

Doctoral Dissertation No. 46

# On Stage!

Playwriting, Directing and Enacting the Informing Processes

***Björn Abelli***



**MÄLARDALEN UNIVERSITY  
SWEDEN**



Mälardalen University Press Dissertations

No. 46

## **ON STAGE!**

**PLAYWRITING, DIRECTING AND ENACTING THE INFORMING  
PROCESSES.**

**Björn Abelli**

**2007**



**MÄLARDALEN UNIVERSITY**

School of Business  
Mälardalen University

Copyright © Björn Abelli, 2007

ISSN 1651-4238

ISBN 978-91-85485-51-2

Printed by Arkitektkopia, Västerås, Sweden

Mälardalen University Press Dissertations

No. 46

ON STAGE!  
PLAYWRITING, DIRECTING AND ENACTING THE INFORMING PROCESSES.

Björn Abelli

Akademisk avhandling

som för avläggande av Filosofie doktorsexamen i Industriell ekonomi och organisation vid Ekonomihögskolan kommer att offentligen försvaras torsdagen, 30:e augusti, 2007, 10.00 i R2-131, Ekonomihögskolans Case-sal.

Fakultetsopponent: Dr Allan Janik, Forschungsinstitut Brenner Archive, Universität Innsbruck, Austria.



Ekonomihögskolan  
Mälardalen University, Box 883, SE-72123 Västerås

## Abstract

Within the discipline of information systems sometimes the conception of the main object is that the information system *must* be computer based. An example of an information system that is non-computer based is the scenic theatre performance. Input is the message or knowledge the participants of the theatre production want to pass over to the audience; output is the information and experiences the performance in itself mediates to the audience. This has been produced through a system development process; although the developers not always have been aware about what development model has been used.

The dissertation combines some of the concepts found in theatre production with traditional system development concepts, and hence introduces new perspectives into the area of information systems. Some of the main findings in the study of theatre productions were the triplicity of a theatre production as a development process, an information system and an organization at the same time; the integrated relations of context, developers and users, which leads to spontaneous changes and overlaps of development roles; and the narrative and dramaturgical approach in the practical use of methods and techniques.

These aspects should be useful also in development of other types of information systems, whether computer based or using other information technologies. The triplicity gives arguments to redefine each of these concepts.

The generalizability of this approach has been validated through a second study, at a folk high school, which showed that models and concepts from theatre productions are possible to generalize to other information system areas than theatre, and that the borders of the organization coincides with the borders of the information system. Especially temporary organizations must be seen as ongoing, continuous development processes.

ISSN 1651-4238

ISBN 978-91-85485-51-2

## Summary

Within the discipline of information systems sometimes the conception of the main object is that the information system *must* be computer-based. An example of an information system that is non-computer-based is the scenic theatre performance. Input is the message or knowledge the producers of theatre want to pass over to the audience; output is the information and/or experience of emotions the performance in itself mediates to the audience.

Even though theatre productions are developed consciously it has seldom, if ever, been spoken of as the development process of information systems it really is. This dissertation will rectify this in two main studies; the first in order to describe the development model from theatre productions based on responses from theatre practitioners; the second in order to test it on another context, to show its generalizability.

The second study was made on a folk high school, which has intriguing similarities to theatre; the character of temporary sub-systems, plenty of human to human interaction, and the creative and social context. It showed that models and concepts from theatre productions are possible to generalize to other areas than theatre, and that the borders of the organization coincide with the borders of the information system. Especially temporary organizations must be seen as ongoing, continuous development processes.

The studies in this dissertation has mainly used an inductive approach, inspired by grounded theory, though a pragmatic perspective have been present in the process of gathering the empirical material. Some of the main findings were;

- the triplicity of a theatre production as a development process, an information system and an organization at the same time;
- the integrated relations of context, developers and users, which leads to spontaneous changes and overlaps of development roles;
- the narrative and dramaturgical approach in the practical use of methods and techniques.

These aspects should be useful also in development of other types of information systems, whether computer-based or using other information technologies.

## Sammanfattning på svenska

Inom informatik finns ofta uppfattningen att informationssystem måste vara datorbaserade. Detta motsäger situationen i början av ett utvecklingsprojekt, där utvecklarna måste välja om systemet skall implementeras med datorer, med manuella rutiner, eller inte implementeras alls.

Ett exempel på ett informationssystem utan datorer är teaterföreställningen, "indata" är det budskap eller kunskap teaterarbetarna vill förmedla till publiken, "utdata" är den information och de upplevelser föreställningen förmedlat till publiken.

Även om teaterproduktionen är en medveten process, har den sällan, om någonsin, talats om som den informationssystemutvecklingsprocess den verkligen är. Denna avhandling fyller denna lucka genom två studier; den första beskriver utvecklingsmodeller och koncept från teaterproduktionen utifrån teaterpraktikerna; den andra använder dessa modeller och koncept i en annan kontext än teater för att påvisa dess generaliserbarhet.

Den andra studien gjordes på en folkhögskola, vilket har fascinerande likheter med teater: karaktären av temporära subsystem, mångfald av interaktion mellan människor, samt den kreativa och sociala kontexten. Den visade att modeller och koncept från teaterproduktionen var möjliga att generalisera till andra områden än bara teatern, och bekräftade att organisationens och informationssystemets gränser sammanfaller. I synnerhet organisationer av temporär karaktär måste också ses som kontinuerligt pågående systemutvecklingsprocesser.

Några av resultaten från studierna var;

- trefaldigheten hos teaterproduktionen som såväl utvecklingsprocess, organisation och som ett informationssystem i sig,
- de integrerade relationerna mellan kontext, utvecklare och användare, vilket leder till spontana rollbyten i utvecklingsprocessen,
- det narrativa och dramaturgiska tillvägagångssättet i det praktiska arbetet.

