certainty of having found "the best" does not exist. But I would be satisfied with working with "the best" within a certain frame. The size of the frame is determined by the number of experiments, the more, the better. Managers always press for rapid progress. Researchers always wish for a thorough mode of procedure."

"...If there is a limited amount of work (time/resources) that remains to be done in order to clarify some important aspects of the other analogues, priority should be given to get this done. If one bets on one "horse" and the choice is wrong, one has under all circumstances lost in relation to the competitors." (Group 4, rating 4).

"It is of great importance for the company to continue with the absolutely best analogue. This will serve the company in the long run. It takes little time compared to the whole development period to investigate the other analogues at this stage, so that the requirements for further testing are the best possible." (Group 4, rating 6).

"The answer is given based on the fact that more studies will not interfere with the value of the project (the point of time for marketing) considerably. In addition the product will be more valueable." (Group 4, rating 7).

These comments to the first situation indicate that some of the respondents regarded the potential damage of releasing an inferior drug as particularly serious

so-called prospect theory on framing of risky problems. According to prospect theory, the responses of decision-makers to potential losses are typically more extreme than the responses to potential gains (Bazerman, 1986, 52, Tversky and Kahneman, 1981).⁶² This interpretation is supported by the following comments to situation 2:

"One should not "overlook" such an important effect in an animal species. This would soon be known anyway, and create a bad reputation for the company. In the long run one would gain by thoroughly investigating this. The company would stand out as a company that is serious about giving priority to safety before profitability." (Group 4, rating 7).

"...if it later came up that the finding in the animal species was not investigated in depth, and accumulation was found in the liver of humans, it would bring the company into professional disrepute." (Group 4, rating 6).

"If one sees the possibility of unexpected animal toxicity in an animal, one should conduct control tests in another animal! Before the medicament comes to the market, one should have investigated this factor more closely in humans, but this could be done simultaneously with other testing. It could to a great extent hurt the reputation of the company if it turned out that the medicament would have to be drawn back from the market due to toxicity." (Group 2, rating 7).

"The licensor (the inventing company) must take the responsibility for the progression of the project and see to it that sufficient documentation is available for registration and marketing." (Group 4, rating 7).

11.5.4. Conclusions based on the qualitative comments

The comments related to the professional aspects of the decision situations show that what would be the most professional ethical alternative is an open question. Dependent on the assumptions the respondents had made, it was possible to emphasize professional ethical considerations, and still choose a decision alternative that was categorized as primarily emphasizing effectivity considerations. Apparently, the decision alternatives did not constitute a unidimensional

⁶² An interesting comment to situation 1 concerning the relationship between professional ethical and economic considerations was also given by a respondent in treatment group 2:

"If there is doubt about two or more substances, it is important to evaluate them against each other to find the best and the right product. This choice should primarily be made on an ethical ground - then, if the substances get the same "grade", one could choose between them based on economic and market considerations." (Group 2, rating 6).

scale between the extremes "effectivity considerations" and "professional ethical considerations". It was possible to define the assumptions such that a decision choice that was categorized as emphasizing effectivity considerations at the same time took into account much professional ethical considerations. And, the comments related to the market situation showed that a respondent could choose a decision alternative that was rated as emphasizing much professional ethical considerations, and still place importance on long term effectivity considerations such as protecting the image of the company.

Different interpretations of the ambiguous professional content of the descriptions of the situations have probably introduced variance into the decision choices that cannot be accounted for by the treatment variables. A possible exception is situation 1, where the preferences of the Vice President of Research for entering the development phase without conducting further studies on the analogues could have been perceived as a guarantee that a satisfactory level of certainty had already been reached.

The findings from the analysis of the qualitative comments also contribute to explaining why professional commitment was unrelated or negatively related to the extent of professional ethical considerations in the decision choices. Since there was uncertainty about which decision alternative was the most professional ethical, no strong relation could actually be expected to be found. It is even possible that those with the highest level of professional knowledge - and presumably also the highest professional commitment - were the first to recognize the limits of the descriptions of the situations, and make their own assumptions.

11.6. Analysis of the impact of the extent of perceived moral dilemmas and professional ethical relevance

Based on the analysis of the qualitative comments, we concluded that the lack of association between professional commitment and the extent of professional ethical considerations in the decision choices was partly due to ambiguity in the descriptions of the situations. In this section, we will investigate whether another aspect of the value orientation of the respondents, viz. to what extent they perceived the situations as being moral dilemmas and having professional ethical relevance, would add explanatory power to the conceptual model originally proposed.⁶³

The correlation between the extent of perceived moral dilemmas and professional ethical relevance and the other variables in the model is shown in table 11.17. We would expect to find a positive association between **professional commitment** and the extent of perceived professional ethical relevance, since those with the highest professional commitment would probably be most aware of the professional ethical aspects of the decision situation. However, professional commitment was almost unrelated to the extent of perceived professional ethical relevance in situation 1. The relationship was negative, but not statistically significant, in situation 2 and situation 3. The extent of perceived professional ethical relevance, on the other hand, correlated with the propensity to be in favor of conducting additional studies in the decisions in situation 2 ($p < .05$) and situation 3 ($p < .0001$). In situation 1, the relationship between the two variables was in the same direction, but not statistically significant (two-tailed $p = .13$).

⁶³ Recall that the items concerning the extent of perceived moral dilemmas and to what extent professional ethical judgements were used were included to check the construct validity of the situations.

	MD1	PE1	MD2	PE2	MD3	PE3
SIT 1	.16 (ns)	.20 (ns)				
SIT 2			.22 (*)	.26 (**)		
SIT 3					.25 (*)	.71 (***)
COMM	-.01 (ns)	.08 (ns)	-.10 (ns)	-.01 (ns)	.08 (ns)	.04 (ns)
PROF	-.22 (*)	.03 (ns)	-.14 (ns)	-.20 (ns)	-.12 (ns)	-.11 (ns)
AUT1	-.02 (ns)	.17 (ns)	-.22 (*)	-.07 (ns)	-.07 (ns)	.17 (ns)
TEN ^a	-.31 (***)	.02 (ns)	-.08 (ns)	.01 (ns)	-.31 (***)	-.15 (ns)

Two-tailed tests

*: $p < .10$
 **: $p < .05$
 ***: $p < .01$
 ns: not statistically significant

MD1-3: The extent of perceived moral dilemmas in the situation 1-3

PE1-3: The extent to which professional ethical judgements were perceived to come into consideration in the situations 1-3

SIT 1-3: Decision-making in the situations 1-3

COMM: Organizational commitment

PROF: Professional commitment

AUT1: Items 2 and 3 in the autonomy scale

TEN^a: TENURE (ordinal scaled with 6 categories, Spearman's coefficient)

Table 11.17. Simple correlations between the extent of perceived professional ethical relevance in the situations 1-3, the decision-making in the situations, and the continuous covariates and tenure

The correlation coefficients show that the respondents with the strongest professional commitment did not perceive that professional ethical judgements came into consideration to a higher extent than those with a lower professional commitment. A possible reason for this lack of association is that the situations were too simplified compared to real-life project situations, and that important

information that would have been available in practice had been left out.⁶⁴ When the respondents perceived that professional ethical judgements came into consideration to a high extent, they had a strong propensity to take professional ethical considerations. Probably, the extent to which professional ethical judgements were perceived to come into consideration was an indicator of the experienced seriousness of the problem. The more serious the problem was perceived to be, the stronger was the propensity to conduct additional studies to gain more information.

Professional commitment was negatively associated with the extent of experienced moral dilemmas in all three situations. The negative relation was statistically significant in situation 1 ($p < .10$). Thus, the respondents with a higher level professional commitment perceived that the problems involved to a lower degree value conflicts than the respondents with a lower professional commitment. The more the respondents experienced that a decision situation was a moral dilemma, the higher was their propensity to conduct additional studies to gain more information ($p < .10$ in situation 2 and 3, not sign. in situation 1). This indicates that when a strong moral dimension was recognized, conducting additional studies was judged to be the most "morally right" alternative.

The correlations between the extent of perceived ethical relevance and the other covariates, organizational commitment and autonomy, showed that there was almost no association between **organizational commitment** and the two measures of perceived ethical relevance. There was a statistically significant negative

⁶⁴Another interpretation is that situation 2 and 3 had too obvious professional ethical relevance to capture a possible relation to professional commitment. The mean values of to what extent professional ethical considerations came into consideration were 4.5 in the first situation, 6.0 in situation 2, and 5.7 in situation 3.

association between autonomy and the extent of perceived moral dilemma in situation 2 ($p < .10$). Thus, the respondents who had a high level of autonomy perceived that the situation had a weaker moral dimension, and tended to emphasize more effectivity considerations than those with a low level of autonomy.

Those with a long tenure in the company perceived to a statistically significantly less extent than those with a short tenure that the situations 1 and 3 were moral dilemmas ($p < .01$ in both situations). In situation 1, this could account for why the respondents with a tenure of 2 or more were more inclined to adjust their decision behavior to the recommendations of the Vice President of Research than those with a shorter tenure. When the situation was perceived to be more morally neutral, it was easier to take the suggestions of the Vice President of Research into consideration.⁶⁵

As a final step of the analysis, we carried out a regression analysis, where the two indicators of ethical relevance were added to the independent variables in the original model (the tables 11.19. to 11.21, Appendix 3). Compared to regression equations obtained by the independent variables included in the original model, the following differences could be detected:

⁶⁵ However, this line of reasoning is only a possible interpretation in situation 1. In situation 2, where there was a similar interaction effect between role expectations and tenure as in situation 1, there was no relation between tenure and the extent of perceived ethical relevance. In situation 3, where there was no interaction effect between role expectations and tenure, the negative association between tenure and the extent of experienced moral dilemma was as strong as in situation 1.

- In situation 1, two additional variables entered the equation, viz. tenure (beta=.19, $p < .10$), and the extent of professional ethical relevance (beta=.25, $p < .05$). Recall, however, that a statistically significant interaction effect between role expectations and tenure occurred in this situation. Role expectations from superiors, the interaction effect between role expectations and the market situation, and professional commitment had statistically significant beta coefficients also in the extended model. The explanatory power of the model increased from Adj. $R^2 = .22$ in the original model to Adj. $R^2 = .29$ in the extended model.

- In situation 2, the extent of perceived professional ethical relevance entered the equation (beta=.25, $p < .05$), in addition to autonomy, which also had a statistically significant beta coefficient in the original model. The goodness of fit of the regression model increased from Adj. $R^2 = .07$ to Adj. $R^2 = .12$.

- In situation 3, the extent of professional ethical relevance was the only independent variable that had explanatory power (beta=.71, $p < .0001$). Thus, autonomy, that had a statistically significant beta coefficient, and was positively related to the extent of professional ethical considerations in the original model, explained too little of the remaining variance after the extent of perceived ethical relevance had been entered, to be included in the equation in the extended model. The extent of perceived professional ethical relevance explained almost half of the variance in the decision choices in situation 3 (Adj. $R^2 = .49$, as compared to Adj. $R^2 = .04$ in the original model).

Thus, the extent of perceived professional ethical relevance had a significant explanatory power in all three regression models.⁶⁶ This finding supports the model of ethical decision-making put forward by Hunt and Vitell (1986), which suggests that ethical judgements will influence ethical intentions and behavior.⁶⁷ In addition, the lack of a positive association between professional commitment and the extent of perceived professional ethical relevance contribute to explaining why professional commitment was unrelated or negatively related to the extent of professional ethical considerations in the decision-making (a result from the test of hypothesis 5). Those who had a high level of professional commitment, compared to those with a low level of professional commitment, neither perceived that the situations had a higher professional ethical relevance nor that additional testing was a more appropriate course of action.

⁶⁶ The extent of perceived moral dilemmas was not entered in the regression equation in any of the three situations, due to its high correlation with the extent of perceived professional ethical relevance.

⁶⁷ In a test of parts of the Hunt-Vitell model conducted by Mayo and Marks (1990), use of ethical judgements was operationalized by the following item: "Considering the desirability of the outcomes and your own values, rate each alternative as to how ethical an action you believe it to be." A 7-point rating scale with the anchors "Clearly unethical" and "Clearly ethical" was used to measure the ethical judgement (ibid, 166).

In a comment to the Mayo and Marks study (1990), Hunt (1990) suggested that the following formulation of the item would have been more appropriate: "Considering your own norms and values, please rate each alternative in terms of how Right or Wrong you believe it to be," with the anchors "Clearly right" and "Clearly wrong"

A relatively strong level of support was found in the study by Mayo and Marks for the hypothesis that ethical judgements would influence ethical evaluations (ibid).

In this study, the ethical judgements were not related to the "ethical"/"unethical" dimension, but concerned the perceived ethical relevance of the decision situations.

Those who had a high level of autonomy emphasized more effectivity considerations than those with a low autonomy in situation 2. But they also perceived that this situation to a less extent was a moral dilemma. When adjusted for the effect of the extent of perceived professional ethical relevance, autonomy was not statistically significantly related to the extent of professional ethical considerations in situation 3, as was the case in the original model. Still, support for hypothesis 6, that there will be a negative relationship between autonomy and the extent of professional ethical considerations, was only apparent in situation 2.

12. DISCUSSION

12.1. Introduction

In this chapter we will discuss methodological, theoretical and managerial implications of the study. The emphasis will be on the second phase of the study, since the theoretical and managerial implications of the findings in the first phase of the study have been discussed in chapter 6 and chapter 7. Directions for future research on ethical decision-making behavior will be presented at the end of the chapter.

12.2. Methodological limitations

The validity of the first phase of the study could have been improved if the number of interviewees (N=15) had been substantially greater. Then, an even broader range of examples of moral dilemmas could have been detected. In addition, it might have been possible to relate the examples to the demographic variables in more systematic way. With a larger sample of interviewees, more powerful conclusions could have been drawn on the relation between the demographic variables and the extent of perceived moral dilemmas and value conflicts at work. Still, it should be recalled that the first phase of the study was explorative with an emphasis on describing moral dilemmas and generating new hypotheses. The methodological requirements of the second phase of the study, where hypotheses were being tested, are different and more rigorous.

The study discussed in the chapters 8 to 11 might very well be the first application of experimental design on ethical decision-making among managers and employees in a company. Clearly, the possibilities of generalizing the results to other companies and lines of industries are limited. The purpose of the experiment was, however, not to explore the specific strength of the effect of individual and

situational variables was on ethical decision-making, but rather to see if such effects occur in the field (Ilgen, 1986, 264). In addition, it has been argued that some of the criticism that has been raised against the artificiality of laboratory experiments as compared to field studies is irrelevant (Locke, 1986). Firstly, in some areas of management and organization theory, the direction of the empirical relationships that have been found in the laboratory and in field settings is quite similar (*ibid*). Secondly, it might be difficult to make an exact distinction between the two research designs. Such distinction would be especially difficult to make in this study, since the experimental groups consisted of managers and employees working on resolving problems that were close to real-life events in their company (Campbell, 1986, 275).

Conducting the experiment in a company setting created some practical problems that might have posed threats to the validity of the study. About one half of the respondents participated in two planned sessions under controlled experimental conditions, while the other half answered the questionnaires by mail. This was due to problems of finding a time-slot during the ordinary working days that would be convenient for a majority of the employees.

Another practical problem was that the ethical content of the study could not be masked, as it has been done in most experiments on ethical decision-making (Hegarty and Sims, 1978, 1979, Laczniak and Inderrieden, 1987, Trevino and Youngblood, 1990). It would simply not have been possible to conduct the study in cooperation with the company without telling all participants that it dealt with ethics.⁶⁸

⁶⁸Generally, masking the content of studies on ethical decision-making is in itself an ethical problem, since the subjects are misled until the debriefing session has been held.

The respondents had been promised that their anonymity would be strictly protected. Still, the study being presented by the academic researcher as one dealing with ethics probably contributed to a social desirability bias in the responses. In the first phase of the study, the interviewees might have under-reported to what extent moral dilemmas and value conflicts at work occurred. In the second phase of the study, it is likely that it was perceived as socially desirable to rate high on the ethical relevance of the situations, and the propensity to be in favor of conducting additional studies. Also, over-reporting may have occurred on the items used to measure professional commitment. Problems due to social desirability bias can be expected to be even stronger in studies on ethics than in research on other organizational behavior topics (Randall and Fernandez, 1991). To the extent that the respondents actually under- or over-reported due to social desirability and experimenter expectancies (Cook and Campbell, 1979, 67), a method variance was created, posing a threat to the construct validity of the study.

The decision situations were constructed in such a way that being in favor of conducting additional studies would reflect high emphasis on professional ethical considerations and low emphasis on effectivity considerations. The qualitative comments showed, however, that some respondents who thought it was not necessary to conduct additional studies, still emphasized professional ethical considerations. Also, some of the respondents who were in favor of conducting additional studies paid attention to long-term effectivity considerations, e.g. protecting the image of the company. It is possible that the relationship between

"professional ethical considerations" and "effectivity considerations" is too complex to be represented in a unidimensional scale. But the different interpretations of the premises of the decisions were partly due to the scenarios not being sufficiently detailed to reflect the high complexity of real-life project situations. Thus, the point made by Randall and Gibson (1990) that scenarios used in business ethics research are generally too vague, also has relevance for this study. Some of the ambiguities in the scenarios could have been reduced by pilot testing the scenarios on respondents who had been interviewed in the first phase of the study. As formulated, the responses to the scenarios indicated a respondent's propensity to be in favor of conducting additional studies, but not necessarily to what extent the respondent took professional ethical vs. effectivity considerations.

The extent of perceived moral dilemmas and professional ethical relevance of the decision situations were not strongly correlated between the three situations. Obviously, "moral dilemmas" is such a wide-ranging and complex concept that it hardly can be operationalized through scenarios that constitute a scale with high reliability.

With these methodological reservations in mind, we proceed to the discussion of the theoretical findings of the study.

12.3. Theoretical contributions

In the introduction, we stated that the purpose of the study was twofold. The first purpose was to identify and describe moral dilemmas in the pharmaceutical industry, and a second purpose was to explain how contextual and individual factors affect ethical decision-making. First, we will discuss results related to the

description of moral dilemmas, next we will focus on findings that can contribute to explain how ethical decisions are being made.

12.3.1. Findings related to the description of moral dilemmas

It might be tempting for social scientists conducting research in business ethics to incorporate elements from normative ethical theory into the frameworks used in descriptive studies. We agree with Brady and Hatch (1992, 312-314) that to the extent this has been done in previous research on business ethics, the problems associated with applying abstract ethical theories in an empirical context have been underestimated (cf. also Trevino, 1986, 604).

In this study, a descriptive ethical approach was chosen. The examples of moral dilemmas that were brought up in the interviews in the first phase of the study were analyzed in terms of the theory on business ethics set forth by Gustafsson (1988). In applied ethics, small-range theories that encompass a more circumscribed range of social action (e.g. moral behavior in business organizations) might be relevant to use, in addition to the general normative ethical theories such as utilitarianism and Kantian formalism (Macklin, 1988, 54). The dilemmas presented by the respondents involved conflicts between courses of action derived from several of the ethical norm structures identified by Gustafsson (1988). The focus of the study was on situations where the company was confronted with how long to dwell on testing a new drug before taking a concrete step in the R&D process. In these situations, **effectivity ethics** related to project economy often speaks in favor of not dwelling too long before taking the next step. At the same time, it would benefit the long-term effectivity of the company to develop high quality drugs that have been thoroughly tested. **Credibility ethics** and **humanity ethics** also state that all efforts should be taken to gain accurate knowledge on the

safety and efficacy of a new drug. Humanity ethics would in addition protect the integrity of the subjects taking part in clinical trials, and the animals that are used in the studies. More studies than what is necessary should not be carried out on the new drug. It would also be in the interest of future patients who could benefit from the new drug to get the product launched on the market as soon as scientifically defensible.

The interviewees in the first phase of the study reported that they overall experienced moral dilemmas in the work roles to a little extent, though several examples of potentially important moral dilemmas were given. As discussed in chapter 7, a likely interpretation of this finding is a high ethical standard of the company combined with under-reporting by the interviewees.

In the second phase of the study the respondents were presented with three concrete decision situations that had been identified as examples of moral dilemmas by their colleagues in the first phase of the study. The respondents were asked to decide whether sufficient information had been gathered so that the project could enter the next stage of the R&D process, or whether additional studies should be carried out to increase the safety and/or efficacy of the new drug.

In all three situations, to what extent professional ethical judgements came into consideration was rated above the mean value of 4 on a 7-point scale. Also, the subjects perceived two of the three situations presented as being moral dilemmas to a high extent. It is only natural that the situations presented to the respondents in the second phase of the study were perceived to have rather high ethical relevance. The situations had already been identified as potential moral dilemmas by others in the R&D organization, however infrequent. Still, an interesting

finding was that the extent of perceived ethical relevance varied a lot among the respondents, despite the fact that they were all professionals working in the same company. Thus, we have evidence that moral dilemmas can occur in the pharmaceutical industry, though the company is operating within the limits of laws and regulations. However, the judgements on to what extent a specific situation is perceived as being a moral dilemma can vary much from person to person, even in a structured work environment with shared professional norms.