Dessa aspekter är användbara även vid utvecklandet av andra typer av informationssystem, oavsett om systemen kommer att bli datorbaserade eller använda andra typer av informationsteknologi.



# Acknowledgements

In this dissertation I state that theatre productions are information system development processes. The making of a dissertation has some similarities to the development process as well. It has been a long journey where structured development of theory must have large influence of artistic creativity.

Making this journey and reaching my goals would not have been possible without the support of many people. I am very grateful to all of them. The research was made at the School of Business at Mälardalen University and sponsored by the Research School of Management and Information Technology.

In the first part of the study I met all those wonderful people from the theatre; playwrights, directors, actors, etc. The list would be too long to write here, but I bow to you.

The study where the models were tested as a tool for analysis required a high level of co-operation of the Labor Movements' Folk High School in Gothenburg (AFiG), where I especially want to thank their headmaster Stellan Hansson, who gave me full access to the school over a period of almost two years, and of course I would like to thank the pupils and the staff at AFiG too.

I want to thank my supervisor Péter Révay and assisting supervisor Carl G. Thunman, who gave comments and inspiration when I needed. I also want to thank Peter Thilenius for his work as assisting supervisor, even if it was just for a short period of time. Your comments in the beginning of my research were crucial for getting me out in the empirical world as fast as I did.

Parts of this work have been published as separate articles and in other works of the author. According to specific copyrights transferred to some of the organizations I have to acknowledge them in works where the material occurs, which has been done in appendix 3. I also want to thank all the anonymous reviewers that have made their comments on the papers I've sent to journals and conferences, whether they have been accepted or not. They gave much inspiration on how to proceed with large parts of this dissertation.

Finally, doing this work would not have been possible without the love, support and understanding of my family, my wife Ann-Marie and our daughter Frida. I love you and thank you for your patience.

Gothenburg, August 2007

Björn Abelli



# Contents

|  |           |
|--|-----------|
| PROLOGUE .....   | 1         |
| <b>1 INTRODUCTION .....</b>                                | <b>3</b>  |
| <b>2 DISPOSITION .....</b>                                 | <b>4</b>  |
| 2.1 THE ELEMENTS OF A DISSERTATION .....                   | 4         |
| 2.2 THE COURSE OF MY RESEARCH .....                        | 5         |
| <b>3 THE AUTHOR'S BACKGROUND .....</b>                     | <b>6</b>  |
| 3.1 MERGING EXPERIENCES .....                              | 6         |
| 3.2 LEAVING THE AREA OF INFORMATION SYSTEMS .....          | 6         |
| 3.3 RETURNING TO INFORMATION SYSTEMS .....                 | 7         |
| <b>4 THE PREMISE OF THE DISSERTATION .....</b>             | <b>8</b>  |
| 4.1 THE CONCEPT OF "MANUAL" INFORMATION SYSTEMS .....      | 8         |
| 4.2 THE TITLE OF THE DISSERTATION .....                    | 8         |
| 4.3 INFORMATION SYSTEM DEVELOPMENT OF TODAY .....          | 9         |
| 4.4 THE GAP IN INFORMATION SYSTEMS DEVELOPMENT .....       | 10        |
| 4.5 TO STUDY THEATRE PRODUCTIONS .....                     | 13        |
| 4.6 THE PURPOSE FOR THE STUDY OF THEATRE PRODUCTIONS ..... | 14        |
| 4.7 STEPS TO ACHIEVE THE PURPOSE .....                     | 15        |
| 4.8 THE RESULT AND CONTRIBUTIONS .....                     | 16        |
| <br>ACT 1 - THEORETICAL FRAMEWORK .....                    | <br>17    |
| <b>5 INFORMATION SYSTEMS .....</b>                         | <b>19</b> |
| 5.1 DATA, INFORMATION, KNOWLEDGE AND WISDOM .....          | 19        |
| 5.2 ONLY HUMANS CAN BE "INFORMED" .....                    | 20        |
| 5.3 INFORMATION TECHNOLOGY .....                           | 23        |
| <b>6 INFORMATION SYSTEMS DEVELOPMENT .....</b>             | <b>24</b> |
| 6.1 EVOLUTION OF MODELS .....                              | 24        |
| 6.2 CORE PROCESSES .....                                   | 24        |
| 6.3 TYPES OF DEVELOPMENT MODELS .....                      | 26        |
| 6.4 RISK WITH STANDARDIZED DEVELOPMENT MODELS .....        | 27        |
| 6.5 PEOPLE IN INFORMATION SYSTEMS DEVELOPMENT .....        | 28        |
| <b>7 MANUAL INFORMATION SYSTEMS .....</b>                  | <b>30</b> |
| 7.1 FROM MANUAL SYSTEMS TO COMPUTERS, AND BACK AGAIN ..... | 30        |
| 7.2 ACKNOWLEDGING THE MANUAL ROUTINES .....                | 31        |
| 7.3 DEVELOPMENT OF MANUAL INFORMATION SYSTEMS .....        | 32        |
| <b>8 ORGANIZATIONS .....</b>                               | <b>34</b> |
| 8.1 ORGANIZING .....                                       | 34        |
| 8.2 PEOPLE IN ORGANIZATIONS .....                          | 35        |
| 8.3 ORGANIZATIONS AS SYSTEMS .....                         | 36        |
| 8.4 TEMPORARY ORGANIZATIONS .....                          | 38        |
| 8.5 ORGANIZATIONAL AESTHETICS .....                        | 39        |