The propensity to be in favor of conducting additional studies was rather high in all three decision situations. The comments given to the decision situations showed that respondents who did not prefer to conduct additional studies often assumed that it was documented with sufficient certainty that enough studies had already been conducted. Some respondents who rated low on the propensity to be in favor of conducting additional studies recommended other courses of action than those presented in the descriptions of the situations. Generally, the respondents put much emphasis on professional aspects in resolving the moral dilemmas, though a social desirability bias could have led to over-reporting of the propensity to be in favor of conducting additional studies.

12.3.2. Findings related to explaining ethical decision-making

It has been argued that mixed-level research ought to be an important characteristic of organization behavior as an academic discipline (Rousseau, 1985). In the second phase of this study, a cross-level model (ibid, 14-15) was proposed for studying how ethical decision-making is influenced by contextual variables and variables linking individual employees to the organization. Person-situation models on ethical decision-making behavior have been criticized for being too general and

for failing to adequately specify their domain of interest (Brady and Hatch, 1982, 309). In this study, an attempt was made to carefully select independent variables that could be expected to influence the choices of decision options in the moral dilemmas that were studied, viz. situations where a pharmaceutical company is confronted with how long to dwell on testing before concrete steps in the R&D process are taken. The contextual variables included in the model were the market situation of the company (favorable vs. unfavorable), role expectations from superiors emphasizing time and resource constraints, and job autonomy. The variables linking the individual to the organization were organizational commitment, professional commitment, and tenure.

The data analyses revealed a number of interesting findings, some of which were hypothesized. Other findings were detected through an inquiry into the data by both qualitative and quantitative methods. On several of the hypotheses, however, the findings were nonconclusive. In particular, the effects of professional commitment, autonomy, and the market situation on the decision-making were rather weak. In the following, we will discuss the findings related to each of the independent variables.

Superiors' role expectations

Among the three situations, the role expectations from superiors emphasizing time and resource constraints were the clearest in situation 1, where the Vice President of Research explicitly expressed his preferences for entering the developing phase without conducting additional studies on the analogues. In addition, the signals from the Vice President of Research contained both professional arguments (sufficient information about the analogues had been gathered) and strategic considerations (a competitor working on similar analogues, and that additional

resources would be made available). Top management's role expectations in situation 2 (the time schedule of a licensee) and situation 3 (budget limits) were, on the other hand, mainly based on administrative concerns. In these situations, top management's preferences for not conducting additional studies were somewhat less explicitly expressed than in situation 1. Thus, the situational demands on the respondents in situation 1 could be characterized as **strong**, with clear role requirements and powerful incentives for not conducting additional studies (Mischel, 1977, referred to in Chatman, 1989, and Mitchell and Larson, 1987). In comparison, situation 2 and situation 3 were rather **weak** situations, with less clear role expectations and less powerful incentives for conforming to norm pressure from superiors (ibid).

The fact that situation 1 could be perceived as a stronger situation than situation 2 and situation 3 could explain why superiors' role expectations emphasizing time and resource constraints had their most powerful effect in the first decision situation. This supports the findings of Brief, Dukerich, and Doran (1991), according to which a higher authority can first and foremost influence subordinates' ethical decision-making when the explicit choices of the higher authority are known. When only the general values of a superior are known, the superior is less likely to influence the decisions behavior of subordinates who are accountable to him/her (ibid).

It was difficult to formulate the role expectations in a manner that was powerful and at the same time realistic. An unrealistically strong level of norm pressure could well have increased the probability of the researchers' over-reporting the propensity to be in favor of conducting additional studies.

Organizational commitment

An interaction effect between role expectations from superiors and organizational commitment was found in situation 2 and situation 3, where norm pressure from top management was not related to professional aspects. In these situations, respondents with a high level of organizational commitment were less likely to be in favor of conducting additional studies than those with a low level of organizational commitment only when there were role expectations emphasizing time and resource constraints. Thus, as it had been hypothesized, role expectations from superiors had the greatest effect on the respondents with a high level of organizational commitment. This finding would seem to support the assumption made by Randall (1987), that employees with a high level of organizational commitment in conflict situations could let corporate dictates dominate over their own ethics.

In the long run, putting one's own values aside for norm pressure from superiors could lead to a reduction in commitment, since volition could be considered one of the ingredients in actions that make actions binding, and thus determine the extent of commitment (Salancik, 1977, 4). We would conclude that the causal model used as the basis for developing hypotheses between the independent and dependent variables may have been too simplified a model. In a dynamic perspective the model should be made recursive, with feedbacks from ethical decision-making to the independent variables. Indeed, a major challenge to person-situation researchers is to develop dynamic process models that could be used to investigate on-going transactions between individuals and their work environments (Mitchell and James, 1989, Pervin, 1989, Schneider, 1983).

Tenure

The results from the first phase of the study seemed to indicate that the respondents with the shortest tenure would experience moral dilemmas to a higher extent than those with a long tenure. This finding got support in the second phase of the study. Both situation 1 and 3 were perceived as being moral dilemmas to the greatest extent by the respondents with the longest tenure. In situation 1 and 2, the role expectations from superiors emphasizing time and resource limits affected only the decisions of the respondents with a tenure of 2 or more years. This indicates that the respondents with a tenure of 2 or more years had become more socialized to company values than those who were new in their positions.

On the other hand, there was a negative, but not statistically significant, relationship between tenure and organizational commitment, whereas tenure was unrelated to professional commitment. These findings would imply that the values of the employees are not as much influenced by organizational values during the employment in the company. It is possible that the researchers with the longest tenure have learnt to be realistic and acknowledge the importance of behaving in accordance with how top management would resolve the dilemmas. Thus, one could somewhat paradoxically say that they have adapted to the business culture without necessarily adjusting their personal values or professional ethics.

Managerial position and job autonomy

Little information was gained about the question of whether the managers in resolving the moral dilemmas identified themselves stronger with the company values than researchers who were not managers. In the first phase of the study the managers stated that they experienced moral dilemmas to a somewhat greater extent than nonmanagers. This could, however, be a natural consequence of their

extended work responsibilities, and need not indicate that the managers, who were presumably recruited among the best researchers, had a stronger identification with professional values than nonmanagers.

In the second phase of the study, job autonomy was used as a substitute measure for managerial position. The respondents who expressed a high level of autonomy reported slightly higher levels of both organizational and professional commitment than the respondents who had a low level of autonomy. The correlations between job autonomy and the commitment measures were, however, not statistically significant.

No associations were found between autonomy and the extent of perceived moral dilemmas and professional ethical relevance, except in situation 2. Respondents with a high level of autonomy perceived situation 2 as being a moral dilemma to a less extent than those with a low level of autonomy. In this situation, autonomy was also negatively related to the propensity to be in favor of conducting additional studies. This result would indicate that the respondents with a high level of autonomy identified themselves stronger with the managerial values of effectivity than those with a low level of autonomy.

In situation 3, on the other hand, the respondents with the highest level of autonomy were most in favor of conducting additional studies. Thus, the results concerning the relationship between autonomy and ethical decision-making were contradictory.

A possible reason for this lack of association is that the managers are selected based on both professional and administrative qualifications. Thus, they can be

expected to have strong commitments to both professional and managerial norms. Consequently, the way they resolve ethical dilemmas will be highly situation specific.

Since, as far as we know, autonomy has not been included as an independent variable in previous studies on ethical decision-making, the results on the effects of autonomy are difficult to compare to other studies. Previous studies that have explored how a person's position within the organizational hierarchy influences his/her ethical decision-making have usually encompassed managers at several hierarchical levels, e.g. top management, middle management and first-level management (Harris, 1990, Posner and Schmidt, 1984), whereas the respondents in this study were mainly first-level managers and researchers. No attempts were made at analyzing in depth the relationship between job characteristics (Hackman and Oldham, 1971) and ethical decision-making.

Professional commitment and perceived ethical relevance

A negative correlation was observed between organizational and professional commitment. The correlation was so weak that the two dimensions of role orientation towards the organization could be considered independent constructs, as it has been suggested in several previous studies (Flango and Brumbaugh, 1974, Greene, 1978, Grimes and Berger, 1970, Gouldner, 1958, Hall, Schneider, and Nygren, 1970, Jauch, Gluck, and Osborn, 1978, and Tuma and Grimes, 1981).

There was a negative association between professional commitment and the extent of experienced moral dilemmas in all three decision situations. The correlation was, however, statistically significant only in situation 1. The decision situations were not seen as involving more professional ethical considerations by the

respondents with a high level of professional commitment than by those with a low level of professional commitment. This could explain the unexpected finding that the relation between professional commitment and the propensity to conduct additional studies was negative in situation 1, whereas no association was observed in situation 2 and situation 3. It is likely that the subjects with the highest professional commitment were among the first to recognize the ambiguities in the descriptions of the decision situations, and add their own assumptions.

The perceived ethical relevance of the situations appeared to be an important predictor of the ethical decision-making behavior. Particularly, the more the respondents considered that professional ethical judgements came into consideration in resolving the dilemmas, and the more they perceived the situations as being moral dilemmas, the greater was their propensity to be in favor of conducting additional studies. The association between the extent of perceived professional ethical relevance and the propensity to conduct additional studies was strongest in the third situation, where the perceived professional relevance explained almost half of the variance in the decision choices. This finding supports the Hunt-Vitell (1986) model of ethical decision-making, where ethical judgements are considered an intervening variable between the independent situational and individual variables and the dependent variable, ethical decision-making.

The market situation

The manipulation of favorable vs. unfavorable market situation had few effects on the propensity to be in favor of conducting additional studies. The effect of the market situation on ethical decision-making remains a topic that we know very little about. While previous studies have shown that the propensity to commit oneself to "unethical" behavior increases when the intensity of competition is

strengthened (Hegarty and Sims, 1978, Staw and Sz wajkowski, 1975), several of the respondents in this study regarded the potential damage of releasing an inferior drug as particularly serious if the market situation already was unfavorable. Thus, in situation 1, the propensity to be in favor of conducting additional studies was higher in the unfavorable than in the favorable market condition under role expectations from superiors. This was the only statistically significant effect of the market situation that was found. Possibly, the respondents identified themselves to such a high degree with the actual market situation of the company that it was difficult for them to imagine being in the market situation described in the scenarios. In decision 2 and decision 3 it may also have been difficult to recall the market situation. A description of the market situation was, for practical reasons, only given once, viz. before the first situation.

The manipulation checks showed that the two treatment variables were confounded. The market situation was perceived as being worse when there were role expectations emphasizing time and resource limits than in the absence of such role expectations. Also, the pressure from management was perceived as being stronger when the market situation was unfavorable than when it was favorable, in the absence of role expectations. A better design of the study might have been to manipulate only role expectations, and investigate the effects of the market situation in later studies. Had the market manipulation been left out, there would have been only two treatment groups and a greater number of respondents in each cell, which would have increased the power of the data analysis.

Conclusion

In summary, the person-situation model yielded substantially more powerful findings than what could have been obtained by studying the influence of the situational factors alone or by only focusing on the factors linking the individual to the organization. In the decision situations that were presented to the respondents, neither organizational commitment nor tenure was directly related to the propensity to be in favor of conducting additional studies. Still, both variables moderated the relationship between superiors' role expectations and the decision-making in two of the three situations. Superiors' role expectations had the greatest impact on the propensity to accept the amount of information already obtained as sufficient when the role expectations were explicitly expressed, and included professional as well as strategic concerns (situation 1). On the other hand, the hypothesized interaction effect between superiors' role expectations and organizational commitment was only present when the role expectations were based on administrative and strategic, rather than professional, aspects (situation 2 and 3). In these situations, the role expectations had the greatest effect on the respondents with a high level of organizational commitment. The extent of perceived ethical relevance was an important predictor of the choices of decision options. The more the respondents perceived the situations as having ethical relevance, the greater was their propensity to be in favor of conducting additional studies.

Much of the variance observed in the choices between decision options could not be explained by the variables included in the conceptual model. This is not surprising, considering the complex object of study. A causal model with only one-directional influences is admittedly a simplification of how moral dilemmas are resolved in organizational settings. In a dynamic perspective, there probably

are recursions in the model. For instance, we have discussed that an employee's organizational commitment can be reduced over time if superiors expect the employee to act against his/her values.

Also, other individual and situational variables than those included in this study will influence ethical decision-making behavior. The only individual variables included in the model were characteristics linking the individual to the organization. The amount of explained variance could have increased if personality variables such as locus of control and stage of cognitive moral development (Kohlberg and Candee, 1984, Lawrence and Kohlberg, 1984, Trevino and Youngblood, 1990), or Rokeachean value system (Brief, Dukerich, and Doran, 1991), had been included. The influence of personal dispositions on ethical decision-making is likely to be stronger in weak than in strong situations (Brief, Dukerich, and Doran, 1991, Davis-Blake and Pfeffer, 1989, 385, Mitchell and Larson, 1987, 93-96).

There are also likely to be differences between professions and units in the R&D-organization in how the dilemmas would have been resolved. However, to protect the anonymity of the respondents in this study, the profession and the organizational unit they belonged to were not registered.

12.4. Managerial implications

We have established that moral dilemmas in the company where the study was conducted do not occur frequently. But when a moral dilemma arises, it may engage the researchers to a high extent. Thus, it is important for the management to be able to recognize situations that may become moral dilemmas. In such situations, the traditional utilitarian criteria that effectivity considerations rely upon

should be supplemented by criteria based on deontological and professional ethical norms (Etzioni, 1988, Powers and Vogel, 1980, 16).

Researchers might be reluctant to conform to norm pressure from top management emphasizing time and resource limits, unless the norm pressure is also based on professional arguments. Further, the researchers mainly think in pure professional terms when resolving moral dilemmas. When faced with a difficult market situation, it may be more important for the researchers to protect the long-term image of the company than to take short-term effectivity considerations into account. Still, there might be ways to shorten the time span of the R&D process and at the same time pay considerable attention to professional ethics. A new drug that has improved efficacy and satisfactory safety compared to existing products might be of great benefit to society. Therefore, efforts should be made to shorten the time span of the R&D process without compromising the safety of the drugs and the rights of the animals and humans participating in studies where new drugs are tested.

If the researchers have to follow company expectations that are against their personal and/or professional ethical values, a cognitive inconsistency between values and behaviors will arise. A possible reaction to such cognitive inconsistencies is that researchers who feel that their values and the norms of the company do not match, seek alternative job opportunities. Some degree of turn-over due to mismatch between individual values and company norms is probably positive both for the individuals involved and for the firm. In lack of alternative job opportunities, however, the cognitive inconsistency might be resolved by the researchers through adjustments of personal values to the company norms. Alternatively, the researchers could stay in the company without adjusting their values. A likely

result would then be reduced commitment to the company (Salancik, 1977). A lack of congruence between the professional and personal values of researchers and company norms might decrease the researchers' performance and their potential for being innovative.

Like other high-technology companies, the one studied is characterized by high specialization and rapid changes. The development of commitment and socialization processes in high-technology organizations are different from such processes in more stable organizations (Beyer, 1989). The research conducted in the case company showed that it is quite possible to combine a high level of organizational commitment with a high level of commitment to professional norms. In addition, commitment in high technology organizations could be directed towards projects (Beyer, 1990). A balanced, multiple commitment towards both the company and occupational group is probably necessary to maintain high professional standards in research intensive companies. Employees who have a strong commitment to the company in a more narrow sense might, when put under norm pressure from superiors, put their own values aside when acting in moral dilemmas. A corporate culture emphasizing cohesiveness and loyalty to superiors could lead to defect decision-making in form of group-think phenomenon (Janis, 1972), and reduced flexibility, thus preventing innovativeness (Salancik, 1977).

While a strong corporate culture based on narrow values might be dysfunctional, it is certainly not advisable to attempt to create a weak corporate culture with employees who are committed to a small extent (Randall, 1986). An important dimension in creating a corporate culture that promotes high ethical standards is whether the company's mission is explicitly linked to the function the company serves in society. Also, the employees should be given a considerable amount of

autonomy in ethical decision-making. Moral dilemmas are by nature very difficult to resolve, and it is not likely that the top managers always know what is best.

This study dealt with moral dilemmas where it was hard to know what would be the best solution, and we did not focus on "unethical behavior" either from top management's or from employees' point of view. Still, our study indicates, as does the study of Brief, Dukerich, and Doran (1991), that top managers should state very clearly the course of action they prefer in order to have an influence on how subordinates resolve moral dilemmas. General value statements and imprecise corporate codes of ethics are probably not sufficient to influence the ethical decision-behavior of employees. Thus, while emphasizing autonomy and the positive aspects of multiple commitments might be necessary to **promote ethical behavior**, a more authoritarian attitude combined with explicit decision directives from top management might be needed to **prevent unethical behavior** among the employees. Such a combination between autonomy and control in ethical issues is difficult to build into a corporate culture, and it certainly requires a high degree of ethical awareness among the top management. Strong situations should be created to prevent and discourage clearly "unethical" behavior. On the other hand, a relief from organizational pressures combined with free and informed choice, and personal responsibility for action could be the best way of fostering integrity in ethical issues (Argyris and Schön, 1988).

12.5. Future research

12.5.1. Description of moral dilemmas

In this study, the focus was on moral dilemmas in a pharmaceutical company that could be characterized as an ethical pioneer. The examples of moral dilemmas that were given were not limited to the case company, and could well have occurred in any pharmaceutical enterprise engaged in R&D. However, it is possible that moral dilemmas would be experienced to a higher degree by employees working with a company that puts less emphasis on ethical issues than the case company. Also, in a company with a lower ethical standard it is more likely that examples of "unethical" behavior could have been detected. It would be interesting to explore to what extent moral dilemmas are experienced, and what kinds of ethical norm structures are brought into conflict, in other lines of industry than the pharmaceutical industry. In pharmaceutical companies, humanity ethics is particularly prevalent, since concerns have to be taken for animals and humans participating in studies conducted to test new drugs. In other lines of industry, conflicts between effectivity ethics on the one hand, and credibility ethics and/or environmental ethics on the other hand, are likely to dominate. Still, we know little about what managers and employees in other industries perceive as important moral dilemmas.

To what extent moral dilemmas occur in relation to various stakeholders of business organizations should also be further investigated. An important research question is to explore how stakeholders' power impacts the ethical standard of the organization (cf. the discussion in Gatewood and Carrol, 1991, 684, based on Freeman and Reed, 1983).

12.5.2. Explaining decision-making in moral dilemmas

Though highly structured research methodology was used in the second phase of the study, also the parts of the study attempting to explain decision-making in moral dilemmas should be regarded as basically explorative. Our knowledge of how individual and situational factors influence ethical decision-making in organizations is still very limited. Mixed-level research focusing on the joint effects of individual and situational factors should be given priority over research inquiring into the effect of individual or situational factors alone.

In interactional organizational research it is assumed that stable individual dispositions cannot predict behavior across all situations. Still, an individual's behavior might be coherent over a sample of situations that share similar characteristics (Chatman, 1989, Schneider, 1983). Coherence in ethical behavior could be studied by aggregating data for each individual over time in a data set (Schneider, 1983, Staw, Bell, and Clausen, 1986).

More research should also be carried out to identify what are the important situational parameters that influence ethical decision-making (Chatman, 1989). The results of this study support the suggestion by Chatman (1989, 336-337) that the strength of a situation should be one component of a more comprehensive taxonomy of situational factors that affect behavior in organizations. Still, we need to gain more knowledge on how strong situations, for example rigidly enforced ethical codes, might have negative influences on ethical decision-making processes. As it has been emphasized in this study, complex moral dilemmas are ambiguous situations. Strong role requirements might lead to defect decision-making, such as group-think phenomenon (Janis, 1972). Also, if role occupants feel pressure to behave against their own values, their level of organizational

commitment might decrease. On this background, future research should address how the implementation of ethical policies in companies shapes concrete decision outcomes in moral dilemmas, as well as the work attitudes of the persons involved in the decision-making process.

This study has focused on the effects of contextual and person-level variables on individual behavior. It has, however, been argued that true person-situation interactional research should also address how individuals may influence situations, e.g. the organization they are working with (Chatman, 1989, Pervin, 1989, Schneider, 1983). Since it is difficult to set definite organizational standards for expected behavior in moral dilemmas, employees might have a particularly strong influence on situations in ethical issues.⁶⁹ Consequently, perhaps more than in other domains, a manager may serve as a role model for his/her subordinates in behavior related to ethical issues. Also, an employee at a lower level of the organizational hierarchy might influence the ethical policy of the company he/she is working with by bringing ethical issues into attention of his/hers superiors. As suggested by Rousseau (1985, 15), upward-oriented cross-level models may be valuable in explaining for example whistle blowing.

Single short-term experiments like the one conducted in this study can be useful in gaining some initial insight into how individual and situational factors influence ethical decision-making. Still, systematic cross-situational and longitudinal research must be carried out if we wish to gain a deeper understanding of the phenomenon. In order to learn more about reciprocal causation of persons and situations, efforts

⁶⁹ Pierce, Dunham, and Cummings (1984) found that leader behaviors which provided environmental structuring in the form of goals, norms, appropriate procedures and appropriate role clarification, were most strongly associated with employee attitudes and behaviors "when structuring cues and stimuli from the rest of the environment are relatively slight" (ibid, 238).

should be made to study people interacting in natural settings over extended periods of time (Mitchell and James, 1989, Schneider 1983, 12). Both longitudinal survey designs, observation, and long-term experiments could be used to capture person-situation reciprocity (Schneider, 1983). A variety of research paradigms, metaphors, and methods should be tried out to gain a more complete understanding of the dynamics of ethical decision-making behavior (Mitchell and James, 1989, Morgan, 1980, 1983, 1986, Pervin, 1989).