|           |   |           |
|-----------|---|-----------|
| 8.6       | ORGANIZATIONAL CHANGE AND DEVELOPMENT .....         | 40        |
| 8.7       | ORGANIZATIONAL LEARNING .....                       | 41        |
| <b>9</b>  | <b>THEATRE .....</b>                                | <b>42</b> |
| 9.1       | THEATRE AS AN ORIGIN OF INFORMATION SYSTEMS .....   | 42        |
| 9.2       | THE ARISTOTELIAN HANDBOOK .....                     | 44        |
| 9.2.1     | <i>Thought</i> .....                                | 44        |
| 9.2.2     | <i>Plot</i> .....                                   | 45        |
| 9.2.3     | <i>Character</i> .....                              | 47        |
| 9.2.4     | <i>Diction</i> .....                                | 47        |
| 9.2.5     | <i>Song</i> .....                                   | 47        |
| 9.2.6     | <i>Spectacle</i> .....                              | 47        |
| 9.2.7     | <i>Rhetorical elements</i> .....                    | 47        |
| 9.3       | PEOPLE IN THEATRE .....                             | 48        |
| 9.4       | CORE PROCESSES .....                                | 49        |
| 9.4.1     | <i>The playwright's development process</i> .....   | 51        |
| 9.4.2     | <i>The director's development process</i> .....     | 52        |
| 9.4.3     | <i>The actor's development process</i> .....        | 52        |
| 9.4.4     | <i>The audience's development process</i> .....     | 54        |
| 9.5       | THEATRE, KNOWLEDGE AND CONCEPTION .....             | 56        |
| <b>10</b> | <b>MY CONCEPTION OF THE CONCEPTS .....</b>          | <b>59</b> |
| 10.1      | CONCEPTS FROM INFORMATION SYSTEMS .....             | 59        |
| 10.2      | CONCEPTS FROM INFORMATION SYSTEM DEVELOPMENT .....  | 60        |
| 10.3      | CONCEPTS FROM ORGANIZATION .....                    | 60        |
| 10.4      | CONCEPTS FROM THEATRE .....                         | 60        |
|           | <br>FIRST INTERMISSION – METHODOLOGY .....          | <br>61    |
| <b>11</b> | <b>PERSPECTIVES AND METHODS .....</b>               | <b>63</b> |
| 11.1      | THE VIEWS OF A RESEARCHER .....                     | 63        |
| 11.2      | THE RESEARCH SETTINGS .....                         | 65        |
| 11.3      | THE COLLECTION OF DATA .....                        | 65        |
| 11.3.1    | <i>Interviews</i> .....                             | 67        |
| 11.3.2    | <i>Literature studies</i> .....                     | 68        |
| <b>12</b> | <b>THE RESEARCH PROCESS .....</b>                   | <b>70</b> |
| 12.1      | RESEARCH MODELS IN INFORMATION SYSTEMS .....        | 70        |
| 12.2      | AN ITERATIVE AND INCREMENTAL APPROACH .....         | 72        |
| 12.3      | ANALYSIS .....                                      | 75        |
| 12.4      | THE SECOND PHASE: STUDYING A FOLK HIGH SCHOOL ..... | 78        |
| 12.5      | THE RESEARCH PROCESS AT THE FOLK HIGH SCHOOL .....  | 79        |
| 12.5.1    | <i>Observations</i> .....                           | 79        |
| 12.5.2    | <i>Interviews</i> .....                             | 79        |
| 12.5.3    | <i>Conceptual analysis</i> .....                    | 79        |
| 12.6      | PUTTING IT ALL TOGETHER .....                       | 80        |
| <b>13</b> | <b>GENERALIZABILITY .....</b>                       | <b>81</b> |

|   |   |            |
|---|---|------------|
| <b>14</b>   | <b>THE CRITIC’S REVIEW .....</b>                        | <b>85</b>  |
| 14.1  | THE EMPIRICAL MATERIAL.....                             | 85         |
| 14.2  | THE PERSPECTIVES AND METHODOLOGIES.....                 | 85         |
| 14.3  | THE RESEARCHER .....                                    | 86         |
| <b>ACT 2 - THEATRE PRODUCTIONS .....</b>                              |   | <b>87</b>  |
| <b>15</b>   | <b>THEATRE CONCEPTUALIZATION.....</b>                   | <b>89</b>  |
| 15.1  | CREATING CATEGORIES .....                               | 89         |
| 15.2  | CONTEXTUAL ELEMENTS .....                               | 90         |
| 15.3  | THE INTERACTING PEOPLE.....                             | 92         |
| 15.4  | NARRATIVE AND DRAMATURGICAL ELEMENTS .....              | 95         |
| <b>16</b>   | <b>TYPE MODELS FOR THEATRE PRODUCTIONS.....</b>         | <b>97</b>  |
| 16.1  | THE PLAYWRIGHT’S PROCESS.....                           | 97         |
| 16.2  | THE DIRECTOR’S PROCESS .....                            | 99         |
| 16.3  | THE ACTOR’S PROCESS .....                               | 101        |
| 16.4  | THE AUDIENCE’ PROCESS.....                              | 103        |
| 16.5  | SUMMARY OF THE CORE PROCESSES .....                     | 105        |
| <b>SECOND INTERMISSION - REFLECTIONS FROM THE THEATRE STUDY .....</b> |   | <b>107</b> |
| <b>17</b>   | <b>BACK TO INFORMATION SYSTEMS DEVELOPMENT .....</b>    | <b>109</b> |
| 17.1  | CONTEXTUAL ELEMENTS .....                               | 109        |
| 17.2  | THE INTERACTING PEOPLE.....                             | 111        |
| 17.3  | NARRATIVE AND DRAMATURGICAL ELEMENTS.....               | 114        |
| <b>18</b>   | <b>USING THE CONCEPTS FOR ANALYSIS .....</b>            | <b>117</b> |
| <b>ACT 3 - THE FOLK HIGH SCHOOL .....</b>                             |   | <b>119</b> |
| <b>19</b>   | <b>THE FOLK HIGH SCHOOL IN BRIEF.....</b>               | <b>121</b> |
| 19.1  | THE CONCEPT OF FOLK HIGH SCHOOLS.....                   | 121        |
| 19.2  | PEDAGOGY .....  | 122        |
| <b>20</b>   | <b>THE LABOR MOVEMENT’S FOLK HIGH SCHOOL .....</b>      | <b>124</b> |
| 20.1  | THE ORGANIZATION OF THE SCHOOL.....                     | 124        |
| 20.2  | THE COURSES AND THE TEAMS .....                         | 125        |
| <b>21</b>   | <b>THE THEATRE CONCEPTS IN THE SCHOOL CONTEXT .....</b> | <b>126</b> |
| 21.1  | CONTEXTUAL ELEMENTS .....                               | 126        |
| 21.2  | THE INTERACTING PEOPLE.....                             | 129        |
| 21.2.1  | <i>The interaction between teacher and pupils .....</i> | <i>130</i> |
| 21.2.2  | <i>The interaction between teachers.....</i>            | <i>133</i> |
| 21.3  | NARRATIVE AND DRAMATURGICAL ELEMENTS .....              | 135        |