Longitudinal studies of the development of moral judgements have been conducted, even if without exploring explicitly the influence of situational factors on the stages of moral judgement (Lawrence and Kohlberg, 1984).⁷⁰ Still, we must bear in mind the difficulties involved in obtaining data on ethical judgements and ethical behavior in work organizations. One should perhaps have somewhat more modest claims on future research on ethical attitudes and behavior than on research on more established work attitudes and behaviors, such as job satisfaction and performance, where thousands of studies have already been carried out. Considering the immaturity of the subject, knowledge gained through well-designed short-term studies is also highly valuable.

⁷⁰ Also, as far as we know, the impact of moral judgements on moral action has only been investigated in cross-sectional studies (Kohlberg and Candee, 1984).

REFERENCES

- Abbot, Andrew (1983), "Professional Ethics", American Journal of Sociology, Vol. 88, No. 5, 855-885.
- Akaah, Ismael P. (1989), "Differences in Research Ethics Judgements Between Male and Female Marketing Managers", Journal of Business Ethics, Vol. 8, 375-381.
- _____, and Edwar A. Riordan (1990), "The Incidence of Unethical Practices in Marketing Research: An Empirical Investigation", Journal of the Academy of Marketing Science, Vol. 18, No. 2, 143-152.
- Allen, Natalie J, and John P. Meyer (1990), "The Measurement and Antecedents of Affective, Continuance, and Normative Commitment", Journal of Occupational Psychology, Vol. 63, 1-18.
- Allport, G.W., P.E. Vernon, G. Lindsey (1960), The Study of Values, 3rd ed., Boston: Houghton Mifflin.
- Angle, H., and J. Perry (1981), "An Empirical Assessment of Organizational Commitment and Organizational Effectiveness", Administrative Science Quarterly, Vol. 26, 1-14.
- Argyris, Chris, and Donald A. Schön (1988), "Reciprocal Integrity: Creating Conditions That Encourage Personal and Organizational Integrity", in Suresh Srivastva (ed.), Executive Integrity. The Search for Human Values in Organizational Life, San Fransisco, Cal: Jossey-Bass.
- Arlow, Peter (1991), "Personal Characteristics in College Students' Evaluations of Business Ethics and Corporate Social Responsibility," Journal of Business Ethics, Vol. 10, 63-69.
- Arnold, Hugh J. (1982), "Moderator variables: A Clarification of Conceptual, Analytic, and Psychometric Issues", Organizational Behavior and Human Performance, 29, 143-174.
- Baumhart, Raymond C. (1961), "How Ethical are Businessmen?", Harvard Business Review, Vol. 39, July-August, 6-19, 156-176.
- Bazerman, Max H. (1986), Judgement in Managerial Decision Making, New York: John Wiley & Sons.
- Beauchamp, Tom L., and LeRoy Walters (eds.) (1989), Contemporary Issues in Bioethics, 3rd ed., Belmont, Cal: Wadsworth, reprinted in Tore Nordenstam (ed.), Etikk. Klassiske tekster og aktuelle artikler, 2. prøveopplag, Filosofisk Institutt, Universitetet i Bergen (1992).
- _____, and Norman E. Bowie (eds.) (1988), Ethical Theory and Business, Englewood Cliffs, New Jersey: Prentice-Hall.
- Becker, Howard S. (1960), "Notes on the Concept of Organizational Commitment", American Journal of Sociology, Vol. 66, 32-42.

- Behrman, Jack N. (1988), Essays on Ethics in Business and the Professions, Englewood Cliffs, New Jersey: Prentice-Hall.
- Beltramini, Richard F., Robert A. Peterson, and Georg Kozmetsky (1984), "Concerns of College Students Regarding Business Ethics", Journal of Business Ethics, Vol. 3, 195-200.
- Betz, Michael, Lenahan O'Connell, and Jon M. Shepard (1989), "Gender Differences in Proclivity for Unethical Behavior", Journal of Business Ethics, Vol. 8, 321-324.
- Brenner, Steven N., and Earl A. Molander (1977), "Is the Ethics of Business Changing?", Harvard Business Review, Vol. 55, 57-71.
- Beyer, Janice M. (1981), "Ideologies, Values and Decision Making in Organizations", in Paul C. Nystrom and William Starbuck (eds.) Handbook of Organizational Design, Vol. 2, 166-202, New York: Oxford University Press.
- _____ (1990), "The Twin Dilemmas of Commitment and Coherence Posed by High Technology", in Luis R. Gomez-Mejia and Michael W. Lawless (eds.), Organizational Issues in High Technology Management, Greenwich, Connecticut: JAI Press.
- Bird, Frederick B., and James A. Waters (1989), "The Moral Muteness of Managers", California Management Review, Vol. 32 (Fall), 73-87.
- Blau, Peter M., and Richard Scott (1962), Formal Organizations. A Comparative Approach, London: Routledge & Kegan Paul.
- Brief, Arthur P., Janet M. Dukerich, and Lucinda I. Doran (1991), "Resolving Ethical dilemmas in Management. Experimental Investigations of Values, Accountability, and Choice", Journal of Applied Social Psychology, 21, 380-396.
- _____, and _____ (1991), "Theory in Organizational Behavior: Can it be Useful?", in L.L. Cummings and Barry M. Staw (Eds.), Research in Organizational Behavior, Vol. 13, 327-352, Greenwich, Conn: JAI Press.
- Brady, F. Neil, and Mary Jo Hatch (1992), "General Causal Models in Business Ethics: An Essay on Colliding Research Traditions", Journal of Business Ethics, Vol. 11, 307-315.
- Bray, James H., and Scott E. Maxwell (1985), Multivariate Analysis of Variance, Beverley Hills: Sage Publ.
- Brenner, Steven N., and Earl A. Molander (1977), "Is the Ethics of Business Changing?", Harvard Business Review, July-August.
- Campbell, Donald T. (1960), "Recommendations for APA Test Standards Regarding Construct, Trait, or Discriminant Validity", American Psychologist, Vol. 15, 546-553.
- Campbell, John F. (1986), "Labs, Fields, and Straw Issues", in Edwin A. Locke (ed.), Generalizing from Laboratory to Field Settings, Massachusetts: Lexington Books.

- Carrol, Archie B. (1975), "Managerial Ethics: A Post-Watergate View", Business Horizons, Vol. 18, April, 75-80.
- Cavanagh, Gerald F., and Arthur F. McGovern (1988), Ethical Dilemmas in the Modern Corporation, Englewood Cliffs, New Jersey: Prentice Hall.
- Chatman, Jennifer A. (1989), "Improving Interactional Organization Research: A model of Person-Organization Fit", Academy of Management Review, Vol. 14, 333-349.
- _____ (1991), "Matching People and Organization: Selection and Socialization in Public Accounting Firms", Administrative Science Quarterly, Vol. 36, 459-484.
- Christi, R., and F. Geis (1970), Studies in Machiavellianism, New York: Academic Press.
- Churchill, Gilbert A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs", Journal of Marketing Research, Vol. 16, 64-73.
- _____ (1991), Marketing Research. Methodological Foundations, 5th ed., Chicago: The Dryden Press.
- Cook, Thomas D., and Donald T. Campbell (1979), Quasi-Experimentation. Design & Analysis Issues for Field Settings, Boston: Houghton Miffling.
- Corstjens, Marcel (1991), Marketing Strategy in the Pharmaceutical Industry, London: Chapman & Hall.
- Colby, Ann, and Lawrence Kohlberg (1984), "Invariant Sequence and Internal Consistency in Moral Judgement Stages", in William M. Kurtines and Jacob L. Gewirtz (eds.), Morality, Moral Behavior, and Moral Development, New York: John Wiley.
- Davis-Blake, Allison, and Jeffrey Pfeffer (1989), "Just a Mirage: The Search for Dispositional Effects in Organizational Research", Academy of Management Review, Vol. 14, 385-400.
- DeGeorge, Richard T. (1982), Business Ethics, New York: Macmillan Publ.
- Derry, Robbin and Ronald M. Green (1989), "Ethical Theory in Business Ethics: A Critical Assessment", Journal of Business Ethics, Vol. 8, 521-533.
- Donaldson, Thomas (1982), Corporations and Morality, Englewood Cliffs, New Jersey: Prentice-Hall.
- Dubinsky, Alan J. and Thomas N. Ingram (1984), "Correlates of Salespeople's Ethical Conflicts", Journal of Business Ethics, Vol. 3, 343-353.
- Enderle, Georges (1992), "Business Ethics as a Goal-Right System", to be published in E. Morscher et al., Foundations of Applied Ethics, Austria.
- Erickson (1987), "Pharmaceuticals", Spectrum, A.D. Little, January, 1-7.

- Etzioni, Amitai (1975), Comparative Analysis of Complex Organizations, New York: The Free Press (1st ed. 1961).
- _____ (1988), The Moral Dimension. Toward a New Economics, New York: The Free Press.
- Evans, William A. (1981), Management Ethics: An Intercultural Perspective, Boston: Martinus Nijhoff.
- Eysenck, H.J., and S.B. Eysenck (1967), "On the Unitary Nature of Extraversion", Acta Psychologica, Vol. 26, 383-390.
- Ferrel, O.C., and Larry G. Gresham (1985), "A Contingency Framework for Understanding Ethical Decision Making in Marketing", Journal of Marketing, Vol. 49, 87-96.
- _____, _____, and John Fraedrich (1989), "A Synthesis of Ethical Decision Models for Marketing", Journal of Macromarketing, Vol. 8, 1988.
- _____, and Steven J. Skinner (1988), "Ethical Behavior and Bureaucratic Structure in Marketing Research Organizations", Journal of Marketing Research, Vol. 25 (February), 103-109.
- _____, and K. Mark Weaver (1978), "Ethical Beliefs of Marketing Managers", Journal of Marketing, Vol. 42, 69-73.
- Festinger, L. (1957), A Theory of Cognitive Dissonance, Stanford: Stanford University Press.
- Fimbel, Nancie and Jerome S. Burstein (1990), "Defining the Ethical Standard of High Technology Industry", Journal of Business Ethics, Vol. 9, 929-948.
- Fischhoff, B., P. Slovic and C. Lichtenstein (1980), "Knowing What You Want: Measuring Labile Values (1990)", in T. Wallsten (ed.), Cognitive Processes in Choice and Decision Behavior, Hillsdale, N.J: Erlbaum.
- Flango, Victor E., and Robert B. Brumbaugh (1974), "The Dimensionality of the Cosmopolitan-Local Construct", Administrative Science Quarterly, Vol. 19, 198-220.
- Fortune (1991), "Drugmakers under Attack", 111-118.
- Fleming, John E. (1987), "A Survey and Critique of Business Ethics Research, 1986", in William C. Frederick and Lee E. Preston (eds.) Research in Corporate Social Performance and Policy, Vol. 9, Empirical Studies of Business Ethics, London: JAI Press.
- Fredrickson, J. W. (1986) "An Exploratory Approach to Measuring Perceptions of Strategic Decision Process Constructs", Strategic Management Journal, Vol. 7, 473-483.

Freeman, R. Edward, and D.L. Reed (1983), "Stockholders and Stakeholders: A New Perspective on Corporate Governance", California Management Review, Vol. 25 (3), 93-104.

_____ (1984), Strategic Management: A Stakeholder Approach, Boston: Pitman.

_____, and Daniel R. Gilbert (1988), Corporate Strategy and the Search for New Ethics, Englewood Cliffs, New Jersey: Prentice-Hall.

French, John R.P., and Bertram Raven (1959), "The Bases of Social Power", in D. Cartwright (ed.), Studies in Social Power, Ann Arbor, Mich: Institute of Social Research, University of Michigan.

Fritzsche, David J., and Helmut Becker (1984), "Linking Management Behavior to Ethical Philosophy - An Empirical Investigation", Academy of Management Journal, Vol. 27 (1), 166-175.

_____ (1991), "A Model of Decision-Making Incorporating Ethical Values", Journal of Business Ethics, Vol. 10 (11), 841-852.

Gatewood, Robert D., and Archie B. Carrol (1991), "Assesment of Ethical Performance of Organizational Members: A Conceptual Framework", Academy of Management Review, Vol. 16 (4), 667-690.

Gerbing, David W. and James C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Elements", Journal of Marketing Research, Vol. 25, 186-192.

Gifford, Fred (1986), "The Conflict between Randomized Clinical Trials and the Therapeutic Obligation", Journal of Medicine and Philosophy, Vol. 11, 385-404, reprinted in Etikk og randomiserte kliniske forsök, reprinted in Litteraturpakke nr. 3, Senter for Medisinsk Etikk, Oslo.

Gilligan, Carrol (1982), In a Different Voice, Cambridge, Mass: Harvard University Press.

Glaser, Barney R., and Anselm L. Strauss (1967), The Discovery of Grounded Theory: Strategies for Qualitative Research, New York: Aldine.

Glisson, Charles, and Mark Durick (1988), "Predictors of Job Satisfaction and Organizational Commitment in Human Service Organizations", Administrative Science Quarterly, Vol. 33, 61-81.

Greene, Charles (1978), "Identification Modes of Professionals: Relationship with Formalization, Role Strain, and Alienation", Academy of Management Journal, Vol. 21 (3), 486-492.

Griffin, Richey W., and Thomas S. Bateman (1986), "Job Satisfaction and Organizational Commitment", in C.L. Cooper and I. Robertson (eds.), International Review of Industrial and Organizational Psychology, 157-188, New York: John Wiley.

Grimes, Andrew J., and Philip K. Berger (1970), "Cosmopolitan-Local: Evaluation of the Construct", Administrative Science Quarterly, Vol. 15, 407-416.

- Gouldner, Alwin W. (1957), "Cosmopolitans and Locals: toward an Analysis of Latent Social Roles - I", Administrative Science Quarterly, Vol. 2, 282-306.
- _____ (1958), "Cosmopolitans and Locals: toward an Analysis of Latent Social Roles - II", Administrative Science Quarterly, 2, 444-480.
- Gustafsson, Claes (1981), "Management Ethics and Business Philosophy - some Notes regarding a Conceptual Framework", Memo-stencil nr. 69, Preliminära Forskningsrapporter, Företagsekonomiska Institutionen, Åbo Akademi, Turku.
- _____ (1988), Om Företag, Moral och Handling, Stockholm: Studentlitteratur.
- _____ (1990), "New Values, Morality and Strategic Ethics", Memo-stencil nr. 69, Preliminära Forskningsrapporter, Företagsekonomiska Institutionen, Åbo Akademi, Turku.
- Hackman, J. Richard, and Edward E. Lawler (1971), "Employee Reactions to Job Characteristics", Journal of Applied Psychology Monographs, Vol. 55, 259-286.
- _____, and G.R. Oldham (1975), "Development of the Job Diagnostic Survey", Journal of Applied Psychology, Vol. 60, 159-170.
- _____, and _____ (1980), Work Redesign, Reading, Mass: Addison-Wesley.
- Hair, Joseph F., Ralph E. Anderson, and Ronald L. Tatham (1987), Multivariate Analysis with Readings (2nd ed.), New York: Macmillan Publ.
- Hall, Douglas T., and Benjamin Schneider (1972), "Correlates of Organizational Identification as a Function of Career Pattern and Organizational Type", Administrative Science Quarterly, Vol. 17, 340-350.
- _____, _____, and Harold T. Nygren (1970), "Personal Factors in Organizational Identification", Administrative Science Quarterly, Vol. 15, 176-190.
- Harris, James R. (1990), "Ethical Values of Individuals at Different Levels in the Organizational Hierarchy of a Single Firm", Journal of Business Ethics, Vol. 9, 741-750.
- Hegarty, W. Harvey and Henry P. Sims (1978), "Some Determinants of Unethical Decision Behavior", Journal of Applied Psychology, Vol. 63, 461-457.
- _____, and _____ (1979), "Organizational Philosophy, Policies and Objectives Related to Unethical Decision Behavior: A Laboratory Experiment", Journal of Applied Psychology, Vol. 64, 331-338.
- Hellriegel, Don, John W. Slocum, and Richard W. Woodman (1989), Organizational Behavior (5th ed.), New York: West Publ.
- Hovedkomiteen for norsk forskning (1981), Forskning og etisk ansvar, En rapport fra utvalget for "Forskning og etikk" nedsatt av Hovedkomiteen for norsk forskning, Oslo.

- Hunt, Shelby D., and S. Vitell (1986), "A General Theory of Marketing Ethics", Journal of Macromarketing, Vol. 6 (Spring), 5-16.
- _____ (1990), "Commentary on an Empirical Investigation of a General Theory of Marketing Ethics", Journal of the Academy of Marketing Science, Vol. 18 (2), 173-177.
- _____, Lawrence B. Chonko, and James B. Wilcox (1984), "Ethical Problems of Marketing Researchers", Journal of Marketing Research, Vol. 11, 309-324.
- _____, Van R. Wood, and Lawrence B. Chonko, "Corporate Ethical Values and Organizational Commitment in Marketing", Journal of Marketing, Vol. 53 (3), 79-90.
- Ilgel, Daniel R. (1986), "Laboratory Research: A Question of When, Not If", in Edwin A. Locke (ed.), Generalizing from Laboratory to Field Settings, Massachusetts: Lexington Books.
- Janis, I.L. (1972), Victims of Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascos, Boston: Houghton Mifflin.
- Jauch, Lawrence R., William F. Gluck, and Richard N. Osborn (1978), "Organizational Loyalty, Professional Commitment, and Academic Research Productivity", Academy of Management Journal, Vol. 21, 84-92.
- John, George (1984), "An Empirical Investigation of Some Antecedents of Opportunism in a Marketing Channel", Journal of Marketing Research, Vol. 21, 278-289.
- Jones, Thomas M. and Frederick H. Gaultschi, III (1988), "Will the Ethics of Business Change? A Survey of Future Executives", Journal of Business Ethics, Vol. 7, 231-248.
- Kahn, Robert L., Donald M. Wolfe, Robert P. Quinn and J. Diedrik Snoek (1964), Organizational Stress: Studies in Role Conflict and Ambiguity, New York: John Wiley & Sons.
- Kahn, William A. (1990), "Towards an Agenda for Business Ethics Research", Academy of Management Review, Vol. 15, 311-328.
- Katz, Daniel, and Robert L. Kahn (1978), The Social Psychology of Organizations, 2nd ed., New York: John Wiley.
- Keeney, R. L. (1988), "Value-focused Thinking and the Study of Values", in D. B. Bell, H. Raiffa and A. Tversky (eds.), Decision Making: Descriptive, Normative and Prescriptive Interactions, New York: Cambridge University Press.
- Keller, Lauren M., Thomas J. Bouchard Jr., Richard D. Arvey, Nancy L. Segal, and Rene V. Davis (1992), "Work Values: Genetic and Environmental Influencies", Journal of Applied Psychology, Vol. 77 (1), 79-88.
- Kelley, Scott W., O. C. Ferrel, and S. J. Skinner (1990), "Ethical Behavior Among Marketing Researchers: An Assessment of Selected Demographic Characteristics", Journal of Business Ethics, 9, 681-688.

- Keppel, Geoffrey (1982), Design and Analysis, 2nd ed., Englewood Cliffs, New Jersey: Prentice-Hall.
- Kerlinger, Fred N. (1964), Foundations of Behavioral Research, London/New York: Holt, Reinhart and Winston.
- Kidwell, Jeanen M., Robert E. Stevens, and Arth L. Bethke (1987), "Differences in Ethical Perceptions Between Male and Female Managers: Myth or Reality?" Journal of Business Ethics, Vol. 6, 489-493.
- Kiesler, Charles A. (1971), The Psychology of Commitment. Experiments linking Behavior to Belief, New York: Academic Press.
- _____, and J. Sakumara (1966), "A Test of a Model for Commitment", Journal of Personal and Social Psychology, Vol. 3, 458-467.
- Kohlberg, Lawrence (1969), "Moral Stages and Moralization: The Cognitive-developmental Approach to Moral Behavior and Development", in Handbook of Socialization Theory and Research, Skokie, Ill: Rand McNally.
- _____, and Daniel Candee (1984), "The Relationship of Moral Judgement to Moral Action", in William M. Kurtines and Jacob L. Gewirtz (eds.), Morality, Moral Behavior, and Moral Development, New York: John Wiley.
- Kopelman, Loretta (1986), "Consent and Randomized Clinical Trials: Are there moral or Design Problems?" Journal of Medicine and Philosophy, Vol. 11, 317-345, reprinted in Etikk og randomiserte kliniske forsök, Litteraturpakke nr. 3, Senter for Medisinsk Etikk, Oslo.
- Kurtines, William M. (1984), "Moral Behavior as Rule-Governed Behavior: A Psycho-Social Role Theoretical Approach to Moral Behavior and Development", in William M. Kurtines and Jacob L. Gewirtz (eds.), Morality, Moral Behavior, and Moral Development, New York: John Wiley.
- Laczniak, Gene R. and Edward J. Inderrieden (1987), "The Influence of Stated Organizational Concern upon Ethical Decision Making", Journal of Business Ethics, Vol. 6, 297-307
- Locke, Edward A. (1986), "Generalizing from Laboratory to Field: Ecological Validity or Abstraction of Essential Elements", in Edwin A. Locke (ed.), Generalizing from Laboratory to Field Settings, Massachusetts: Lexington Books.
- MacIntyre, Alasdair (1966), A Short History of Ethics, New York: Macmillan.
- Macklin, Ruth (1988), "Theoretical and Applied Ethics: A Reply to the Sceptics", in David M. Rosenthal and Fadlou Shehady (1988), Applied Ethics and Ethical Theory, reprinted in Tore Nordenstam (ed.), Etikk. Klassiske tekster og aktuelle artikler, 2. prøveopplag, Filosofisk Institutt, Universitetet i Bergen (1992).
- Manz, Charles C. and Henry P. Sims (1981), "Vicarious Learning: The Influence of Modeling on Organizational Behavior", Academy of Management Review, Vol. 6, 105-113.

- Mathews, M. Cash, "Codes of Ethics: Organizational Behavior and Misbehavior", in Research in Corporate Social Performance and Policy, Vol. 9, 107-130, Jay Press.
- Mayo, Michael A. and Lawrence J. Marks (1990), "An Empirical Investigation of a General Theory of Marketing Ethics", Journal of the Academy of Marketing Science, Vol. 18 (2), 163-171.
- McNichols, Charles W. and Thomas W. Zimmerer (1985), "Situational Ethics: An Empirical Study of Differentiators of Student Attitudes", Journal of Business Ethics, Vol. 4, 175-180.
- Merton, Robert K. (1957), Social Theory and Social Structure, Glencoe, Ill: Free Press.
- Meyer, John P., and Natalie J. Allen (1984), "Testing the "Side-bet" Theory of Organizational Commitment: Some Methodological Considerations", Journal of Applied Psychology, Vol. 69, 372-378. /★
- _____, Sampo V. Paunonen, Ian R. Gellatly, Richard D. Goffin, and Douglas N. Jackson (1989), "Organizational Commitment and Job Performance: It's the Nature of the Commitment that Counts", Journal of Applied Psychology, Vol. 74, 152-156. /★
- Miller, Bruce (1987), "Experimentation on Human Subjects. The Ethics of Random Clinical Trials", in D. Van DeVeer and T. Regan, Health Care Ethics. An Introduction. Philadelphia: Temple University Press, reprinted in Etikk og randomiserte kliniske forsök, Litteraturpakke nr. 3, Senter for Medisinsk Etikk, Oslo.
- Miller, George A. and L. Wesley Wager (1971), "Adult Socialization, Organizational Structure, and Role Orientations", Administrative Science Quarterly, Vol. 16, 151-163.
- Mischel, W. (1977), "The Interaction of Person and Situation", in D. Magnusson & N.S. Endler (Eds.), Personality at the Crossroads: Current Issues in Interactional Psychology, 333-352, Hillsdale, New Jersey: Erlbaum.
- Mitchell, Terence B., and Lawrence R. James (1989), "Conclusions and Future Directions" (Theory Development Forum. Situational versus Dispositional Factors: Competing Explanations of Behavior), Academy of Management Review, Vol. 14, 401-407.
- _____, and James R. Larson, Jr. (1987), People in Organizations. An Introduction to Organizational Behavior, New York: McGraw-Hill
- Montgomery, Douglas C. and Elizabeth A. Peck (1982), Introduction to Linear Regression Analysis, New York: John Wiley.
- Morgan, Gareth (1980), "Paradigms, Metaphors and Puzzle Solving in Organization Theory" Administrative Science Quarterly, Vol. 25, 605-622.
- _____ (ed.) (1983), Beyond Method. Strategies for Social Research, Beverly Hills: Sage.
- _____ (1986), Images of Organizations, Beverly Hills: Sage.

- Morrow, Paula C. (1983), "Concept Redundancy in Organizational Research: The Case of Work Commitment", Academy of Management Review, Vol. 8, 486-500.
- Mortimer, Jeylan T., and Jon Lorence (1979), "Work Experience and Occupational Value Socialization", American Journal of Sociology, 84: 1361-1385.
- Mowday, Richard T., Richard M. Steers, and Lyman W. Porter (1979), "The Measurement of Organizational Commitment", Journal of Vocational Behavior, Vol. 14, 224-247.
- _____, Lyman W. Porter, and Richard M. Steers (1982), Employee-Organization Linkages. The Psychology of Commitment, Absenteeism, and Turnover, New York: Academic Press.
- Nagel, Thomas (1979), "The Fragmentation of Value", in Thomas Nagel, Mortal Questions, Cambridge: Cambridge University Press, reprinted in Tore Nordenstam (ed.), Etikk. Klassiske tekster og aktuelle artikler, 2. prøveopplag, Filosofisk Institutt, Universitetet i Bergen (1992).
- Norusis, Marija J. (1985), SPSS-X. Advanced Statistics Guide, New York: McGraw-Hill.
- Nunnally, Jum C. (1967), Psychometric Theory, New York: McGraw-Hill.
- Nystrom, Paul C. (1990a), "Differences in Moral Values Between Corporations", Journal of Business Ethics, Vol. 9, 971-979.
- _____, (1990b), "Vertical Exchanges and Organizational Commitment of American Business Managers", Group & Organization Studies, Vol. 15, 296-312.
- * Oliver, Nick (1990), "Rewards, Investments, Alternatives and Organizational Commitment: Empirical Evidence and Theoretical Development", Journal of Occupational Psychology, Vol. 63, 19-31.
- * O'Reilly, Charles A., and Karlene H. Roberts (1978), "Individual Differences in Personality, Position in the Organization, and Job Satisfaction" Organizational Behavior and Human Performance, Vol. 14, 144-150.
- * Pervin, Lawrence A. (1989), "Persons, Situations, Interactions: A History of a Controversy and a Discussion of Theoretical Models", Academy of Management Review, Vol. 14, 350-360.
- Peter, J. Paul (1981), "Construct Validity: A Review of Basic Issues and Marketing Practices", Journal of marketing Research, Vol. 18, 133-145.
- Pfeffer, Jeffrey, and Gerald R. Salancik (1978), The External Control of Organizations: A Resource Dependence Perspective, New York: Harper & Row.
- Pierce, Jon L., Randall B. Dunham, and L.L. Cummings (1984), "Sources of Environmental Structuring and Participant Responses", Organizational Behavior and Human Performance, Vol. 33, 214-242.
- Posner, Barry Z., and Warren H. Schmidt (1984), "Values of the American Manager: An Update", California Management Review, Vol. 16, 202-216.

- Powers, Charles W. and David Vogel (1980), Ethics in the Education of Business Managers, New York: The Hastings Center.
- Pugh, Derek S. (1983), "Studying Organizational Structures and Processes", in Gareth Morgan (ed.), Beyond Method. Strategies for Social Research, 45-56, Beverly Hills: Sage.
- Randall, Donna M. (1987), "Commitment and the Organization: The Organization Man Revisited", Academy of Management Review, Vol. 12, 460-471.
- _____, and A.M. Gibson (1990), "Methodology in Business Ethics Research: A Review and Critical Assessment", Journal of Business Ethics, Vol. 9, 457-471.
- _____, and Maria F. Fernandes (1991), "The Social Desirability Response Bias in Ethics Research", Journal of Business Ethics, Vol. 10, 805-817.
- Raven, B.H., and A.W. Kruglanski (1970), "Conflict and Power", in Paul Swingle (ed.), The Structure of Conflict, New York: Academic Press.
- Reichers, Arnold E. (1985), "A Review and Conceptualization of Organizational Commitment", Academy of Management Review, Vol. 10, 465-476.
- Reve, Torger (1980), Interorganizational Relations in Distribution Channels: An Empirical Study of Norwegian Distribution Channel Dyads, unpublished Ph.D. dissertation, Northwestern University.
- Rokeach, M. (1968), Beliefs, Attitudes and Values, San Francisco: Jossey-Bass.
- Rotter, J.B. (1966), "Generalized Expectancies for Internal versus External Control of Reinforcement", Psychological Monographs, Vol. 80 (1, Whole No. 609).
- Rousseau, Denise M. (1977), "Technological Differences in Job Characteristics, Employee Satisfaction, and Motivation: A Synthesis of Job Design Research Sociotechnical Systems Theory", Organizational Behavior and Human Performance, Vol. 19, 18-42.
- _____, (1985), "Issues of Levels in Organizational Research: Multi-Level and Cross-Level Perspectives", in L.L. Cummings and Barry M. Staw (Eds.), Research in Organizational Behavior, Vol. 7, 1-37, Greenwich, Conn: JAI Press.
- Ruegger, Durwood, and Ernest W. King (1992), "A Study of the Effect of Age and Gender upon Student Business Ethics", Journal of Business Ethics, Vol. 11, 179-186.
- Salancik, Gerald L. (1977), "Commitment and the Control of Organizational Behavior and Belief", in Barry M. Staw and Gerald L. Salancik (eds.), New Directions of Organizational Behavior, Chicago: St. Clair Press.
- Schneider, Benjamin (1983), "Interactional Psychology and Organizational Behavior", in L.L. Cummings and Barry M. Staw (Eds.), Research in Organizational Behavior, Vol. 5, 1-31, Greenwich, Conn: JAI Press.

- Scholl, Richard W. (1981). "Differentiating Organizational Commitment from Expectancy as a Motivating Force", Academy of Management Review, Vol. 6, 589-599.
- SCRIP (1992), World Pharmaceutical News, March 25.
- Singhapakdi, Anusorn, and Scott J. Vitell (1990), "Marketing Ethics: Factors Influencing Perceptions of Ethical Problems and Alternatives", Journal of Macromarketing, Vol. 10, 4-18.
- Sheldon, Mary E. (1971), "Investments and Involvements as Mechanisms Producing Commitment to the Organization", Administrative Science Quarterly, Vol. 16, 142-150.
- Smith, H.R., and Archie B. Carrol (1984), "Organizational Ethics: A Stacked Deck", Journal of Business Ethics, Vol. 3, 95-100.
- SPSS (1988), SPSS-X User's Guide, Chicago, Ill: SPSS Inc.
- Staw, Barry M. (1976), "Knee-deep in the big Muddy: A Study of Escalating Commitment to a Chosen Course of Action", Organizational Behavior and Human Performance, 16, 27-44.
- _____ (1981), "The Escalation of Commitment to a Course of Action", Academy of Management Review, Vol. 6, 577-587.
- _____, and Eugene Sz wajkowski (1975), "The Scarcity-Munificence Component of Organizational Environments and the Commission of Illegal Acts", Administrative Science Quarterly, Vol. 20, 345-354.
- _____, Nancy E. Bell, and John A. Clausen (1986), "The Dispositional Approach To Job Attitudes: A Lifetime Longitudinal Test", Administrative Science Quarterly, Vol. 31, 56-77.
- Steers, Richard M. (1977), "Antecedents and Outcomes of Organizational Commitment", Administrative Science Quarterly, Vol. 22, 46-56.
- Stone, Christopher D. (1975), Where the Law Ends, New York: Harper & Row.
Academy of Management Review, Vol. 6, 577-587.
- Taylor, Paul W. (1975), Principles of Ethics. An Introduction, Encino, California: Dickenson Publ.
- Thornton, Russel (1970), "Organizational Involvement and Commitment to Organization and Profession", Administrative Science Quarterly, Vol. 15, 417-426.
- Tranöy, Knut Erik (1989), "The Roots of Medical Ethics in a Shared Morality", for Third International Conference on Ethics in Medicine, Karolinska Institutet, Nobel Conference, September 13-15 1989, Stockholm.
- * Trevino, Linda Klebe (1986), "Ethical Decision making in Organizations: A Person-Situation Interactionist Model", Academy of Management Review, Vol. 11, 601-617.

- Trevino, Linda Klebe, and Stuart A. Youngblood (1990), "Bad Apples in Bad Barrels: A Causal Analysis of Ethical Decision-Making Behavior", Journal of Applied Psychology, Vol. 75, 378-375.
- Tsalikis, John and Marta Ortiz-Buonafina (1990), "Ethical Beliefs' Differences of Males and Females", Journal of Business Ethics, Vol. 9, 505-517.
- Tuma, Nancy Brandon, and Andrew J. Grimes (1981), "A Comparison of Models of Role Orientations of Professionals in a Research-Oriented University", Administrative Science Quarterly, Vol. 26, 187-206.
- Tversky, A., and D. Kahneman (1981), "The Framing of Decisions and the Psychology of Choice", Science, 211, 453-463.
- Velasquez Manuel G. (1988), Business Ethics, 2nd. ed., Englewood Cliffs, New Jersey: Prentice-Hall.
- Victor, Bart and John B. Cullen (1987), "A Theory and Measure of Ethical Climate in Work Organizations", in Research in Corporate Social Performance and Policy, Vol. 9, Frederick, Williams and Lee E. Preston (eds.), London: JAI Press.
- _____, and _____ (1988), "The Organizational Bases of Ethical Work Climate", Administrative Science Quarterly, Vol. 33, 101-125.
- Wiener, Yoash (1982), "Commitment in Organizations: A Normative View", Academy of Management Review, Vol. 7, 418-428.
- Wikler, Daniel (1981), "Ethical Considerations in Randomized Clinical Trials", Seminars in Oncology, Vol. 8, No. 4, 437-441, reprinted in Etikk og randomiserte kliniske forsök, Litteraturpakke nr. 3, Senter for Medisinsk Etikk, Oslo.
- Wildt, Albert R., and Olli T. Ahtola (1978), Analysis of Covariance, Beverley Hills: Sage Publ.
- Williamson, Oliver E. (1975), Market and Hierarchies: Analysis and Antitrust Implications, New York: The Free Press.
- Zeller, Richard A., and Edward G. Carmines (1980), Measurement in the Social Sciences, Cambridge University Press.
- Zey-Ferrel, Mary, and O.C. Ferrel (1982), "Role-Set Configuration and Opportunity as Predictors of Unethical Behavior in Organizations", Human Relations, Vol. 35, 587-604.
- _____, Mark K. Weaver, and O.C. Ferrel (1979), "Predicting Unethical Behavior Among Marketing Practitioners", Human Relations, Vol. 32, 557-569.

Guidelines and Regulations

Administrative Procedures of the Drug Regulatory Authorities in the Nordic Countries, Nordic Council on Medicine, Publ. No. 22, Uppsala, Sweden.

Clinical Trials of Drugs. Nordic Guidelines (1983), Nordic Council on Medicine, Publ. No. 11, Uppsala, Sweden.

Declaration of Helsinki. Recommendations guiding medical doctors in biomedical research involving human subjects. Adopted by the 18th World Medical Assembly, Helsinki, Finland, 1964, and revised by the 29th World Medical Assembly, Tokyo, Japan, 1975.

Drug Applications. Nordic Guidelines (1989), Nordic Council on Medicine, Publ. No. 24, Uppsala, Sweden.

Drug Monitoring in the Nordic Countries (1989), Nordic Council on Medicine, Publ. No. 25, Uppsala, Sweden.

Good Clinical Trial Practice. Nordic Guidelines (1989), Nordic Council on Medicine, Publ. No. 28, Uppsala, Sweden.

APPENDIX 1

**A REVIEW OF SOME EMPIRICAL STUDIES
ON ETHICAL DECISION-MAKING/ETHICAL BELIEFS**

**A REVIEW OF SOME EMPIRICAL STUDIES ON
ETHICAL DECISION-MAKING/
ETHICAL BELIEFS**

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ ETHICAL BELIEFS
Akaah (1989) (Mail survey)	Marketing researchers (N=420)	Gender	Scenarios/items dealing with 11 possible unethical marketing research practices (5-point rating scale; disapprove - approve)
Akaah & Riordan (1990) (Mail survey)	Marketing researchers (N=420) [As in Akaah (1989)]	<ul style="list-style-type: none"> - Extent of perceived ethical problems within the organization (8 items) - Top management actions on ethics (3 items) - Industry category of company - Number of employees - The existence of a corporate code of ethics - Organizational role (executives vs. researchers) - Job title 	Scenarios/items dealing with 15 possible unethical marketing research practices, 5-point rating scale (not at all common - highly common)
Baumhardt (1961) (Mail survey)	Harvard Bus. Review readers, managers (N=1531)	<p>Personal code of behavior; superiors; peers; formal company policy; ethical climate of the industry; personal financial needs</p> <p>Gender</p>	<ul style="list-style-type: none"> - Four scenarios dealing with ethical decisions, for each scenario 2-4 courses of action. (What would you do, what would the average executive do?) - What influences an executive to make ethical/unethical decisions?
Betz, O'Connell, and Shepard (1989) (Mail survey)	Students (N=213)	Gender	Five items concerning unethical behavior (willingness to engage in the behavior)
Brenner and Molander (1977) (Mail survey)	Harvard Bus. Review Readers, mostly managers (N=1227)	<p>Personal code of behavior; superiors; peers; formal company policy; society's moral climate; ethical climate of the industry; personal financial needs</p>	<p>Four scenarios dealing with ethical decisions (two as in Baumhardt, 1961), for each scenario 2-4 courses of action (For 3 scenarios: What would you do, what would the average executive do, for 1 scenario: What would a new director promoted from the company do, what would a new director recruited from outside the company do?)</p> <ul style="list-style-type: none"> - What influences an executive to make unethical decisions?

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ETHICAL BELIEFS
Brief, Dukewich and Doran (1991)	Graduate students (N=135)	<ul style="list-style-type: none"> - Rank order of two of Rokeach's terminal values, "a comfortable life" (representing a "Smithian"/economic value system), and "equality" (representing a humanitarian value system) - Accountability (pressures to justify one's opinions to others): Respondents accountable to a Humanitarian chairman of the board, to a "Smithian" chairman of the board, and respondents not accountable to anyone (control condition) 	Scenario on the marketing of the Panalba drug; five courses of action ("Recall Panalba immediately and destroy" coded as "Humanitarian" choice; all other choices coded as "Smithian")
Study 1: (All studies laboratory experiments)			
Study 2:	Graduate students (N=60)	<ul style="list-style-type: none"> - Value system as in study 1 - Accountability only to a "Smithian" chairman, clear statement of the chairman's preferences for continuing marketing Panalba 	As in study 1
Study 3:	Undergraduate students (N=50)	<ul style="list-style-type: none"> - Value system as in study 1 - Accountability only to a "Humanitarian" chairman, clear statement of the chairman's preferences for recalling Panalba immediately and have the drug destroyed 	As in study 1
Dubinsky and Ingram (1984) (Mail survey)	Salespeople (N=116)	Tenure; education; major source of income; role conflict; role ambiguity; intensity of market competition	Ten items representing ethical conflicts commonly encountered by salespeople (extent of perceived ethical question, 5-point rating scale)
Ferrel and Skinner (1988) (Mail survey)	Marketing researchers (N=550)	<ul style="list-style-type: none"> - Formalization; centralization; controls - Existence and enforcement of corporate code of ethics 	Six items dealing with ethical behavior in marketing research activities (extent of agreement, 6-point rating scale)
Fimbel and Burstein (1989) (Mail survey)	<ul style="list-style-type: none"> - Employees of high- and low-tech companies (N=75) 	<ul style="list-style-type: none"> - Gender; age; managerial position; Membership of Association for System Management (indicator of high-tech jobs) - The existence of a corporate or professional code of ethics; company size 	Nineteen items concerning ethical/unethical behavior (to what extent the behaviors are acceptable in the respondent's workplace regardless of official company policy, 4-point rating scale)
Fritzsche and Becker (1984) (Mail survey)	Marketing managers (N=124)	No	Five scenarios dealing with ethical behavior (coercion and control; conflict of interest; physical environment; paternalism; and personal integrity (the likelihood of behaving in accordance with the requested behavior, rated on a 10-point scale; open ended question on why)

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ETHICAL BELIEFS
Harris (1990) (Mail survey)	Employees in a company marketing intangible goods/ services (N=112)	Managerial position; tenure; gender	<ul style="list-style-type: none"> - Fifteen scenarios dealing with ethical behavior: fraud; influence dealing; self-interest and deceit (approval/disapproval of the described behavior, 5-point rating scale) - Frequency of felt pressure to compromise personal values to achieve company goals
Hegarty and Sims (1978) (Laboratory experiment)	Students (N=120)	<ul style="list-style-type: none"> - Reward/punishment: Influence of kickback payment on profit; threat of dismissal - Competitiveness: (feedback on rank compared to the other students; reward to those who rated highest on profit) - Covariates: Gender; Machiavellianism; extraversion; neuroticism; religious value orientation; foreign nationality political value orientation; economic value orientation; locus of control 	<ul style="list-style-type: none"> Computer simulation concerning the number of salesmen to employ for a wholesaling firm. Kickback decision a part of the simulation (the number of kickback decisions that were refused or not made)
Hegarty and Sims (1979) Study 1: (Laboratory experiment)	Students (N=74)	<ul style="list-style-type: none"> - Presidential philosophy on business ethics - Size of kickback paid - Covariates as in Hegarty and Sims (1978) 	As in Hegarty and Sims (1978)
Study 2: (Laboratory experiment)	Students (N=91)	<ul style="list-style-type: none"> - Corporate ethical policy: Profit goal; individual/organizational ethical goal - Covariates as in Hegarty and Sims (1978) 	As in Hegarty and Sims (1978)
Hunt, Chonko and Wilcox (1984) (Mail survey)	Marketing researchers (N=1076)	<ul style="list-style-type: none"> - Top management actions on unethical behavior (3 items) - Job title (junior analyst - president/owner) - The existence of an industry code of ethics - The existence of a corporate code of ethics 	Perceived extent of ethical problems within the organization (8 items)
Jones and Gatschi (1988) (Mail survey)	Students (N=455)	Gender; age; level of education	<ul style="list-style-type: none"> Eight scenarios on ethical behavior (open-ended questions on what the respondents would do, coded according to exit of the company, voice and loyalty)
Kelley, Ferrel and Skinner (1990) (Mail survey)	Marketing researchers (N=550)	Gender; age; tenure; job title; education	Ten items representing ethical problems in marketing research (extent of agreement, rated on a 6-point scale)