|           |  |            |
|-----------|--|------------|
| <b>22</b> | <b>REFLECTIONS ON THE FOLK HIGH SCHOOL .....</b>                                   | <b>137</b> |
| 22.1      | LOGISTICAL ISSUES (CONTEXTUAL ELEMENTS) .....                                      | 137        |
| 22.2      | EDUCATIONAL ISSUES (THE INTERACTING PEOPLE) .....                                  | 138        |
| 22.3      | ENLIGHTENMENT ISSUES (NARRATIVE AND DRAMATURGICAL ELEMENTS) .....                  | 138        |
|           | <b>EPILOGUE - THE CONCLUSIONS .....</b>  | <b>139</b> |
| <b>23</b> | <b>THE TRAITS OF THEATRE PRODUCTION.....</b>                                       | <b>141</b> |
| 23.1      | SIMILARITIES OF CONTEXTUAL ELEMENTS.....   | 141        |
| 23.1.1    | <i>The premise and the unknown outcome</i> .....                                   | 141        |
| 23.1.2    | <i>Integrated internal and external contexts</i> .....                             | 141        |
| 23.1.3    | <i>Ongoing process and continuously deployed system</i> .....                      | 141        |
| 23.1.4    | <i>Temporary systems</i> .....   | 142        |
| 23.1.5    | <i>Triplicity</i> .....  | 142        |
| 23.2      | SIMILARITIES OF INTERACTING PEOPLE .....   | 142        |
| 23.2.1    | <i>Human to human interaction</i> .....  | 142        |
| 23.2.2    | <i>Complexity of the human element</i> .....                                       | 142        |
| 23.2.3    | <i>Overlaps of processes and jumps between roles</i> .....                         | 143        |
| 23.2.4    | <i>The use of rhetorical elements</i> .....  | 144        |
| 23.3      | SIMILARITIES OF NARRATIVE AND DRAMATURGICAL ELEMENTS .....                         | 144        |
| 23.3.1    | <i>Creative and social contexts – narrative and dramaturgical approaches</i> ..... | 144        |
| 23.3.2    | <i>From artistic creativity to artistic engineering</i> .....                      | 145        |
| <b>24</b> | <b>A NEW LOOK AT THE DEVELOPMENT PROCESS .....</b>                                 | <b>146</b> |
| 24.1      | FOUR CORE PROCESSES.....   | 146        |
| 24.2      | REDEFINING THE DEVELOPMENT PROCESS .....   | 147        |
| 24.3      | INFORMATION SYSTEMS ARE DEVELOPMENT PROCESSES .....                                | 147        |
| 24.4      | ORGANIZATIONS ARE INFORMATION SYSTEMS .....  | 149        |
| <b>25</b> | <b>THE FINAL SENTENTIAE .....</b>  | <b>151</b> |
|           | <b>APPENDICES .....</b>  | <b>153</b> |
| <b>1.</b> | <b>RESPONDENTS IN THE THEATRE STUDY .....</b>                                      | <b>154</b> |
| <b>2.</b> | <b>RESPONDENTS AT THE FOLK HIGH SCHOOL.....</b>                                    | <b>155</b> |
| <b>3.</b> | <b>LIST OF MY PUBLICATIONS .....</b>   | <b>156</b> |
| <b>4.</b> | <b>LIST OF TABLES .....</b>  | <b>157</b> |
| <b>5.</b> | <b>LIST OF FIGURES .....</b>   | <b>158</b> |
| <b>6.</b> | <b>LIST OF REFERENCES.....</b>   | <b>159</b> |

# PROLOGUE

*All the world's a stage,  
And all the men and women merely players.  
They have their exits and their entrances,  
And one man in his time plays many parts,  
His acts being seven ages.*

William Shakespeare: "As You Like It", Act II, Scene 7 (Shakespeare, 1980)

*The Prologue begins with two chapters summarizing the purpose and the disposition of the dissertation. The Prologue continues with a more detailed introduction to the area of research explaining why it has been chosen and concludes with a broader presentation of the purpose of the dissertation.*

FRIEND: Do you want to get out and grab a beer?

ABELLI: I haven't got the time. I've begun my research on manual information systems...

FRIEND: Oh, so you're into libraries?

ABELLI: Could be, but it really goes deeper than that.

I'm a teacher in Information Systems, or "Informatics", a term we use here in Sweden. In that discipline we look foremost at computer-based information systems, how to develop and use them, but somewhere along the history line, we've forgotten that the manual routines of processing information are equally important, or maybe even more important.

FRIEND: So you're against computers?

ABELLI: No, but I think we rely on them too much. Think about the hurricanes that blew over the world a couple of years ago; Gudrun in Sweden, Katrina in the USA. The communities affected came to a halt when the electricity went out and we couldn't use our computers.

FRIEND: Ah, yes, I remember that.

ABELLI: And there are still many places in the world without electricity or lacking other types of infra structure, such as much of Africa, large parts of Asia, and many other areas in the third world.