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ETHICAL BELIEFS
Kidwell, Stevens, and Bethke (1987)	Managers (N=100)	Gender; age; tenure; education; income; religious preferences; frequency of church attendance	Seventeen items on ethical/unethical behavior (same as in Zey-Ferral, and Weaver (1979); rated on a 5-point scale ranging from very unethical to very ethical)
(Mail survey)			
Laczniak and Inderrieden (1987)	Students with some managerial experience (N=113)	Level of organizational concern over ethical practice/ethical policy (3 levels)	Two scenarios with illegal behavior (tying a contract and foreign bribery payment); two scenarios with legal, but arguably unethical behavior (hiring of a competitor's employee for the presumed purpose of obtaining inside information, advocating a change in product components without notifying the client). Ex facto classification based on narratives; coded according to what extent the respondent viewed the practice being advocated as ethical; 5 categories)
(Laboratory experiment)			
Mathews (1987)	US Manufacturing Companies (N=306)	<ul style="list-style-type: none"> - Corporate codes of ethics: * The existence of a code * Behavior or action covered by the code * Enforcement procedures * Penalties for noncompliance - Size of the company - Line of industry 	Corporate illegal activity: Cases in which four selected agencies had taken administrative and civil action against corporations. The cases involved food, drug safety and quality, product safety and quality, and motor vehicle safety
(Quasi experimental; time series)			
Mayo and Marks (1990)	Marketing researchers (N=104)	Deontological norms; deontological evaluations; desirability of consequences; teleological evaluations	One scenario describing an ethical problem related to a client in a marketing research project (Ethical judgement: Clearly unethical-clearly ethical, 7-point rating scale; Intentions: The likelihood of adopting 3 alternative courses of action, rated from 0%-100%)
(Mail survey)			
McNichols and Zimmerer (1985)	Students (1130)	Gender; strength of religious beliefs; business vs. nonbusiness majors	Ten scenarios on ethical behavior (the respondents' opinions about how the person's behavior was in the described situation; how society would judge the person's behavior; and how business would judge the situation; rated on a four
(Mail survey)			
Posner and Schmidt (1984)	Managers	Managerial position	- To what extent the respondents agreed that they had to compromise their personal principles to conform to their organizations' expectations (rated on a 4-point scale)
(Mail survey)		As in Brenner and Molander (1977)	- Factors influencing unethical behavior point scale ranging from acceptable to unacceptable)

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ETHICAL BELIEFS
Ruegger and King (1992) (Mail survey)	Students (N=2196)	Age, gender	Ten scenarios/items on ethical/unethical behavior (the ethical acceptability of the described situations, four categories ranging from "acceptable" to "unacceptable")
Shepard and Hartenian (1990) (Mail survey)	Students (N=244)	Gender, major religiosity, theory of amorality, theory of moral unity	Four scenarios on moral behavior (follow by questions to ascertain whether the respondents espoused "egoism" or had an "ethical" orientation)
Singhapakdi and Vitell (1990) (Mail survey)	Marketing managers/ sales managers (N=529)	- Ethical policies (manipulation of "ethical" and "unethical" organization in the scenario - Gender; Machiavellianism; locus of control	Scenario on bribery in sales management (four courses of action, extent of agreement rated on a 7-point scale)
Staw and SzwaJKowaki (1975) (Quasi- experimental, time series)	U.S. companies (N=105)	Intensity of competition: - Financial performance of cited firms as compared to that of all firms in the Fortune 500 list - Financial performance of the industries the cited firms were operating in, as compared to the performance of all Fortune 500-firms - Financial performance of the cited firms as compared to the performance of the industry the firm belonged to	Possible violations of antitrust laws and the Federal Trade Commission Act
Trevino and Youngblood (1990) (Laboratory experiment)	Students (N=94)	- Vicarious reward/punishment (management's response to ethical/unethical behavior incidents) - Outcome expectancies (ratings of management's probable response to ten ethical/unethical behaviors, ranging from severe punishment to major reward) - Locus of control; stage of cognitive moral development	Two scenarios involving ethical decision-making (kickback decision and substitution of a product component to save costs without notifying the customers of potential problems; 2-3 courses of action for each scenario, choices coded according to "ethical-unethical")

STUDY/ (DESIGN)	SAMPLE	FACTORS INFLUENCING ETHICAL DECISION-MAKING	OPERATIONALIZATION OF ETHICAL DECISION-MAKING/ETHICAL BELIEFS
Zey-Ferrel, Ferrel and Weaver (1979)	Marketing managers (N=133)	<ul style="list-style-type: none"> - Individual beliefs (what I believe) - Perceived peer beliefs/behavior (what I think my peers believe/do) - Perceived top management beliefs - Reported individual opportunity to engage in unethical behavior - Perceived opportunity for peers to participate in unethical behavior 	Seventeen items concerning possible unethical behavior (reported individual behavior (what I do), rated on a 5-point scale ranging from "very often" to "never")
Zey-Ferrel and Ferrel (1982)	Advertisers: - Corporate clients (N=89) - Ad agency	<p>As in Zey-Ferrel et. al. (1979), added:</p> <ul style="list-style-type: none"> - Perceived client beliefs; perceived agency beliefs - Location dimension: The number of intra- and interorg. boundaries that separate the focal person and the referent others (peers - top management - clients) - Relative authority dimension: The amount of authority discrepancy between the focal person and the referent others (peers vs. top management) 	Sixteen items concerning possible unethical behavior (reported individual behavior, rated on a 5-point scale from "very often" to "never")

APPENDIX 2. SUPPLEMENT TO CHAPTER 10 "VALIDATION"

In this appendix a technical supplement to the validation chapter will be given.

Supplement to chapter 10.3.1. Manipulation check

The treatments in this experiment were role expectations from superiors exerting norm pressure on members of project groups, and the market situation. In advance, we had reason to believe that there could be some a confounding effect between the two treatments in the experiment, since different descriptions of the ethical policy of the company were included in the scenarios describing the market situation. Therefore, two-way analyses of variance were carried out to explore the joint effect of superiors' role expectations and the manipulated market situation on perceived pressure from management and the perceived market situation.

Perceived pressure from management

First, we report the investigation on how role expectations from superiors and the description of the market situation influenced to what extent the respondents perceived pressure from the management. No violation of the assumption that the variances in the four cells should be equal was found (Bartlett-Box $F(3.49)=0.77$, $p=0.51$). The mean values for the extent of perceived pressure from management for the two categories of role expectations and market situation are shown in table 10.10.

As illustrated in table 10.10, there is an interaction effect between role expectations and the market situation on perceived pressure from management. The interaction effect is significant ($F(1)=3.58$, $p=0.07$). The analysis of simple effects revealed that role expectations from superiors had a significant effect on perceived

pressure only under the favorable market condition ($F(1)=13.2, p<0,01$). When the market situation was described as unfavorable, role expectations led to somewhat stronger perceived pressure from management, but the difference was not significant ($F(1)=2.9, p=0.25$). This result can be explained by the different descriptions of the ethical policy of the company in the market scenarios. The strict emphasis on profitability in the "unfavorable market" scenario has led to a significantly stronger perceived pressure from management than when there were no role expectations from superiors ($F(1)=4.9, p<0.05$). A similar effect of the market situation on perceived pressure from management was, however, not present when there were role expectations from superiors. On the contrary, in the condition with role expectations, the respondents in the "unfavorable market" group reported slightly lower perceived pressure from management than the respondents in the "favorable market" group (mean values 4.9 vs. 5.2). This difference is, however, not significant, and could have occurred by chance.

Separate analysis were conducted for the 33 respondents who participated in the planned sessions and the 26 respondents who returned the questionnaires by mail, to explore whether the different experimental conditions had had any impact on how the manipulations were perceived. For the respondents who participated in the planned sessions, the influence pattern was about the same as for all respondents. For those who had returned the questionnaire by mail, there was no significant interaction between role expectations and the market situation on perceived pressure from management. There was a significant positive main effect of role expectations in the expected direction ($-F(1)=15.02, p<0.01$), and no significant main effect of the market situation on perceived pressure.

**ROLE EXPECTATIONS
FROM SUPERIORS**

		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
MARKET SITU- ATION	FAVOR- ABLE	3.1 (1.67) (N=13)	5.2 (1.17) (N=13)
	UNFAVOR- ABLE	4.3 (1.6) (N=19)	4.9 (1.3) (N=13)

1=Very little pressure from management
7=Very much pressure from management

Missing cases: 1

Table 10.10. The effect of role expectations from superiors and market situation on perceived pressure from management. Mean values. (Standard deviations in brackets)

Perceived market situation

The perceived market situation in the different treatment groups was analyzed in the same manner as perceived pressure from the management. First, analysis of variance was carried out using the data from all respondents. Role expectations from superiors and the manipulated market situation were independent variables, and the perceived market situation was the the dependent variable. The test for homogeneity of variance showed that the assumption of equal variances in all cells was not violated (Bartlett-Box $F(3.41)=2.51, p=0.15$). The mean values in the different treatment groups are shown in table 10.11.

Consistent with the manipulation, there was a significant main effect of the described market situation on perceived market situation ($F(1)=13.63, p<0.01$). However, there was also a significant main effect of role expectations on perceived market situation ($F(1)=13.00, p<0.01$). Thus, when role expectations from superiors emphasized time and resource constraints, the market situation was perceived to be worse than when no explicit role expectations were communicated.

The results for the subsample who participated in the planned sessions and for those who returned the questionnaire by mail were very similar to those reported for all respondents.

		ROLE EXPECTATIONS FROM SUPERIORS	
		NO EXPLICIT EXPECTATIONS	NORM PRESSURE
MARKET SITU- ATION	FAVOR- ABLE	5.5 (1.57) (N=11)	4.2 (0.90) (N=13)
	UNFAVO- RABLE	4.1 (1.36) (N=16)	3.0 (0.91) (N=13)

1=Very unfavorable (perceived) market situation
7=Very favorable (perceived) market situation

Missing cases: 6

Table 10.11. The effect of role expectations from superiors and market situation on perceived market situation. Mean values. (Standard deviations in brackets)

Supplement to chapter 10.3.3.2. Organizational commitment

The Cronbach's alpha for the whole scale was 0.77, which is higher than what Nunnally (1967, 245) has suggested as a satisfactory level for exploratory research purposes (alpha greater than 0.70). To test whether the items used in the organizational commitment scale in fact constituted a unidimensional scale, factor analysis with VARIMAX rotation was done (table 10.12.).

The analysis resulted in six factors with a eigenvalue greater than 1, which together accounted for 73.8% of the variance. The high number of factors compared to those reported by Morrow (1979) can most probably be explained by the fact that the study was done in a highly professionalized organization, and the relatively low sample size. No meaningful theoretical pattern could be observed

among the items that loaded strongly on the various factors.⁷¹

The result of the factor analysis was therefore interpreted in combination with the items-to-total correlations and the coefficient alpha of the scale if an item should be deleted (table 10.13.).

Item No.	Factors						Communi- nality
	1	2	3	4	5	6	
1			.61				.46
2	.52	.54					.77
3			.49	.43			.70
4					.88		.85
5	.68						.67
7	.75						.65
8			.88				.86
9	.50				.55		.71
10		.76					.77
11		.84					.84
12		.57				.43	.77
13	.84			.87			.91
14	.68						.78
15						.88	.66
Eig. val.	4.0	1.9	1.6	1.4	1.1	1.1	11.1
Pct of var.	26.9	12.7	10.4	9.2	7.6	7.0	

Table 10.12. VARIMAX rotated principle component analysis for the items in the OCO (Only factor loadings > 0.40 have been reported)

⁷¹ When the sample size is 50 or larger, factor values greater than +/- 0.30 are, as a rule of thumb, considered significant. Loadings are often considered important when over +/- 0.40, and very important when loadings are +/-0.50 or greater (Hair, Anderson, and Tatham, 1987, 249).

Item no.	Item-to-total corr.	Alpha if item deleted
1	0.22	0.7689
2	0.71	0.7326*
3	0.38	0.7551*
4	0.00	0.7802
5	0.40	0.7543*
6	0.53	0.7408*
7	0.25	0.7718
8	0.48	0.7449*
9	0.42	0.7508*
10	0.46	0.7470*
11	0.56	0.7406*
12	0.23	0.7700
13	0.27	0.7636*
14	0.57	0.7384*
15	0.13	0.7730

*: Items that will lead to a reduction in Cronbach's Alpha (0.7681 for the whole scale) if deleted

Table 10.13. Item-to-total correlations and Cronbach's Alpha if an item is deleted from the OCO-scale

The tables 10.12. and 10.13. interpreted together show that some of the items that have a low items-to-total correlation also produced single factors. These are item 4, which we have already discussed (factor 5), item 12 (factor 4), and item 15 (factor 6). The other items that loaded high on the factors 4, 5 and 6 also loaded high on other factors. Thus, it is clear that the internal consistency of the scale would be improved if the items 4, 12 and 15 were omitted in the further analysis. Cronbach's alpha would then be increased to 0.79. The maximum coefficient alpha would be reached if only the items that would lead to a reduction in coefficient alpha when deleted were retained. Cronbach's alpha would then be 0.80 (see table 10.13.). These were the nine items that had factor loadings greater than 0.50 on the first two factors. If only the six items that loaded greater than 0.50 on the first factor were retained, the coefficient alpha would be 0.79, which is also satisfying. Since the different factors produced do not have any meaningful theoretical interpretation, it is hard to know which criterion to use for selecting items for the further analyses. Maximizing coefficient alpha would result in nine items, and selecting only the items that loaded

strongly on the first factor would result in six items. We made a choice to use only the six items that loaded strongly on the first factor, to obtain unidimensionality.

Supplement to chapter 10.3.3.4. Autonomy

A factor analysis of the four items that constituted the autonomy scale showed that two factors could be identified, with items 2 and 3 loading high on factor 1, and items 1 and 4 loading high on factor 2 (table 10.14.).

The coefficient alpha was 0.69 for all items, slightly below the suggested limit of 0.70 for exploratory research purposes (Nunnally, 1967). This is not surprising, as the scale consisted of only a few items. It was decided to use only the items that loaded high on factor 1, i.e. the items concerning the possibilities of choosing research area and projects. It is likely that these two items to some extent reflect hierarchical position, since managers to a greater extent than nonmanagers can determine their work positions. The coefficient alpha for the two items was .83.

Factors			
Item No.	1	2	Communi- nality
1.		.82	.71
2.	.93		.89
3.	.93		.88
4.		.86	.74
Eig. val.	2.12	1.10	3.22
Pct of var.	53.0	27.6	

Table 10.14. VARIMAX rotated principle component analysis for the items in autonomy scale (only factor loadings higher than 0.40 have been reported)

APPENDIX 3. SUPPLEMENT TO CHAPTER 11 "RESULTS"

COVA- RIATE	SIGNIFICANCE OF INTERACTION TERM (COVARIATE x ROLE EXP. x MARKET SIT.)		
	Sit. 1	Sit. 2	Sit. 3
COMM	F(1)=2.36 (n.s.)	F(1)=1.17 (n.s.)	F(1)=1.87 (n.s.)
PROF	F(1)=2.52 (n.s.)	F(1)=.83 (n.s.)	F(1)=1.37 (n.s.)
AUT 1	F(1)=5.02 (**)	F(1)=.60 (n.s.)	F(1)=.46 (n.s.)
AUT 2	F(1)=3.58 (*)	F(1)=.41 (n.s.)	F(1)=1.42 (n.s.)
n.s.:	Not significant		
*:	p<.10		
**:	p<.05		
***:	p<.01		
SIT 1-3:	Decision-making in situation 1-3		
COMM:	Organizational commitment		
PROF:	Professional commitment		
AUT1:	Items 2 and 3 in the autonomy scale		
AUT2:	All four items in the autonomy scale		

Table 11.18. MANOVA tests of the homogeneity-of-regression assumption for the covariates in the decision situations 1-3

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
Role expect.	-.61	1.6	-4.40	.0001
Role expect. x market situation	.37	1.6	2.65	.01
PE 1	.26	1.0	2.30	.03
Professional commitment	-.20	1.0	-1.75	.09
Tenure ^a	-.19	1.0	-1.7	.09
Constant	5.88 (B)		6.23	.0000
<u>Var. not in the equation:</u>				
Market situation	.02	2.0	.18	n.s.
Organizat. commitment	-.11	1.1	-.96	n.s.
Autonomy (items 2&3)	.03	1.1	.29	n.s.
MD1	.02	1.6	.15	n.s.
R ² =.35, Adj R ² =.29, F(5,53)=5.82, p=.0002				
Tenure ^a :	Tenure <2 years or ≥2 years			
MD1:	Extent of perceived moral dilemma in situation 1			
PE1:	The extent to which professional ethical judgements were perceived to come into consideration in situation 1			
VIF:	Variance inflation factors			
N=59				

Table 11.19. Regression analysis. Extended model illustrating the effects of the extent of perceived ethical relevance and the independent variables in the original model, on the propensity to be in favor of conducting additional studies in decision situation 1

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
Autonomy (Items 2&3)	-.36	1.0	-2.25	.03
PE2	.35	1.0	1.99	.05
Constant	4.02 (B)		3.4	.001
<u>Var. not in the equation:</u>				
Role expect.	-.04	1.0	-.31	n.s.
Market situation	-.02	1.0	-.12	n.s.
Role expect. x market situation	.06	1.0	.50	n.s.
Organizat. commitment	-.15	1.0	-1.18	n.s.
Professional commitment	.11	1.1	.84	n.s.
Tenure ^a	-.07	1.1	-.53	n.s.
MD2	.13	1.1	.98	n.s.

R² = .15, Adj. R² = .12, F(2,55) = 4.77, p = 0.01

Tenure^a: Tenure <2 years or ≥2 years

MD2: Extent of perceived moral dilemma in situation 2

PE2: The extent to which professional ethical judgements were perceived to come into consideration in situation 2

VIF: Variance inflation factors

N=58

Table 11.20. Regression analysis. Extended model illustrating the effects of the extent of perceived ethical relevance and the independent variables in the original model, on the propensity to be in favor of conducting additional studies in decision situation 2

	Beta	VIF	T	Sig. T
<u>Variables in the equation:</u>				
PE3	.83	1.0	7.51	.0000
Constant	.85 (B)		1.35	.18
<u>Var. not in the equation:</u>				
Role expect.	-.06	1.0	-.72	n.s.
Market situation	.02	1.0	.29	n.s.
Role expect. x market situation	.01	1.0	.17	n.s.
Organizat. commitment	.07	1.0	.69	n.s.
Professional commitment	-.09	1.0	-1.03	n.s.
Autonomy (items 2&3)	.12	1.0	1.23	n.s.
Tenure ^a	-.03	1.0	-.35	n.s.
MD3	.06	1.1	.63	n.s.
R ² =.50, Adj. R ² =.49, F(1,57)=56.5, p=.0000				
Tenure ^a :	Tenure <2 years or ≥2 years			
MD3:	Extent of perceived moral dilemma in situation 3			
PE3:	The extent to which professional ethical judgements were perceived to come into condieration in situation 3			
VIF:	Variance inflation factors			
N=59				

Table 11.21. Regression analysis. Extended model illustrating the effects of the extent of perceived ethical relevance and the independent variables in the original model, on the propensity to be in favor of conducting additional studies in decision situation 3

APPENDIX 4

**QUESTIONNAIRE USED IN THE FIRST PHASE
OF THE STUDY**

Helge Rynning
Januar 1990

**FORSLAG TIL OPPLÉGG FOR FORSTUDIE OM MORALSKE DILEMMA
I FARMASÖYTISK INDUSTRI**

Dette spørreskjemaet er laget for å undersøke enkelte aspekter ved etisk beslutningstaking i farmasøytisk industri. Undersøkelsen inngår som en del av et doktorgradsarbeide ved Norges Handelshøyskole, Institutt for Organisasjonsfag. Vi ber deg svare så godt du kan på alle spørsmål. Vennligst gi kommentarer hvis noen av spørsmålene er uklare.

Svarskjemaene vil bli behandlet konfidensielt. Dere som deltar, vil senere bli gjort kjent med resultatene av undersøkelsen.

SEKSJON I

Hensikten med spørsmålene i denne seksjonen er å kartlegge moralske dilemma som kan oppstå i ulike stadier i utviklingen av et prosjekt i farmasøytisk industri. Du kan også trekke fram moralske dilemma som kan oppstå i forholdet til dine medarbeidere, uten at de eiske spørsmålene nødvendigvis er knyttet til bestemte faser i prosjektframdriften.

Med et **MORALSK DILEMMA** mener vi en beslutningssituasjon der to eller flere etiske prinsipper, som hver for seg er "riktige", står mot hverandre. Eksempler på etiske prinsipper er prinsipper om effektivitet/rasjonell ressursutnyttelse, rettferdighet, sannferdighet, og nestekjærlighet.

Nedenfor har vi oppgitt fem faser som kan inngå i utviklingen av et prosjekt. For hver av de fem fasene ber vi deg svare på om det **ETTER DIN EGEN MENING** forekommer **MORALSKE DILEMMA** i den fasen. Hvis du svarer **JA** på spørsmålet, ber vi deg også gi eksempler på moralske dilemma i denne fasen, uten at du gir ut sensitiv informasjon. Eksemplene kan være selvopplevde, moralske dilemma du har kjennskap til at andre har vært oppe i, eller mulige situasjoner du kan tenke deg.

Fase 1. INTIERINGSFASEN

- Ideer utvikles og beskrives,
- beslutning om idebehandling.

Forekommer det moralske dilemma i denne fasen?

NEI

JA

Hvis du svarte JA, vennligst gi eksempel/
eksempler på moralske dilemma i denne
fasen:

.....

.....

.....

.....

.....

.....

.....

.....

Fase 2. IDEBEHANDLINGSFASEN

- Beskrivelse av idé/produktkonsept,
- idevurdering,
- vurdering av om idéen passer inn i bedriftens strategi,
- utarbeidelse av idevurderingsrapport.
- eventuell utarbeidelse av patentsøknad (kan også komme på et senere stadium).

Forekommer det moralske dilemma i denne fasen?

NEI

JA

Hvis du svarte JA, vennligst gi eksempel/eksempler på moralske dilemma i denne fasen:

.....

.....

.....

.....

.....

.....

.....

Fase 3. SÖKEFASEN

- **Prosjektbeskrivelse for søkefasen,**
- **praktisk og teoretisk arbeide for å prøve ut idéen,**
- **substans valgt,**
- **prosjektrapport søkefase,**
- **beslutning om utviklingsfase.**

Forekommer det moralske dilemma i denne fasen?

NEI

JA

Hvis du svarte JA, vennligst gi eksempel/eksempler på moralske dilemma i denne fasen:

.....

.....

.....

.....

.....

.....

.....

Fase 4. UTVIKLINGSFASEN

- Prosjektbeskrivelse for utviklingsfasen,
- preklinisk testing og dokumentasjon,
- beslutning om frigivelse til humantesting,
- preklinisk dokumentasjon og plan for klinisk utprøving forelegges helsemyndighetene og etisk komité,
- prosess- og produktutvikling, kvalitetskontroll,
- klinisk testing og dokumentasjon,
- faglige, økonomiske og strategiske vurderinger underveis,
- utarbeidelse av produktdokumentasjon etter mal for registreringssøknad,
- beslutning om registreringssøknad/markedsføring.

Forekommer det moralske dilemma i denne fasen?

NEI

JA

Hvis du svarte JA, vennligst gi eksempel/eksempler på moralske dilemma i denne fasen:

.....

.....

.....

.....

.....

.....

.....

.....

**Fase 5. OPPFØLGINGSFASEN OG VEDVARENDE
 MARKEDSFØRING/SALG**

- **Prosjektbeskrivelse for oppfølgingsfasen,**
- **produksjonstilpasning,**
- **registreringssøknad tilpasset ulike land,**
- **oppfølgende lokale kliniske studier,**
- **markedsoppfølging, overvåking av effekter og bivirkninger ved rutinebruk,**
- **evt. fase IV kliniske studier,**
- **utarbeidelse av dokumentasjon for produktet i ulike land.**

Forekommer det moralske dilemma i denne fasen?

 NEI

 JA

Hvis du svarte JA, vennligst gi eksempel/
eksempler på moralske dilemma i denne
fasen:

.....

.....

.....

.....

.....

.....

.....

SEKSJON II

I denne seksjonen vil vi gjerne vite i hvor sterk grad du opplever moralske dilemma i bedriften du arbeider i. Når du angir styrken av din opplevelse, ber vi deg først tenke på i hvor stor grad du opplever moralske dilemma i ditt daglige arbeide. Deretter spør vi deg om i hvilken grad du opplever/har opplevet moralske dilemma i tilknytning til enkeltprosjekter/enkeltoppgaver i bedriften.

Sett ring rundt det tallet som best representerer din opplevelse. Skalaen går fra 1 til 7, der 7 er "i meget stor grad" og 1 er "i meget liten grad". Hvis du aldri opplever/aldri har opplevet moralske dilemma av typen spørsmålet gjelder, sett X ved "aldri".

- 1a) I hvor stor grad opplever du i ditt daglige arbeide moralske dilemma i bedriften?

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

- 1b) I hvor stor grad opplever du eller har du opplevet moralske dilemma i tilknytning til enkeltprosjekter/enkeltoppgaver i bedriften?

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

- 1c) Tilleggs kommentarer:

.....

- 2a) I hvor stor grad opplever du moralske dilemma hvor det er konflikt mellom dine private verdier og hva som forventes av deg i bedriften du arbeider i?

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

- 2b) Tilleggs kommentarer:

.....

.....

.....

.....

.....

- 3a) I hvor stor grad opplever du moralske dilemma hvor det er en konflikt mellom din profesjonsetikk/yrkesetikk og hva som forventes av deg i bedriften du arbeider i? (MED PROFESJONSETIKK MENES DE YRKESETISKE KODER OG NORMER DU OPPFATTER AT GJELDER FOR DEN PROFESJONEN DU TILHØRER).

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

- 3b) Tilleggs kommentarer:

.....

.....

.....

.....

.....

SEKSJON III

I denne seksjonen vil vi gjerne vite i hvor stor grad du opplever moralske dilemma i forhold til ulike parter både innenfor og utenfor bedriften.

4. I hvor stor grad opplever du at moralske dilemma oppstår i dine relasjoner med følgende parter?

4a) **KOLLEGER INNEN SAMME YRKESGRUPPE I BEDRIFTEN**

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

4b) **KOLLEGER I ANDRE YRKESGRUPPER I BEDRIFTEN**

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

4c) **OVERORDNEDE I BEDRIFTEN**

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

4d) **ANDRE ORGANISASJONSENHETER I BEDRIFTEN (prosjektgrupper, avdelinger, divisjoner)**

I meget
liten grad

I meget
stor grad

1 2 3 4 5 6 7 aldri /_/_/

4e) MYNDIGHETER I NORGE

I meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /

4f) KONKURRENTER

I meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri / 4g) BEDRIFTENS LEGEMIDDELKONSULENTER/
SALGSMEDARBEIDEREI meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri / 4h) LEGER OG SYKEHUS SOM KJÖPER
BEDRIFTENS PRODUKTERI meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /

4i) PASIENTER

I meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /

4k)

PERSONER SOM DELTAR I KLINISKE FORSÖKI meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

4l)

PRESSGRUPPER I OPINIONENI meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

4m)

**FoU-ENHETER VED SYKEHUS OG ANDRE OFFENTLIGE
INSTITUSJONER, FORSKERE BEDRIFTEN SAMARBEIDER
MED**I meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

4n)

**BEDRIFTENS SAMARBEIDSPARTNERE/LISENSTAKERE
PÅ UTENLANDSKE MARKEDER**I meget
liten gradI meget
stor grad

1 2 3 4 5 6 7

aldri /_/_/

11. ALDER
- < 20 ÅR
20 - < 30 ÅR
30 - < 40 ÅR
40 - < 50 ÅR
50 - < 60 ÅR
> 60 ÅR
12. TJENESTETID
- < 1 ÅR
1 - < 2 ÅR
2 - < 3 ÅR
3 - < 5 ÅR
5 - < 10 ÅR
> 10 ÅR

TAKK FOR HJELPEN!

**FORSLAG TIL TILTAK FOR Å FREMME BEDRIFTSETIKK
UTOVER DE SOM ALLEREDE EKSISTERER I DIN BEDRIFT:**

.....
.....
.....
.....
.....
.....
.....

SEKSJON IV**Personlige opplysninger:**

6. **HOVEDARBEIDSOMRÅDE**
- KJEMI**
- MEDISIN/
 BIOLOGI**
- FARMASI**
- KONTROLL/
 ANALYSE**
- KLINISK**
-
7. **HOVEDSTADIUM I PROSJEKTUTVIKLING**
- SÖKEFASE**
- UTVIKLINGSFASE**
- MARKEDSFÖRINGS-...
 FASE**
-
8. **FORSKER/IKKE FORSKER**
- FORSKER**
- TEKNIKKER/
 INGENIÖR**
-
9. **LEDER/IKKE LEDER**
- LEDER**
- IKKE LEDER**
-
10. **KJÖNN**
- MANN**
- KVINNE**

11. ALDER
- < 20 ÅR
- 20 - < 30 ÅR
- 30 - < 40 ÅR
- 40 - < 50 ÅR
- 50 - < 60 ÅR
- > 60 ÅR
12. TJENESTETID
- < 1 ÅR
- 1 - < 2 ÅR
- 2 - < 3 ÅR
- 3 - < 5 ÅR
- 5 - < 10 ÅR
- > 10 ÅR

TAKK FOR HJELPEN!

**FORSLAG TIL TILTAK FOR Å FREMME BEDRIFTSETIKK
UTOVER DE SOM ALLEREDE EKSISTERER I DIN BEDRIFT:**

.....

.....

.....

.....

.....

.....

.....

APPENDIX 5

**QUESTIONNAIRE USED IN THE SECOND PHASE
OF THE STUDY**

EKSPERIMENT MED MORALSKE DILEMMA I FARMASÖYTISK INDUSTRI.

Dette spørreskjemaet er laget for å undersøke enkelte aspekter ved beslutningstaking i farmasøytisk industri. Undersøkelsen inngår som en del av et doktorgradsarbeide ved Norges Handelshøyskole, Institutt for Organisasjonsfag. De tre beslutningssituasjonene du blir stilt overfor er tenkte, men det er grunn til å tro at de er realistiske. I hver av de tre beslutningssituasjonene ber vi deg svare slik du selv tror du faktisk ville ha handlet hvis situasjonen virkelig hadde oppstått. Vi vil understreke at vi er interessert i å få vite din personlige mening om beslutningssituasjonene, og ikke hva du tror at eksempelvis en prosjektgruppe ville ha gjort. Det er også viktig at du forsøker å ta stilling til beslutningssituasjonene, selv om de ikke direkte omhandler ditt fagfelt.

Med vennlig hilsen, og takk for hjelpen!

Helge Rynning

SEKSJON I.

I denne seksjonen ber vi deg ta stilling til hvordan du personlig ville ha handlet i tre beslutningssituasjoner, dersom disse situasjonene hadde oppstått i virkeligheten. Forholdene for bedriften er som følger, og vi ber deg ta dette i betraktning når du vurderer de tre beslutningssituasjonene:

GOD MARKEDSSITUASJON (G1 OG G2):

Du arbeider med FoU i en bedrift innen farmasøytisk industri. Bedriften er en del av et konsern med relativt stor spredning av sin virksomhet. Legemiddelbedriften har totalt sett fått meget igjen for sine investeringer i FoU. Den har i de senere år styrket sin markedsposisjon betraktelig både innenlands og utenlands gjennom vekst og oppkjøp, og betraktes gjerne som konsernets flaggskip. Markedsutsiktene for de nærmeste årene anses for å være gode.

Bedriftsledelsen har, med støtte fra konsernledelsen, tradisjonelt lagt stor vekt på de etiske sider ved virksomheten. Dette har skjedd ut fra en grunnholdning om at det er viktig for farmasøytisk industri å være etisk ansvarlig. Videre er det ledelsens filosofi at en høy etisk standard vil gi troverighet hos forbrukere og myndigheter, og bidra til å skape lønnsomhet på lengre sikt. Respekten for de ansattes personlige integritet og fagets vurderinger er viktige elementer i bedriftskulturen.

DÅRLIG MARKEDSSITUASJON (G3 OG G4):

Du arbeider med FoU i en bedrift innen farmasøytisk industri. Bedriften er en del av et konsern med relativt stor spredning av sin virksomhet. Legemiddelbedriften hadde lenge en god forrentning av sine investeringer i FoU. Den opparbeidet seg en sterk markedsposisjon både innenlands og utenlands gjennom vekst og oppkjøp, og ble betraktet som konsernets flaggskip. I de siste årene har imidlertid trenden snudd. Det viste seg at man hadde overvurdert betraktelig verdien av produktidéene i et par av bedriftene som var blitt kjøpt opp i utlandet. I noen av de største interne utviklingsprosjektene har konkurrenter klart å komme først på markedet. Bedriften har heller ikke satset sterkt nok på å generere nye prosjektidéer som kan gi fornyelse på lang sikt.

Med de markedsutsikter bedriften står overfor holder ledelsen i bedriften og konsernet strengt på lønnsomhetsprinsippet.

Situasjon 1:

Du arbeider på et prosjekt i søkefasen, der man ut fra en produktidé har framstilt flere analoger. Substansene er testet i enkle dyreforsøk. En av substansene synes å være noe bedre enn de andre, selv om det ikke er full enighet i prosjektgruppen om datatolkningen. I prosjektgruppen vurderer man nå å gå over i utviklingsfasen. Selv om testresultatene så langt er overveiende gode, er det usikkert ut fra de data som foreligger om det virkelig er den beste analogen man nå vil gå videre med.

(Signaler fra overordnede, G2 og G4, uthevet):

Prosjektlederen har fått signaler fra forskningsdirektøren om at det nå haster med å få fram et produkt, siden en konkurrent arbeider parallelt med en lignende produktidé. Forskningsdirektøren anser det videre for lite sannsynlig at man vil finne bedre analoger. Til prosjektlederen har forskningsdirektøren antydnet at prosjektet vil få klarsignal til å gå videre i utviklingsfasen og økte ressurser på grunnlag av de resultater som allerede foreligger.

I et møte i prosjektgruppen skal det avgjøres om man skal søke om å gå over i utviklingsfasen nå, eller om man skal vente til andre analoger er undersøkt. Du blir bedt om å gi din personlige vurdering av hva du synes er best.

Sp. Ia) I denne situasjonen, hvor sannsynlig er det at du ville innstille på å utføre flere studier med analogene?

(Marker ved å sette ring rundt ett av tallene på skalaen fra 1-7, der 1 angir "ville absolutt ikke utføre handlingen" og 7 angir "ville absolutt utføre handlingen").

1 2 3 4 5 6 7

Nei, absolutt
ikke flere studier

Ja, absolutt
flere studier

Hvis du har supplerende kommentarer til ditt valg i denne situasjonen, vennligst skriv dem her.

Hvis du har supplerende kommentarer til ditt valg i denne situasjonen, vennligst skriv dem her.

.....

.....

.....

.....

.....

Sp. Ib) I hvilken grad synes du at beslutningssituasjonen er et moralsk dilemma?

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

Sp. Ic) I hvilken grad synes du at profesjonsetiske vurderinger kommer i betraktning i beslutningssituasjonen? (Med profesjonsetikk menes yrkesetiske koder og normer som gjelder for ulike profesjoner).

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

Situasjon 2:

Du arbeider i den samme bedriften på et prosjekt der man har kommet i klinisk testing, fase III, og regner med at det er 1/2 år fram til man kan søke om registreringstillatelse. Substansen har vært meget lovende så langt, både i dyr og i mennesker. 100% utskilles i umetabolert form gjennom nyrene. Men i et dyreforsøk som går parallelt med den kliniske testingen, blir det oppdaget at substansen har en tilbøyelighet til å akkumulere i leveren, og 10% skilles ut gjennom gallen. Alt tyder på at tendensen til opphopning bare er begrenset til denne dyrearten, og at det ikke er noen fare for at tilsvarende skal skje hos mennesker. Skulle imidlertid opphopningen skje hos mennesker, kan stoffer som inngår i substansen få annen toksisitet. Risikoen for at substansen skal medføre fare for forsøkspersonene anses av en samlet prosjektgruppe for å være så liten, at det ikke er aktuelt å stoppe den kliniske testingen. Imidlertid er det uenighet om man bør utvide fase III-testingen i forhold til de opprinnelige planene, for å undersøke om man kan finne tegn til akkumulerings-effekter på et større utvalg enn det man opprinnelig hadde planlagt. Dette vil i så fall forlenge utviklingsfasen med ca. 1 1/2 år.

(Signaler fra overordnede, G2 og G4, uthevet):

En utenlandsk lisenstaker driver parallelt med klinisk testing av produktet. Lisenstakeren har planlagt å avslutte sine forsøk om 1/2 år, og da søke om registreringstillatelse for produktet. Ledelsen i bedriften du arbeider i gjør prosjektgruppen kjent med at lisenstakeren vil anse en forlengelse av den kliniske testingen, med resultat forsinket innsendelse av registrering-søknad, som svært uheldig. Lisenstakeren ser ingen grunn til å gjøre mer utførlige eksperimenter for å teste for akkumulerings-effekter. Lisenstakeren regner med at man om 1 år vil ha oppfylt FDA's standard til dokumentasjon, og mener at dette er tilstrekkelig.

I et møte i prosjektgruppen blir du bedt om å ta stilling til om man skal utvide testingen i fase III, eller fortsette etter den opprinnelige planen.

Sp. IIa) I denne situasjonen, hvor sannsynlig er det at du ville ha gått inn for å avvike fra den opprinnelige planen, og foreta tilleggtesting?

1	2	3	4	5	6	7
Nei, absolutt ikke tilleggtesting				Ja, absolutt tilleggtesting		

Hvis du har supplerende kommentarer til ditt valg i denne situasjonen, vennligst skriv dem her.

.....

.....

.....

.....

.....

Sp. IIb) I hvilken grad synes du at beslutningssituasjonen er et moralsk dilemma?

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

Sp. IIc) I hvilken grad synes du at profesjonsetiske vurderinger kommer i betraktning i beslutningssituasjonen?

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

Situasjon 3:

Du arbeider i den samme bedriften på et prosjekt tidlig i utviklingsfasen. Man er i ferd med å avslutte den prekliniske testingen, som har vært meget lovende. Men i den siste tiden har det vært en del uenighet i prosjektgruppen. Kjemikerene som arbeider med syntese og prosessutvikling har kommet fram til en ny prosessmetode som de er sikre på at er vesentlig bedre enn den som er anvendt tidligere. Syntetikerene er innstilte på at man så snart som mulig starter med å oppskalere produksjonen til de substansmengder som behöves for humantesting, slik at substans fra den oppskalerte produksjonen raskt kan analyseres.

Prosjektgruppens deltakere fra Kjemisk analyse/kontroll er imidlertid av en annen oppfatning. De har analysert de første batchene som er framstilt etter den nye prosessen både med kjente metoder, og med en ny metode som nylig er utviklet i avdelingen. De foreløpige resultatene med kjente analysemetoder tyder på at den nye prosessen gir større renhet enn den prosessen som hittil har vært benyttet. Basert på resultatene med de kjente analysemetodene skulle det ikke være noe i veien for å gå direkte på å oppskalere produksjonen. Men den nye testmetoden som kontroll/analyseavdelingen har utviklet, gir atskillig mer usikre resultater. Prosjektgruppens medlemmer fra Kjemisk analyse/kontroll tror at den nye analysemetoden indikerer at de har kommet på spor av en hittil ukjent forurensing. For å kunne få mer konklusive resultater, ber medlemmene fra Kjemisk analyse om å få tre måneder ekstra tid for å utvikle den nye testmetoden og prøve den ut på substansen, før man setter igang med produksjon i større skala.

Det er enighet i prosjektgruppen om at man skal vente med å søke om å gå i klinikk til substans fra den nye prosessen er nærmere analysert. Uenigheten dreier seg om hvorvidt man skal vente på at Kontroll/analyseavdelingen får videreutviklet sin nye testmetode, eller om man skal stole på de kjente testmetodene. Skulle mistankene om at den nye testmetoden kan avdekke en hittil ukjent forurensing være berettiget, må i såfall denne forurensingen testes separat for toksitet i dyrestudier. Den totale forsinkelsen for prosjektet kan da bli to-tre år.

(Signaler fra overordnede, G2 og G4, uthevet):

Ledelsen i bedriften ser med en viss betenkelighet på en slik forsinkelse, da prosjektet allerede er på etterskudd i forhold til sitt budsjett. Man har kalkulert med at det nye preparatet skal gi salgsinntekter fra og med 1993.

Sp. IIIa) I denne situasjonen, hvor sannsynlig er det at du ville stole på de kjente testmetodene, og ikke vente på at Kontroll/analyseavdelingen får utviklet sin nye metode?

1 2 3 4 5 6 7

Nei, absolutt
ikke vente på
ny analysemetode

Ja, absolutt vente på
ny analysemetode

Hvis du har supplerende kommentarer til ditt valg i denne situasjonen, vennligst skriv dem her.

.....

.....

.....

.....

.....

Sp. IIIb) I hvilken grad synes du at beslutningssituasjonen er et moralsk dilemma?

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

Sp. IIIc) I hvilken grad synes du at profesjonsetiske vurderinger kommer i betraktning i beslutningssituasjonen?

1 2 3 4 5 6 7

I meget liten
grad

I meget stor
grad

SEKSJON I, FORTS.

Som en avslutning på denne delen av spørreskjemaet, har vi to spørsmål om din oppfatning av forholdene i bedriften. Vi ber deg svare på disse spørsmålene (sp. IVa og IVb) etter at du har tatt stilling til de tre beslutningssituasjonene foran.