FRIEND: I'm beginning to see your point...

ABELLI: We can also see that overuse of computer-based systems tend to drain organizations of knowledge.

FRIEND: What do you mean? Shouldn't it be even more knowledge available, with Internet, intranets...

ABELLI: No no no, that's not knowledge, that's information, or maybe not even that. A couple of years ago a Swedish government authority introduced a new information system. It didn't take long before the staff was completely in the hands of the system. They had lost the knowledge of how to work without them, so the citizens got less service than before, when the employees still had this tacit knowledge.

FRIEND: That's awful...

ABELLI: So, for starters, I will look into the development of information systems, to see what I can find there on manual systems...



# 1 INTRODUCTION

This chapter presents a short background to the subject considered and the purpose of the dissertation.

Information systems development (ISD) is the process of designing, building and maintaining information systems. An information system (IS) is defined as a system that uses information technology to capture, transmit, store, retrieve, manipulate, or display information used in one or more business processes, while information technology (IT) is defined as the tools and techniques used to acquire and process information. (Alter, 1998; Ferre, 1988; March & Smith, 1995)

Within the discipline of information systems, the view on of information systems and information system development has been formed by the way the discipline has grown out of the influence of numerical analysis on business studies as well as under the great influence of the sister discipline of computer science, with the “typical” aim of developing a computer-based system, though with the notion of integrating it with existing manual routines. Modern development models largely ignore the possibility of developing purely manual information systems, consisting of only manual routines. (DSDM Consortium, 2002; Firesmith & Henderson-Sellers, 2002; Rational Software Corporation, 2003)

This research is about information system development, but makes use of an alternative approach, via a field not particularly associated with computers, the theatrical production. In the world of the theatre, production is the process of staging a play, from the decision to present it to the public to the first actual performance, the premiere. In this dissertation I extend this process to include both the playwright, as any play must have something to tell, embodied in his manuscript, and the audience, as the final result of the production is the impression they take home with them. I will show that the theatre production to a considerable degree is as structured as other development models.

By using the theatre approach, I separate the system development process from computer technology and present new perspectives on information systems development and the management of designed information systems, whether computer-based or not computer-based.

- The purpose of my research is to apply the perspectives of theatre and drama to the process of system development, in order to introduce concepts from the theatre into system development, and to achieve a greater understanding of the underlying premises of system development.

## 2 DISPOSITION

This chapter presents the structure of the dissertation, the contents of each part and how they fit into the big picture.

### 2.1 The elements of a dissertation

The area of research suggested many tempting alternative ways of structuring this dissertation, but I finally chose one fairly close to that of the traditional dissertation. This structure was chosen for the simple reason that the readers are mainly academics working within the discipline of information systems or related disciplines. The dissertation, therefore, does not always follow the progress of my own research but rather the traditional academic routine in which e.g. the theoretical framework is summarized before the actual presentation of the empirical studies, even though the research has been mainly inductive.

- The **Prologue** aims at giving the background of this presentation, its foundations and its purpose.
- In **Act 1** the bulk of the theoretical framework is presented, some references appearing more appropriately later in the dissertation. For example, research relating to folk high schools is not relevant until its appearance in Act 3.
- The **First Intermission** presents the design of the research process and the chosen methodology for the study of Theatre Productions, along with my research perspectives.
- In **Act 2** the first empirical study – on Theatre Productions – is presented. The empirical material is presented through a categorization of found concepts, concluding with the presentation of type models of the core processes of theatre productions.
- The **Second Intermission** concludes the analysis of the first study and makes some reflections on the findings, and relating these to traditional information system development. It ends with a tentative model for analysis using the theatre concepts.
- In **Act 3** I present a study performed at a folk high school, where I have tested the theatre concepts.
- In the **Epilogue**, I present the conclusions I have arrived at from my research.

Table 1 summarizes the location of the traditional dissertation elements. I hope thereby that I have made the material transparent enough for the reader to see both the rigor and the relevance of my research.

Table 1. Mapping of traditional dissertation elements to this presentation

|   |                              |
|---|------------------------------|
| Purpose   | Prologue, chapter 1& 4       |
| Theoretical framework on IS, ISD, organizations and theatre       | Act 1                        |
| Methodology   | First Intermission           |
| Empirical study 1 based on interviews with theatre practitioners  | Act 2                        |
| Analysis of empirical study 1                                     | Act 2<br>Second Intermission |
| Reflections on empirical study 1                                  | Second Intermission          |
| Empirical study 2: Testing theatre concepts at a folk high school | Act 3                        |
| Final analysis and conclusions                                    | Epilogue                     |

## 2.2 The course of my research

The disposition follows the course of my research to a certain degree. It can be described as being in two phases, the first being a study of the processes of theatrical production intended to identify concepts suitable for application in system development, which resulted in a licentiate thesis (Abelli, 2004).

Much of the material from the licentiate thesis remains relevant, but since its writing, the text has been *condensed* with regard to theoretical material not applicable to the dissertation. It has been *expanded* with new references to existing research relating to discoveries made subsequently. The presentation of the empirical material has been broadened and a deeper analysis has been made. The classification and categorization of concepts from the theatre have been *revised* as the analysis of material continued after the publication of the thesis. The text is now more *structured* as references from theatre literature have been placed in a separate chapter, together with the bulk of the theoretical framework, instead of being intertwined with the presentation of the empirical material and the analysis of the first study.

The purpose of this dissertation was already fulfilled to a considerable degree by the licentiate thesis, especially by the presentation of the concepts and core process models from theatre productions, but to give more depth to the purpose, more work was still required to demonstrate that the concepts would work in other contexts than the theatre.

The second phase was consequently to fill in the gaps remaining from the licentiate thesis by demonstrating the applicability of the concepts and models from theatre production in another context. I have described this possibility at the end of the Second Intermission, and the actual demonstration is then presented in Act 3.

### 3 THE AUTHOR'S BACKGROUND

In this chapter I present my personal background, in which both information systems development and theatre have been prominent.

#### 3.1 Merging experiences

My research and choice of research subject have much to do with my background. Information systems, theatre and education have long been important parallel interests in my life and I have developed definite and well-considered views in all three areas.

In the early eighties I was awarded a university degree in ADB<sup>1</sup> at Höghskolan Dalarna, and began, soon after, a career in the computer department at Bostads AB Poseidon, the largest property-owning company in Gothenburg, as programmer, system developer and eventually as the head of the department.

Long before that, in the seventies, I had engaged myself in theatrical activities with different amateur ensemble. As my interest in drama and the theatre increased, I began to educate myself further in the underlying theories of drama, dramaturgy, directing, and acting, in parallel with my work in the computer department.

During this time I experienced the first synergic effects of my knowledge in both areas. I could make use of the structured engineering perspectives from the area of information systems in my direction of plays, and could at the same time make use of some of the structured processes from both directing and acting as well as much of the artistic creativity involved in my theatrical activity in the development of systems. The emphasis in both areas, on analysis and design before the actual implementation of the system appealed to me as a striking similarity.

#### 3.2 Leaving the area of information systems

After some time as head of the computer department, I became frustrated in my work. It had become increasingly the administration rather than the development of systems and I regretted that my function was no longer creative. Numbers of my proposals were not accepted, possibly because my ideas were ahead of their time, for example, the installation of broadband in new buildings in the early eighties.

I resigned from the company and began to work as an organization consultant, continuing my education in Drama at Gothenburg University. Eventually I became a drama pedagogue, freelancing in different theatres as director, producer and actor. After some years I decided to settle down, and returned to my original area of work,

---

<sup>1</sup> Administrativ Databehandling, Eng. Administrative Data Processing

system and application development, but this time as a lecturer at Mälardalen University.

I continued with theatrical work, but on a smaller scale. Together with my wife I started a small theatre company (Teater Abelli) which produces and performs plays “on demand”, i.e. for conferences, seminars and similar occasions for different companies and organizations.

### 3.3 Returning to information systems

As a lecturer in information systems I was again struck by the similarities between traditional system development processes and theatre productions. Many of the theories and some of the models in information systems were applicable to much of our work in the theatre. Not only were the explicit theories from computer and system sciences useful, but also theories and models from knowledge management that had come into fashion within the field of information systems.

I made the final decision to combine my theoretical knowledge and practical experiences from both fields in the development of this research project. I recollected the emphasis made in the early classes I took in ADB on the importance of considering the manual routines involved as much as those computerized. In several classes the teachers emphasized that as developers, we should try to keep in mind concepts taken from “the real world” when creating fields and forms for the computer-based systems, but many of them took it a step further, meaning that the information flow in the system should be considered to extend to wherever it ended with the manual routines. Studying the modern system development models of today, it occurred to me that this notion had been left behind somewhere in the process and many models are explicitly concerned only with the computer-based systems.

These thoughts also reminded me of other lessons from early classes I had taken such as the dangers of computerization; the decrease in social interaction in the workplace, the difficulties in codifying knowledge into the systems, where a great risk lies in oversimplification of the information.

This made me think that possibly too many computer-based information systems were being developed, that corresponding manual systems might have been as effective or even more effective, but where were the models for development of purely manual information systems?

I found some, for such operations as project management, business process and organizational development, but they were for specific purposes and not for information systems development in general. Hence began my quest for the *General Development Model for Information Systems*.

## 4 THE PREMISE OF THE DISSERTATION

This chapter makes a case for this subject of research, going deeper into what is missing in the IS/ISD of today, what this type of research can contribute, leading up to a broader presentation of the purpose of the research.

### 4.1 The concept of “manual” information systems

The term “manual” can be defined as “worked or done by hand and not by machine” (Merriam-Webster, 1998), but that is not exactly how “manual” is used in the context of information systems, and hence my use of the term calls for a further explanation.

What I mean by “manual” information systems are information systems that do not use computers as a means of processing or distributing information, but rely on other types of information technology.

When I began my research, I used the concept “non-computer-based information systems” to illustrate what I meant. Along the line I found that concept unsatisfactory and searched for an alternative. One way of defining it could be “information systems that could be considered for formalization or automation with computers, but have not been”, but what should I call them? I finally found, in many papers, the term “manual” used for what I meant, as describing what computer-based systems have *replaced* (Avgerou, 2000; Blume, 1999; Brooks, 1987).

The use of the term “manual” can be problematic, as, in other areas it is very closely connected to its etymological origin, the Latin word “manus” which means “hand”. However, its use today is not only connected to a bodily part, but more in terms of “not by machine”, which is how I use it, somewhat analogous with the use in the aforementioned papers.

### 4.2 The title of the dissertation

I had many different alternatives to choose from; one was the general purpose of my research – “The Quest for a General Development Model for Information Systems” – i.e. a search for a common denominator for developing information systems regardless of technology, computer-based or otherwise. To warrant that title would have required more than the work of a life-time, so I had to narrow it to what I have studied more explicitly.

“The Theatre Information System Development Model” was an alternative, but that would have been misleading, as it would suggest the development of theatre itself as an information system. Even though theatre is an information system, it is intended that the concepts and models presented in this dissertation should also be of use outside the theatre.

- **On Stage!** In the words of Shakespeare: “The world’s a stage”, the leading phrase of the title points to the information systems that we tend to forget in our discipline; the manual systems. It is also meant to encourage others to use alternative perspectives on information systems development, indicating that the scene of investigation includes more of human interaction and activities.
- **Playwriting, Directing and Enacting.** The results of my research are focused foremost on these three processes in the development and performance of manual information systems.
- **The Informing Processes.** Manual systems include more than just formalized information, and my results take those parts into consideration. As we then have systems that extend beyond information only, we come closer to the real purpose of the systems, to inform. The systems should also be seen as not a single system but as consisting of several subsystems. The activities of those subsystems could be considered as systems themselves, but to distinguish those activities from the overall system, I’ve chosen to call them processes, analogous with how I describe the theatre production.