Sp. IVa) I hvilken grad følte du at det var et press fra ledelsen i situasjonene 1-3 ?

1	2	3	4	5	6	7
I meget liten grad press			I meget stor grad press			

Sp. IVb) I hvilken grad var bedriftens markedssituasjon god?

1	2	3	4	5	6	7
Meget dårlig markedssit.			Meget god markedssit.			

SEKSJON II.

I denne seksjonen er det framsatt noen påstander som uttrykker hva en ansatt kan føle overfor den bedriften eller den organisasjonen han/hun jobber i. Vennligst marker i hvilken grad ditt synspunkt sammenfaller med hvert av utsagnene, ved å sette ring rundt ett av de sju svaralternativene som er oppgitt for hvert utsagn (1=sterkt uenig/i meget liten grad, 7=sterkt enig/i meget stor grad). Noen av spørsmålene er tilsynelatende svært like. Det er imidlertid viktig at du svarer på hvert spørsmål, og angir hvordan du personlig føler det. Ta stilling til hver påstand med utgangspunkt i din arbeidssituasjon i Nycomed Imaging.

1) For å bevare min faglige identitet er det viktig for meg å kunne publisere min forskning i vitenskaplige tidsskrifter.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

2) Det er viktig for meg å være oppfinner/medopffinner av en patentert oppfinnelse.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

Hvis dette spørsmålet ikke er relevant for deg på grunn av dine arbeidsoppgaver, vennligst marker ved å sette et X nedenfor:

(X hvis spørsmålet ikke er relevant for deg)

3) For meg er det viktig å få en idé fram til innlevert patentsøknad uansett om jeg er oppfinner/medopphinner eller ikke.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

Hvis dette spørsmålet ikke er relevant for deg på grunn av dine arbeidsoppgaver, vennligst marker ved å sette et X nedenfor:

(X hvis spørsmålet ikke er relevant for deg)

4) I det lange løp er det viktig for meg å være respektert blant ledende spesialister innen mitt fagfelt.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

5) Det er viktig for meg å kunne gjøre forskning som bidrar til utvikling av vitenskaplig kunnskap.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

6) Det er viktig for meg at jeg kan arbeide med å utprøve egne forskningsideer.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

7) Det er viktig for meg å holde foredrag på møter og kongresser.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

8) Det er viktig for meg å kunne publisere en artikkel i et ledende tidsskrift innen mitt fagfelt, selv om temaet skulle være av underordnet interesse for bedriften.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

9) Jeg kan på egen hånd bestemme hvordan jeg skal utføre mitt arbeide.

1	2	3	4	5	6	7
I meget liten grad				I meget stor grad		

10) Jeg kan selv bestemme hvilket forskningsområde (MRI, röntgen, ultralyd) jeg skal utføre mitt arbeide på.

1	2	3	4	5	6	7
I meget liten grad				I meget stor grad		

11) Jeg kan selv bestemme hvilke prosjekter jeg skal arbeide på.

1	2	3	4	5	6	7
I meget liten grad				I meget stor grad		

12) Jeg har mulighet til å påvirke design av studier som utføres i prosjekter jeg arbeider på.

1	2	3	4	5	6	7
I meget liten grad				I meget stor grad		

13) Jeg er villig til å gjøre en god del anstrengelser utover det som normalt forventes for at denne bedriften skal gå godt.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

14) Overfor mine venner omtaler jeg denne bedriften som en god organisasjon å jobbe for.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

15) Jeg føler svært liten lojalitet overfor denne bedriften.

1	2	3	4	5	6	7	
Sterkt uenig					Sterkt enig		

16) Jeg ville akseptere nesten en hver arbeidsoppgave for å få fortsette å arbeide for denne bedriften.

1	2	3	4	5	6	7	
Sterkt uenig					Sterkt enig		

17) Jeg vurderer mine verdier og bedriftens verdier som svært like.

1	2	3	4	5	6	7	
Sterkt uenig					Sterkt enig		

18) Jeg er stolt over å fortelle andre at jeg er en del av denne bedriften.

1	2	3	4	5	6	7	
Sterkt uenig					Sterkt enig		

19) Jeg kunne like godt jobbe i en annen bedrift så lenge arbeidet var det samme.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

20) Denne bedriften får meg til å yte mitt beste når det gjelder måten jeg utfører arbeidet på.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

21) Det skal svært lite endringer til i min nåværende situasjon før jeg går over til en annen organisasjon.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

22) Jeg er svært glad for at jeg valgte å arbeide for denne bedriften i stedet for andre organisasjoner jeg vurderte da jeg begynte her.

1	2	3	4	5	6	7
Sterkt uenig				Sterkt enig		

23) Det har ikke særlig hensikt å bli værende i denne bedriften i lang tid fremover.

1	2	3	4	5	6	7
Sterkt uenig					Sterkt enig	

24) Ofte finner jeg det vanskelig å være enig med bedriften i viktige saker som berører dens medarbeidere.

1	2	3	4	5	6	7
Sterkt uenig					Sterkt enig	

25) Jeg bryr meg virkelig om hvordan det går med denne bedriften i framtiden.

1	2	3	4	5	6	7
Sterkt uenig					Sterkt enig	

26) For meg er dette den beste av alle mulige bedrifter å arbeide for.

1	2	3	4	5	6	7
Sterkt uenig					Sterkt enig	

27) Å begynne å arbeide for denne bedriften var uten tvil en feil fra min side.

	1	2	3	4	5	6	7	
Sterkt uenig								Sterkt enig

TJENESTETID

Hvor lenge har du vært ansatt i denne bedriften?

(Marker ved å sette et kryss)

< 2 ÅR /_/_/

2 - < 4 ÅR /_/_/

4 - < 6 ÅR /_/_/

6 - < 8 ÅR /_/_/

8 - < 10 ÅR /_/_/

> 10 ÅR /_/_/

APPENDIX 6

**INTRODUCTION LETTERS AND
ARTICLES IN THE COMPANY'S MAGAZINE
CONCERNING THE STUDY**

Erikk-undersøkelse



Helge Rønning gjør sin doktogradsstudie om bedriftsetikk i Nycomed Interning.

Jeg fikk møte Berit Wenness i november, og ledelsen i Nycomed Imaging like før jul. Hittil har jeg fått en svært les positiv inntrykk i Nycomed. Erikk er jo et vanskelig tema å snakke om, og det er på ingen måte gitt at en bedrift vil la utenforstående komme inn og intervjue de ansatte om moralske spørsmål. Som naturlig er, har vi gjort avtale om at jeg har taushetsplikt, og at publikasjoner basert på studien skal godkjennes av Nycomed Imaging.

HVORDAN HAR DU TENKT Å LEGGE OPP SEVE STUDENTEN?

Planene er å gjøre studien i to faser: i første fase er hovedmålet å gjennomføre en kartlegging av mulige moralske dilemmaer som kan oppstå i de ulike stadier i utviklingen av et prosjekt, fra idéutvikling via idébehandling, søketfase og utviklingsfase og fram til oppfølgingsfase samt vedvarende salg og markedsføring. Ca. 15 personer vil bli spurt om de er villige til å delta i personlige intervjuer om dette temaet.

I den andre fasen av studien håper jeg at det er mulig å samle spørsmål som 50-60 ansatte innen helseindustrien for å gjennomføre et eksperiment med etisk beslutningsstaking. Gjennom dette kan jeg ønske å gjøre eksperimentet med ferdigpersonell, et av de viktigste spørsmål mange av dem er mulighet for å få et tilstrekkelig høy delaktighet. For ikke å gjøre delaktene i studien fornuftig, kan jeg ikke gi detaljer om opplegget for eksperimentet på forhånd.

Men du kan kanskje si noe om hvorvidt delaktene kan føle seg sikre på at de vil være anonyme?

– Eksperimentet vil bli lagt opp slik at det ikke skal gå an å identifisere deltakerne ved navn. Når det gjelder resultatene fra de personlige intervjuene i den første fasen av studien, vil de bli behandlet konfidensielt, og ikke knyttet til den enkelte person.

HVILKEN NYTTE KAN VI I NYCOMED HA AV STUDIEN

– Den første og mest direkte nytten er at jeg har blitt møtt med åpenhet og interesse fra ledelsen i Nycomed, og at jeg har fått en svært positiv inntrykk i Nycomed. Erikk er jo et vanskelig tema å snakke om, og det er på ingen måte gitt at en bedrift vil la utenforstående komme inn og intervjue de ansatte om moralske spørsmål. Som naturlig er, har vi gjort avtale om at jeg har taushetsplikt, og at publikasjoner basert på studien skal godkjennes av Nycomed Imaging.

blir man aldri ferdig med å behandle etikk i en organisasjon. Derfor håper jeg å kunne bidra konstruktiv til den kommunikasjonen som allerede eksisterer mellom ledelse og de ansatte i Nycomed om etiske spørsmål. De etiske spørsmål er ofte omstøtende, men det er viktig at de ikke blir skjovet under teppet.

Selvært vil resultatene bli gjort kjent for Nycomeds ansatte når de er klare. Derfor håper jeg på og regner med at ansatte i Nycomed også vil delta i prosjektet, som nok vil være av en litt annen art enn vanlige fbl-eksperimentet, avslutter Helge Rønning. ■

Red



Erikk vil trolig bli minst like viktig i 1990-årene som det var i 1980-årene. Doktorgradstudent ved Norges Handelshøyskole, Helge Rønning, har spurt om han kan få lov til å gjøre sin doktorgradstudie om bedriftsetikk i Nycomed Imaging, og ledelsen har gitt klarsignal. Rønning er allerede igang med å gjøre intervjuer, og håper at trykdepunktet av datainnstillingen kan finne sted i februar måned. Rønning har allerede arbeidet i 2 år med å utvikle prosjektet om bedriftsetikk.

Vi spurte Rønning om hvorfor han interesserer seg for nettopp dette emnet?

– I våre økonomisk-administrative studier legges hovedvekten på å oppføre analytiske ferdigheter hos studentene. Analytiske ferdigheter er naturligvis nødvendige. Men hvis ikke dagens og morgendagens ledere samtidig lærer å utvikle sine evner til å forstå avveinger i etiske spørsmål, vil de heller ikke være i stand til å utøve ansvarlig og moderat lederskap. Det fins nok av aktuelle hendelser både innen og utenfor landets grenser som betyr dette med all ønskelig tydelighet. Handelshøyskolen i Norge og de øvrige nordiske land har kommet relativt kort med å bygge opp bedriftsetikk som et fagfelt, så her er det nok av oppgaver som venter.

De etiske spørsmål har ofte ingen opplagt riktig eller bestemt løsning. Likevel er det grunn til å tro at man kan bedre kvaliteten på etiske beslutninger ved å trene seg opp i å anvende etiske resonnementer på praktiske situasjoner.

HVORFOR HAR DU VALGT Å STUDERE ETIKK I FARMASEUTISK INDUSTRI?

– Det er naturligvis ingen grunn til å ana at ansatte i farmasøytisk industri eller i bedrifter generelt verken er mer eller mindre etiske som folk flest. Det spesielle med farmasøytisk industri er innledende at det her vil oppstå situasjoner som helt åpenbart har et etisk innhold, slik tilfellet er med kliniske forsøk og genetikologi. Jeg kunne ikke utført min studie i en bransje hvor de ansatte i liten grad opplevde at de sto overfor moralske spørsmål.

OG HVORFOR BANKET DU PÅ NETTOPP HOS NYCOMED IMAGING?

– Jeg høyrte personaldirektør Berit Wenness holde innlegg på en konferanse i Bergen i september 1988 om menneskelige og etiske perspektiver på omsalinger i organisasjoner. I april 1989 var direktør Stein Amundstad invitert til Norges Handelshøyskole for å holde et foredrag. Etter foredraget tok jeg kontakt med han, og fortalte kort om hva jeg arbeidet med. Han var positiv, og ga meg sterke er dokument og opprettelsen av Nycomeds Etiske råd.

Da skjønte jeg at jeg var inne på et godt spor. Etter å ha fått tilsendt en del materiale om etikk i farmasøytisk industri fra NOU, bestemte jeg meg for å gjøre studien i denne bransjen. Høsten 1989 spurte jeg Nycomed om det var muligheter til å gjøre studien i bedriften.





Du vil bli kontaktet pr. telefon i løpet av de nærmeste dagene og spurt om du er villig til å delta i intervjuet. Hvis du sier ja til å være med, vil det bli avtalt en tid for intervjuet.

For ordens skyld gjør jeg oppmerksom på at jeg dette semesteret har permisjon fra min stipendiatstilling ved Norges Handelshøyskole og vikarierer i en stilling ved Åbo Akademi, samtidig som jeg arbeider med doktoravhandlingen.

Med vennlig hilsen

Helge Rynning

Undertegnede har i ca. 2 år arbeidet med å forberede en doktorgradstudie ved Norges Handelshøyskole og bedriftsetikk. Jeg har kommet til at farmøytisk industri bør kunne være en velegnet bransje å gjøre en slik studie i, siden de fleste ansatte i farmasøytisk industri er oppmerksomme på at de av og til vil stå overfor etiske beslutninger i sitt arbeid.

Jeg har på eget initiativ tatt kontakt med ledelsen i Nycomed Imaging og spurt om å få gjennomføre studien i denne bedriften. Arsaken til at jeg valgte Nycomed Imaging er det relativt høye antallet ansatte innen Fou, og at jeg hadde hørt både personaldirektør Berit Wenaas og direktør Stein Annexstad holde foredrag om bedriften. Jeg forsto at de begge var opptatt av etiske spørsmål. I et møte med ledelsen den 21.12.89 fikk jeg positivt svar på min forespørsel om å få gjøre studien i bedriften. Jeg har undertegnet erklæring om taushetsplikt, og avtale om at publikasjoner basert på studien skal godkjennes av Nycomed Imaging.

Undersøkelsen vil starte med en forstudie, der ca. 15 ansatte innen Fou og markedsføring vil bli spurt om å være med på et personlig intervju av ca. 1-1 1/2 times varighet. På grunnlag av en liste over ansatte utarbeidet av Personalavdelingen, har jeg valgt ut deg som en av de 15 jeg gjerne ville intervju i forstudien. Jeg understreker at deltakelsen er frivillig. Svarene vil naturligvis bli behandlet konfidensielt. Svarene vil bli presentert samlet, og ikke knyttet til den enkelte person, verken nå eller senere (noe som sikrer full anonymitet).

Hovedhensikten med de personlige intervjuene er å kartlegge mulige moralske dilemma som kan oppstå i ulike stadier i utviklingen av et prosjekt (initieringsfase, idebehandlingsfase, søkerfase, utviklingsfase og oppfølgingsfase med vedvarende salg og markedsføring). Med et moralsk dilemma menes en beslutningssituasjon der to eller flere etiske prinsipper, som hver for seg er "riktige" står mot hverandre. Eksempler på etiske prinsipper er prinsipper om effektiv/rasjonell ressursutnyttelse, rettferdighet, sannferdighet og nestekjærlighet. Det vil være nyttig om du før intervjuet tenker igjennom om du har stått overfor etiske spørsmål i ditt arbeid.



NORGES HANDELSHØYSKOLE

Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES
Den 9. mars 1990

Til ledere og forskere
i Nycomed Imaging

Jeg viser til omtalen av "Etikk-undersøkelse" på s. 4-5 i Nycomednytt nr. 1 for 1990. Undersøkelsen inngår som den empiriske delen av min doktoravhandling ved Norges Handelshøyskole om bedriftsetikk, og blir i sin helhet gjennomført i Nycomed Imaging. Siden januar d.å. har jeg gjort personlige intervjuer med i overkant av 20 ansatte på ulike nivå og i ulike fagavdelinger i Nycomed Imaging. Intervjuene utgjør en forstudie, der jeg har forsøkt å kartlegge mulige moralske dilemma som fagpersonalet kan oppleve i ulike faser av prosjektutviklingen i farmasøytisk industri.

Efter at forstudien nå er gjennomført, håper jeg å kunne gå videre med et eksperiment, der dere som arbeider med FoU i Nycomed Imaging er deltakere. I eksperimentet blir dere stilt overfor 2-3 moralske dilemma, som blir utarbeidet på grunnlag av de gjennomførte intervjuene med deres kolleger.

Eksperimentet vil finne sted i Hugo Holtermanns Auditorium torsdag den 26. april kl. 10.00-11.15. Når vi møtes, vil jeg innledningsvis kort orientere om studien (ca. 5 min.). Deretter blir eksperimentsituasjonene utdelt, og dere som deltar arbeider med dem i ca. 20-30 min. Avslutningsvis vil jeg gi en debriefing, og orientere om hovedtankene i studien og hypotesene (ca. 20-30 min.). Under debriefingen blir det også anledning til å stille spørsmål til studien.

Dette eksperimentet kan kun gjøres en gang, og det er ingen muligheter til oppfølging. For at eksperimentsituasjonene skal oppleves som så realistiske som mulig, har jeg besluttet at kun forskere og ledere blir forespurt om å delta. Jeg er avhengig av et minste antall deltakere på 30-40 for at det statistisk sett skal være forsvarelig å gjennomføre studien. Noen av dere er ganske sikkert bortreist eller opptatt i den tiden som er satt av til studien. Jeg håper imidlertid at så mange av dere som overhode mulig blir med på studien, slik at det blir noe av den. Studien vil være absolutt anonymisert, og det vil ikke være mulig å identifisere hvem som har vært med. Jeg vil ikke en gang vite navnene på dere som er til stede i auditoriet. Hvis du med sikkerhet vet at du ikke har anledning til å delta i eksperimentet på det tidspunktet som er oppgitt, ber jeg deg være vennlig å returnere vedlagte svarslipp til sekretær Torill Johnsrud. Dere som allerede er blitt intervjuet i forstudien, skal ikke være med på eksperimentet, og kan ta dette brevet til orientering.

For ordens skyld gjør jeg oppmerksom på at jeg dette semesteret har permisjon fra min stipendiatstilling ved Norges Handelshøyskole, og har et vikariat ved Abo Akademi, samtidig som jeg arbeider med avhandlingen.

Med vennlig hilsen

Helge Rynning

Adresse/Address
Helleveien 30
N-5035 BERGEN - SANDVIKEN, NORWAY

Telefon/Telephone
Nasjonalt (05) 95 90 00
Internat. +47 5 95 90 00

Telex/Telex
40642 nhn n
Telefax
(05) 25 69 44

Bankkonto/
Bank account
0616 05 70367

Postgiro/
Postal giro account
3 72 00 00



NORGES HANDELSHØYSKOLE

Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES
Den 9. mars 1990

Til avdelingsledere og
forskingskoordinatorer
i Klinisk FoU Imaging

Jeg viser til omtalen av "Etikk-undersøkelse" på s. 4-5 i Nycomednytt nr. 1 for 1990. Undersøkelsen inngår som den empiriske delen av min doktoravhandling ved Norges Handelshøyskole om bedriftsetikk, og blir i sin helhet gjennomført i Nycomed Imaging. Siden januar d.å. har jeg gjort personlige intervjuer med i overkant av 20 ansatte på ulike nivå og i ulike fagavdelinger i Nycomed Imaging. Intervjuene utgjør en forstudie, der jeg har forsøkt å kartlegge mulige moralske dilemma som fagpersonalet kan oppleve i ulike faser av prosjektutviklingen i farmasøytisk industri.

Efter at forstudien nå er gjennomført, håper jeg å kunne gå videre med et eksperiment, der dere som arbeider med FoU i Nycomed Imaging er deltakere. I eksperimentet blir dere stilt overfor 2-3 moralske dilemma, som blir utarbeidet på grunnlag av de gjennomførte intervjuene med deres kolleger.

Eksperimentet vil finne sted i møterom S-100C, 2. etg., torsdag den 26. april kl. 13.00-14.15. Når vi møtes, vil jeg innledningsvis kort orientere om studien (ca. 5 min.). Deretter blir eksperimentsituasjonene utdelt, og dere som deltar arbeider med dem i ca. 20-30 min. Avslutningsvis vil jeg gi en debriefing, og orientere om hovedtankene i studien og hypotesene (ca. 20-30 min.). Under debriefingen blir det også anledning til å stille spørsmål til studien.

Dette eksperimentet kan kun gjøres en gang, og det er ingen muligheter til oppfølging. For at eksperimentsituasjonene skal oppleves som så realistiske som mulig, har jeg besluttet at kun forskere og ledere blir forespurt om å delta. Jeg er avhengig av et minste antall deltakere på 30-40 for at det statistisk sett skal være forsvarelig å gjennomføre studien. Noen av dere er ganske sikkert bortreist eller opptatt i den tiden som er satt av til studien. Jeg håper imidlertid at så mange av dere som overhode mulig blir med på studien, slik at det blir noe av den. Studien vil være absolutt anonymisert, og det vil ikke være mulig å identifisere hvem som har vært med. Jeg vil ikke en gang vite navnene på dere som er til stede i auditoriet. Hvis du med sikkerhet vet at du ikke har anledning til å delta i eksperimentet på det tidspunktet som er oppgitt, ber jeg deg være vennlig å returnere vedlagte svarslipp til Erik Andrew eller hans sekretær. Dere som allerede er blitt intervjuet i forstudien, skal ikke være med på eksperimentet, og kan ta dette brevet til orientering.