### 4.3 Information system development of today

It is not difficult to understand why the concept of information systems (IS) and information technology (IT) as being based on computers is dominant, since the development of the discipline has been greatly influenced by its sister discipline “computer science”. To some extent, they have even been regarded as the same discipline, or at least overlapping, as many journals and conferences target both disciplines. This view complicates the situation in the development process where the developer must choose if the system is to be implemented at all, implemented as computer-based or with manual routines.

In traditional development models, such as SIS:RAS<sup>2</sup> or MBI/SAK<sup>3</sup>, whether it is *possible* or *appropriate* to automate some manual tasks is discussed, but the notion of *developing* manual routines is not considered. (Hugoson, Hesselmark, & Grubbström, 1983; Révay, 1977; SIS, 1973, 1975; Wigander, Svensson, Schoug, Rydin, & Dahlgren, 1979)

The concept of even the possibility of considering manual alternatives has more or less disappeared in later development models. Modern development models such as

---

<sup>2</sup> RAS: Riktlinjer för Administrativ Systemutveckling (Guidelines for Administrative System Development), by the Swedish Standards Institution (SIS).

<sup>3</sup> MBI: Mål – Beslut – Information (Goal – Decision – Information)

SAK: Strukturerad Analys och Konstruktion (Structured Analysis and Construction)

RUP<sup>4</sup> or DSDM<sup>5</sup> include no explicit directions on how to develop manual systems or even manual routines, while OPEN<sup>6</sup> is even explicitly aimed toward computer-based systems only. (DSDM Consortium, 2002; Firesmith & Henderson-Sellers, 2002; Rational Software Corporation, 2003)

Checkland (1999) developed an alternative approach - Soft Systems Methodology (SSM) - which established a distinction between “hard” systems thinking, in which parts of the world are taken to be systems which can be “engineered”, and “soft” systems thinking where the complexity of the real world itself is a system for learning. SSM is aimed primarily at human activity systems, as a method opposed to the “engineering” approach. The ontological assumption made by Checkland can lead to the conclusion that human activity systems should only be considered “soft” systems, as it would not be possible to “engineer” the human component. There is however an ongoing debate in the research community on where the line between hard and soft systems really can be drawn (Holwell, 2000).

I believe that even “human activity systems” can be “engineered”, at least to some degree, but with other types of “engineering” methodologies, not yet fully explored.

#### 4.4 The gap in information systems development

As I wrote in the previous chapter, something is missing in the development models of today. Somewhere in the process it must be decided if the future information system is to be implemented in computers or by manual routines. The development models lack clear instructions for making this decision. The beginning of any process model does not differentiate between manual or computer-based routines, as in most cases, the pre-requisites of the intended system, its purpose and the expected outcome, and not the possible alternatives in the choice of information technologies are considered in the first steps.

The difficulties begin when the information to be processed is defined and rules for its codification are set up. At this point it is determined whether the system is to be manual or computer-based. Even further, if the decision should be made to develop a manual information system, there are no steps guiding the developer in that direction in the existing process models we are familiar with in the discipline of information systems. Even if the steps as such could be labeled identically, the *content* of the steps in those models are only for computer-based systems. There are no models in which the content of the steps can lead to either computer-based *or* manual systems or combinations thereof (figure 1).

---

<sup>4</sup> Rational Unified Process

<sup>5</sup> Dynamic Systems Development Method

<sup>6</sup> Object-oriented Process, Environment and Notation



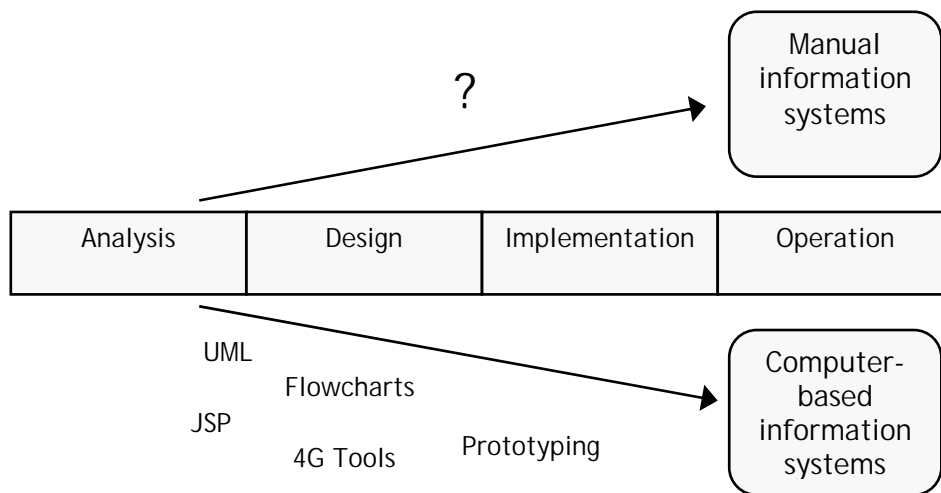


Figure 1. The lack of contents in steps for manual systems development

My contribution in this area is to open up new perspectives and introduce new concepts useful in the development of information systems, and possibly even *essential* in the development of some manual systems. In that way I hope to be able to straighten out the question mark to some degree at least.

Some development models act as extensible “frameworks”, e.g. RUP and DSDM, which may be extended by including methods and techniques from other models or frameworks. In such framework models, it would be possible to include the use of concepts and models from e.g. theatre productions.