For ordens skyld gjør jeg oppmerksom på at jeg dette semesteret har permisjon fra min stipendiatstilling ved Norges Handelshøyskole, og har et vikariat ved Abo Akademi, samtidig som jeg arbeider med avhandlingen.

Med vennlig hilsen

Helge Rynning

Adresse/Address
Helleveien 30
N-5035 BERGEN - SANDVIKEN, NORWAY

Telefon/Telephone
Nasjonalt (05) 95 90 00
Internat. +47 5 95 90 00

Telex/Telex
40642 nhn n
Telefax
(05) 25 69 44

Bankkonto/
Bank account
0616 05 70367

Postgiro/
Postal giro account
3 72 00 00



NORGES HANDELSHØYSKOLE

Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES

Den 9. mars 1990

Til ledere og forskere
i Nycomed Imaging

Jeg viser til omtalen av "Etikk-undersøkelse" på s. 4-5 i Nycomednytt nr. 1 for 1990. Undersøkelsen inngår som den empiriske delen av min doktoravhandling ved Norges Handelshøyskole om bedriftsetikk, og blir i sin helhet gjennomført i Nycomed Imaging. Siden januar d.å. har jeg gjort personlige intervjuer med i overkant av 20 ansatte på ulike nivå og i ulike fagavdelinger i Nycomed Imaging. Intervjuene utgjør en forstudie, der jeg har forsøkt å kartlegge mulige moralske dilemma som fagpersonalet kan oppleve i ulike faser av prosjektutviklingen i farmasøytisk industri.

Etter at forstudien nå er gjennomført, håper jeg å kunne gå videre med et eksperiment, der dere som arbeider med FoU i Nycomed Imaging er deltakere. I eksperimentet blir dere stilt overfor 2-3 moralske dilemma, som blir utarbeidet på grunnlag av de gjennomførte intervjuene med deres kolleger.

Eksperimentet vil finne sted i Hugo Holtermanns Auditorium torsdag den 26. april kl. 10.00-11.15. Når vi møtes, vil jeg innledningsvis kort orientere om studien (ca. 5 min.). Deretter blir eksperimentssituasjonene undelt, og dere som deltar arbeider med dem i ca. 20-30 min. Avslutningsvis vil jeg gi en debriefing, og orientere om hovedtankene i studien og hypotesene (ca. 20-30 min.). Under debriefingen blir det også anledning til å stille spørsmål til studien.

Dette eksperimentet kan kun gjøres en gang, og det er ingen muligheter til oppfølging. For at eksperimentssituasjonene skal oppleves som så realistiske som mulig, har jeg besluttet at kun forskere og ledere blir forespurt om å delta. Jeg er avhengig av et minste antall deltakere på 30-40 for at det statistisk sett skal være forsvarlig å gjennomføre studien. Noen av dere er ganske sikkert bortreist eller opprørt i den tiden som er satt av til studien. Jeg håper imidlertid at så mange av dere som overhode mulig blir med på studien, slik at det blir noe av den. Studien vil være absolutt anonymisert, og det vil ikke være mulig å identifisere hvem som har vært med. Jeg vil ikke en gang vite navnene på dere som er til stede i auditoriet. Hvis du med sikkerhet vet at du ikke har anledning til å delta i eksperimentet på det tidspunktet som er oppgitt, ber jeg deg være vennlig å returnere vedlagte svarslipp til sekretær Torill Johnsrud. Dere som allerede er blitt intervjuet i forstudien, skal ikke være med på eksperimentet, og kan ta dette brevet til orientering.

For ordens skyld gjør jeg oppmerksom på at jeg dette semesteret har permisjon fra min stipendiatstilling ved Norges Handelshøyskole, og har et vikariat ved Åbo Akademi, samtidig som jeg arbeider med avhandlingen.

Med vennlig hilsen

Helge Rynning

Adresse/Address
Helevåren 30
N-5035 BERGEN - SANDVIKEN, NORWAY

Telefon/Telephone
Nårsjøl (05) 95 90 00
Internat. +47 5 95 90 00

Telex/Telex
40642 nhn n
Telefax
(05) 25 69 44

Bankkonto/
Bank account
0616 05 70367

Postgiro/
Postal giro account
3 72 00 00



NORGES HANDELSHØYSKOLE

Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES

Den 9. mars 1990

Til avdelingsledere og
forskingskoordinatorer
i Klinisk FoU Imaging

Jeg viser til omtalen av "Etikk-undersøkelse" på s. 4-5 i Nycomednytt nr. 1 for 1990. Undersøkelsen inngår som den empiriske delen av min doktoravhandling ved Norges Handelshøyskole om bedriftsetikk, og blir i sin helhet gjennomført i Nycomed Imaging. Siden januar d.å. har jeg gjort personlige intervjuer med i overkant av 20 ansatte på ulike nivå og i ulike fagavdelinger i Nycomed Imaging. Intervjuene utgjør en forstudie, der jeg har forsøkt å kartlegge mulige moralske dilemma som fagpersonalet kan oppleve i ulike faser av prosjektutviklingen i farmasøytisk industri.

Etter at forstudien nå er gjennomført, håper jeg å kunne gå videre med et eksperiment, der dere som arbeider med FoU i Nycomed Imaging er deltakere. I eksperimentet blir dere stilt overfor 2-3 moralske dilemma, som blir utarbeidet på grunnlag av de gjennomførte intervjuene med deres kolleger.

Eksperimentet vil finne sted i møterom S-100C, 2. etg., torsdag den 26. april kl. 13.00-14.15. Når vi møtes, vil jeg innledningsvis kort orientere om studien (ca. 5 min.). Deretter blir eksperimentssituasjonene undelt, og dere som deltar arbeider med dem i ca. 20-30 min. Avslutningsvis vil jeg gi en debriefing, og orientere om hovedtankene i studien og hypotesene (ca. 20-30 min.). Under debriefingen blir det også anledning til å stille spørsmål til studien.

Dette eksperimentet kan kun gjøres en gang, og det er ingen muligheter til oppfølging. For at eksperimentssituasjonene skal oppleves som så realistiske som mulig, har jeg besluttet at kun forskere og ledere blir forespurt om å delta. Jeg er avhengig av et minste antall deltakere på 30-40 for at det statistisk sett skal være forsvarlig å gjennomføre studien. Noen av dere er ganske sikkert bortreist eller opprørt i den tiden som er satt av til studien. Jeg håper imidlertid at så mange av dere som overhode mulig blir med på studien, slik at det blir noe av den. Studien vil være absolutt anonymisert, og det vil ikke være mulig å identifisere hvem som har vært med. Jeg vil ikke en gang vite navnene på dere som er til stede i auditoriet. Hvis du med sikkerhet vet at du ikke har anledning til å delta i eksperimentet på det tidspunktet som er oppgitt, ber jeg deg være vennlig å returnere vedlagte svarslipp til Erik Andrew eller hans sekretær. Dere som allerede er blitt intervjuet i forstudien, skal ikke være med på eksperimentet, og kan ta dette brevet til orientering.

For ordens skyld gjør jeg oppmerksom på at jeg dette semesteret har permisjon fra min stipendiatstilling ved Norges Handelshøyskole, og har et vikariat ved Åbo Akademi, samtidig som jeg arbeider med avhandlingen.

Med vennlig hilsen

Helge Rynning

Adresse/Address
Helevåren 30
N-5035 BERGEN - SANDVIKEN, NORWAY

Telefon/Telephone
Nårsjøl (05) 95 90 00
Internat. +47 5 95 90 00

Telex/Telex
40642 nhn n
Telefax
(05) 25 69 44

Bankkonto/
Bank account
0616 05 70367

Postgiro/
Postal giro account
3 72 00 00

Til ledere og forskere
i Nycomed Imaging

14.03.1990

Vi viser til brev fra Helge Rynning om etikk-undersøkelsen den 26. april kl. 10.00.

Vi oppfordrer alle dere som har anledning til å være med på undersøkelsen til å delta.



Berit Wenaas



Arne Berg



NORGES HANDELSHØYSKOLE
Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES

Den 10. april 1990

Til ledere og forskere
i Nycomed Imaging

PÅMINNELSE OM ETIKK-UNDERSØKELSEN.

Jeg viser til tidligere distribuert forespørsel (datert 09.03.90) om å delta i eksperimentdelen av etikk-undersøkelsen. Dette brevet er kun en påminnelse om at eksperimentet finner sted:

Torsdag den 26. april kl. 10.00-11.15
i Hugo Holtermanns Auditorium.

I eksperimentet vil dere bli stilt overfor tre etiske beslutnings-situasjoner, som er utarbeidet i samarbeid med kolleger av dere i Nycomed Imaging. Jeg håper fortsatt at dere har som har anledning til å være med, vil delta i studien, slik at grunnlaget for å få interessante og statistisk sett holdbare resultater blir best mulig.

Med vennlig hilsen

Helge Rynning



NORGES HANDELSHØYSKOLE
Norwegian School of Economics and Business Administration

INSTITUTT FOR ORGANISASJONSFAG
INSTITUTE OF ORGANIZATION SCIENCES

Den 10. april 1990

Til avdelingsledere og
forskingskoordinatorer
i Klinisk FOU Imaging

PÅMINNELSE OM ETIKK-UNDERSØKELSEN.

Jeg viser til tidligere distribuert forespørsel (datert 09.03.90) om å delta i eksperimentdelen av etikk-undersøkelsen. Dette brevet er kun en påminnelse om at eksperimentet finner sted:

Torsdag den 26. april kl. 13.00-14.15
i Møterom S-100C, 2. etg.

I eksperimentet vil dere bli stilt overfor tre etiske beslutnings-situasjoner, som er utarbeidet i samarbeid med kolleger av dere i Nycomed Imaging. Eksperimentene vil berøre ulike faggrupper. Jeg håper fortsatt at dere har som har anledning til å være med, vil delta i studien, slik at grunnlaget for å få interessante og statistisk sett holdbare resultater blir best mulig.

Med vennlig hilsen

Helge Rynning
Helge Rynning

287

Adresse/Address
Helleveien 30

Telefon/Telephone
Nasjonal (05) 95 90 00

Teleks/Telex
40642 ninn

Bankkonto/
Bank account

Postgiro/
Postal giro account

Adresse/Address
Helleveien 30

Telefon/Telephone
Nasjonal (05) 95 90 00

Teleks/Telex
40642 ninn

Bankkonto/
Bank account

Postgiro/
Postal giro account

Helge Rynning
Företagsekonomiska Institutionen
Åbo Akademi, Henriksgatan 7
SF-20500 Åbo, Finland
Tlf. 095-358-21-65 43 11
Telefax 095-358-21-33 16 46

03.10. 1990

Till: Ledere og forskere i Nycomed Imaging

INFORMASJONSMÖTE OM ETIKKUNDERSKÖKELSEN

Jeg takker alle som deltok i etikkundersökelsen om moralske dilemma i farmasöyisk industri vinteren/vären 1990. Alt i alt 59 ledere og forskere i Nycomed Imaging har svart på spørreskjemaet. Dessuten deltok 10 av forskerne i intervjuene i forstudien. Undersökelsen bör derfor ha god representativitet.

Jeg synes det har kommet fram mange interessante data i undersökelsen, og som avtalt vil jeg gjerne informere dere om hovedresultatene og diskutere dem. Informasjons- og diskusjonsmötet vil finne sted

tirsdag den 27. november kl. 10-11,

i Hugo Holtermanns Auditorium.

Jeg håper at så mange som mulig av dere har anledning til å komme. Mötet er også åpent for dere som deltok i forundersökelsen, og for interesserte som ikke hadde anledning til å väre med på undersökelsen.

Med vennlig hilsen

Helge Rynning

882

Helge Rynning
Företagsekonomiska Institutionen
Åbo Akademi, Henriksgatan 7
SF-20500 Åbo, Finland
Tlf. 095-358-21-65 43 11
Telefax 095-358-21-33 16 46

05.10. 1990

Till: Avdelingsledere og
forskingskoordinatorer
i Klinisk FoU Imaging

INFORMASJONSMÖTE OM ETIKKUNDERSKÖKELSEN

Jeg viser til brev av 27.06.90 med takk til lederne og forskerne ved Klinisk FoU Imaging for den fine oppslutningen om Etikk-undersökelsen i Nycomed Imaging. Jeg synes det har kommet fram mange interessante data i undersökelsen, og som avtalt vil jeg gjerne informere dere om hovedresultatene og diskutere enkelte av dem med dere. Derfor blir det holdt et felles informasjons- og diskusjonsmöte med forskere/forskningskoordinatorer og ledere i Klinisk FoU Imaging og i de andre forskingsenhetene i Nycomed Imaging. Mötet vil finne sted

tirsdag den 27. november kl. 10-11,

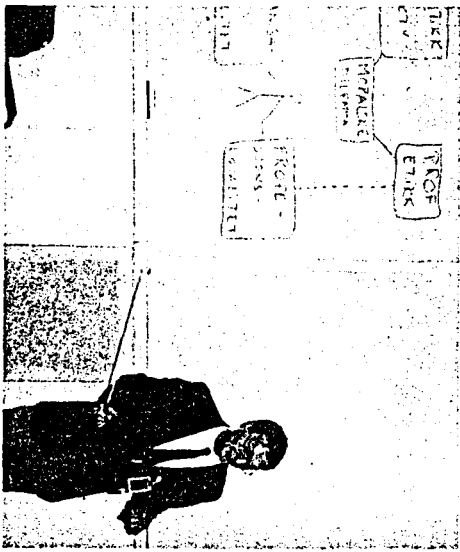
i Hugo Holtermanns Auditorium.

Jeg håper at så mange som mulig av dere har anledning til å komme. Mötet er også åpent for dere som deltok i forundersökelsen, og for interesserte som ikke hadde anledning til å väre med på undersökelsen.

Med vennlig hilsen

Helge Rynning

Aktuelle resultater fra etikkundersøkelsen



Helge Rynning presenterer «grovt-kastet» for forskere og ledere i Nycomed AS den 27. november.

Doktorgradstudent i organisasjonsfag ved Norges Handelshøyskole, Helge Rynning, gjennomførte i tidsrommet januar-juni 1990 datainnsamling for sin avhandling om bedriftsetikk blant FOU-ansatte i Nycomed Inngang. I dette inntrykket forteller han om en del av resultatene fra undersøkelsen. De lyder bl.a. på at:

- FOU-ansatte i Nycomed Inngang opplever moralske dilemma i relativt liten grad, men konkrete situasjoner kan ha sterk etisk relevans.
- Organisasjonspolitikken synes å være minst like høy for ansatte med kort tjenestetid som hos de med lang tjenestetid.
- Det er viktig for ansatte at ledelsen håndterer etisk vanskelige situasjoner på en ansvarfull og faglig forsvarlig måte.

Endel av resultatene fra undersøkelsen — foreløpig i grovbetet form — ble diskutert med forskere og ledere i Nycomed Inngang på et møte den 27.11.1990. Resultatene har tidligere vært diskutert med Etikk råd og ledergruppen i Nycomed Inngang.

Rynning foretrekker til Nycomednytt at undersøkelsen tar sikte på å analysere situasjoner der FOU-ansatte kan oppleve en konflikt mellom lojalitets hensyn overfor bedriften på den ene siden, og sin yrkesetikk på den andre siden. For å kartlegge i hvilken grad slike situasjoner kan forekomme, startet undersøkelsen ut med en forside, der 15 ansatte i personlig intervjuer ble bedt om å gi et eksempel på moralske dilemma i arbeids situasjonen. Disse 15 personene representerte ulike fagområder i bedriften, samtlig som de hadde ulik tjenestetid og ulik stillingsnivå.

Resultatene fra intervjuene lyder på at de ansatte i relativt liten grad opplever moralske dilemma, både i det

— Etter forstudien ble alle forskerne og FOU-lederne invitert til å delta i et eksperiment. Hva gikk eksperimentet ut på?

— I eksperimentet, som også hoveddelen av studien, ble deltagere sitt overfor tre beslutningssituasjoner med etisk innhold. Alle situasjoner var utarbeidet på grunnlag av eksempler som ble gitt i intervjuene i forstudien. Hver av situasjonene ble deltagere bedt om å angi hvilket standpunkt de ville ha tatt. Svarene skulle angis på en 7-delt skala, der det ene ytterpunkt representerte bedriftens hensyn til en effektiv gjennomføring av prosjektene uten forsikringer, og det andre ytterpunkt representerte profesjonsetiske hensyn.

Når forskerne i Nycomed Inngang gjør eksperimentet, studerer de eksempelvis hvordan ioniske versus ikke-

daglige arbeidet og i tilknytning til etikkprosjektet. Som venet opplevde forskere moralske dilemma i noe sterkere grad enn teknikere, og ledere i sterkere grad enn ikke-ledere. I den grad moralske dilemma forekommer, er det først og fremst overfor andre fagvedlingene, kolleger i andre yrkesgrupper og overordnede. Eksemplene på mulige moralske dilemma som ble gitt i intervjuene var mange og varierende, og omfattet alle fagområdene i bedriften. Dette lyder på at mulighetene for at det kan oppstå etisk vanskelige situasjoner er relativt stor. At graden av opplevde moralske dilemma likevel ble rapportert som lav, skyldes bl.a. leders rolle til å være et profesjonsetisk hensyn.

Men en viss forsiktighet fra intervjupersonens side er også helt naturlig, slik at etiske konflikter kan forekomme i noe sterkere grad enn det resultatene fra forstudien lyder på, sier Rynning.

ioniske konsummidler virker inn på de som deltar i forsøkene. På ubekræftet måte var jeg i dette eksperimentet oppført av å studere hvordan leders rolle i et forholdsvis høyt nivå de etiske beslutningene som fattes. Derfor ble deltagere i eksperimentet usatt for to ulike grader av press fra bedriftsledelsen, samtidig som markedsstatusjonen for bedriften ble beskrevet som enten god eller dårlig.

I spørreskjemaet som eksperimentdeltakerne arbeidet med, var det også spørsmål for å måle organisasjonslojaliteten, profesjonsetikken og grad av selvstendighet i arbeids situasjonen.

Og hva fant du ut på grunnlag av eksperimentet?

— Bare i en av de tre beslutningssituasjonene hadde signalet fra overordnede en statistisk signifikant effekt på hvilken grad forskerne og lederne prioritet bedriftens hensyn til en effektiv gjennomføring av prosjektene. I de to andre

— Var deltagere representantive for FOU-organisasjonen i Nycomed Inngang?

— I alt deltok 59 forskere og ledere i eksperimentet. Men spass bred deltagelse bør representativiteten være relativt god. Jeg valgte under tvil å ikke spørre teknikere om å være med, da eksperimentssituasjonene var mest relevante for forskere og ledere. Av anonymitetshensyn var tjenestetid den eneste bakgrunnsvariablen det ble spurt om. Det er interessant at styrt mange som 213 (42 av 59) av de som deltok i eksperimentet hadde kortere tjenestetid enn 4 år.

— Naturligvis er vi spente på hvordan det stod til med organisasjons- og profesjonslojaliteten?

— I det store og det hele lyder svarene på at de ansatte i FOU-organisasjonen hadde høy organisasjons- og profesjonslojalitet, selv om det var en del variasjon fra spørsmål til spørsmål. Og hadde kortere tjenestetid (under 4 år) ble målt til å være vel så høy som blant de som hadde vært lenge i bedriften!

— Ville svarene blitt annetledes etter Albunex-saken?

— Det er det velumlig å svare på. Men Albunex-saken viser hvor viktige etiske spørsmål kan være. Resultatene fra etikkundersøkelsen lyder på at forskere og ledere i sterk grad vektlegger profesjonsetiske hensyn når situasjoner som har tilhørighet med Albunex-saken oppstår.

— Etikk og bedriftsstrategi — hvordan passer de sammen?

— Enkelt kan være overordnet strategien, ikke minst i egenmiddelbedrift som er forskningsbasert. Enkelt kan

ikke reduseres til et strategisk instrument for å lønnsomme. På lang sikt er det sannsynlig at en bevisst etisk holdning vil kunne skape tillit hos kunder og myndigheter, og dermed bidra til at det skapes lønnsomhet. Men det vil også kunne oppstå konflikter hvor et profesjonsetisk standpunkt vil kunne medføre redusert lønnsomhet.

Et interessant resultat fra studien er at selv om intervjupersonene i forstudien svarte at de i relativt liten grad ble konfrontert med moralske dilemma i arbeids situasjonen, ble to av de tre eksperimentssituasjonene opplevd som relativt sterke moralske dilemma av deltagere. Det er slike situasjoner at bedriftens moralske holdninger blir satt på prøve. Tillitt til at ledelsen håndterer de etisk vanskelige situasjonene på en ansvarfull og faglig forsvarlig måte, er nok meget viktig for de ansatte i FOU-satte i FOU-organisasjonen.

Rynning ber til slutt om å få rette en varm takk til ledelsen og de ansatte i Nycomed, som har gjort det mulig for ham å gjennomføre studien. — Bedriftsetikk er emna er forholdsvis nytt emne, og det er gjort få studier på området. Spesielt er det få utliffe hvor en forsker har fått anledning til å samarbeide med en bedrift på den måten som jeg har fått gjøre det i Nycomed. Det har vært oppmuntrende å få oppleve den positive tonen som hersker i bedriften. Og for å si det litt forevrigt: Hvis leder hadde hatt sin på skogen, ville jeg neppe sluppet til med min studie, avslutter Rynning, med et glimt i øyet. ■

Red.