Computers are only one possible alternative when selecting the technology to use in an information system. When chosen, the system will become a computer-based system, but for manual information systems other information technologies must be considered and hence other methods and tools for the development of the systems. It must be said, however, that this lack of methods and techniques for developing manual systems is limited to the development models from our field. There exist methods and techniques in other areas, e.g. in business process and organizational development, but the techniques and methods in those mostly exclude computers as a technology of choice, or “hands over” the further development of systems using those technologies to a separate development process.

Each development project should have a development model suitable for the particular type of information system to be developed. Today, the development model is selected before, or at the beginning of the project, implicitly or explicitly.

As a result, the development models for developing organizations, business processes and information systems are separated from each other. This problem can be solved in two ways; either by combining the development of different areas with each other, e.g. by linking or chaining development models from different areas

(Nilsson, Tolis, & Nellborn, 1999), or by using a preceding analysis phase in order to decide which specific development model to choose (figure 2).

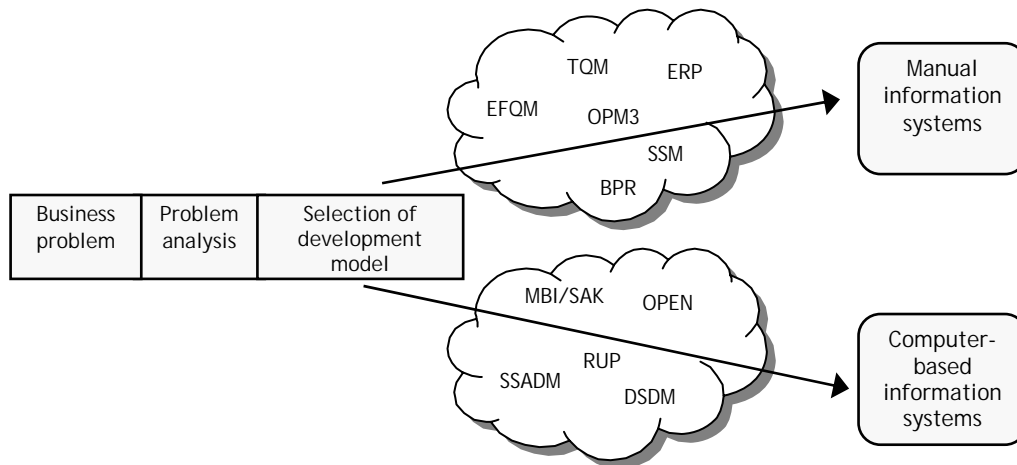


Figure 2. A preceding analysis phase for selecting a development model

This phase needs tools and techniques for the analysis, not connected to any specific development model, and the analysis process from my theatre model could be a starting point for the development of such an analysis phase, not necessarily for use as this analysis phase itself, but to open a discussion regarding what such a process should contain.

In order to realize the true meaning of the system development process, we must describe many more development processes than those previously *created* within our field. One of those to *discover* and recognize as a development process is the theatre production.

This is also a starting point for closing another gap in our discipline. For Aristotle, the sciences can be theoretical, practical, or productive. Theoretical sciences such as physics, mathematics, and metaphysics aim at knowledge, which cannot be other than it is. Practical sciences such as ethics and politics aim at possible actions, where things can be other than they are. Productive sciences such as sculpture and poetry aim at making something like a statue or a poem, which can have any imaginable form, depending on the will of the artist (Kallendorf & Kallendorf, 1989). Our discipline should be theoretical, practical as well as productive. Though aesthetics has been considered, it has been *in* the development of systems when designing user interfaces and other artifacts, but not very much *on* the development process as such.

When combining the perspectives of socio-technical and social systems, as when looking at the organization of the development process as a system itself, we can also look to the Greek philosophers who argued that such organizations must pursue *truth* (scientific and technological function), *plenty* (economic and educational func-

tion), the *good* (ethical-moral function), and the *beautiful* (aesthetical function, art). Ackoff claims that we have made less progress in the last area than in the three first, but it is still the one that inspires us to further progressive efforts, as “it’s what makes what we do meaningful”. (Ackoff, 1989)

That the classical notion of the need for beauty in practical sciences has lingered on through time may be best illustrated by a quotation from George Boole in his “An investigation of the laws of thought”:

*I do not here speak of that perfection only which consists in power, but of that also which is founded in the conception of what is fit and beautiful. It is probable that a careful analysis of this question would conduct us to some such conclusion as the following, viz., that a perfect method should not only be an efficient one, as respects the accomplishment of the objects for which it is designed, but should in all its parts and processes manifest a certain unity and harmony.* (Boole, 1854)

#### 4.5 To study theatre productions

An example of an information system that is non-computer-based is the production and performance of a play before an audience. The input is the message or knowledge that the producers of the play theatre wish to convey to the audience (together with in some cases an already made play script); output is the information and/or experience of emotions that the performance in itself mediates to the audience.

A criticism I thought would arise against my chosen area of work is that I put apply a perspective from social science upon an object from the science of art! Where in this process do the real differences occur in perspective of the different sciences? In historic times, the boundaries between science, philosophy and art were even less distinct than they are today. In some areas they seem to converge again, as in different design sciences (which information systems are sometimes referred to as being) but also in technological areas (workspace, professionalism, etc) (Gagliardi, 2007; Hancock, 2005).

Although research related to theatre has mostly been seen as a part of the discipline of literature, the scientific foundations of theatre come from a broad range of disciplines; philosophy, linguistics, psychoanalysis, political economics, history, anthropology and so forth. Many involved in theatre have been suspicious of this verbal predominance, as theatre happens in a much larger context. With its need for a public place, for physical resources, workers and an audience, theatre is more intimately and with greater complexity intertwined with the outside world than many literary and artistic activities, and changes in the world are bound to produce changes in theatrical production (Fortier, 2002).

Concepts from theatre have been used in connection with organizations and information system development several times before, some of them have even become part of the domain (e.g. actor, roles, scene, etc), but it has previously been used only

metaphorically, not with the perspective that the production of theatre is a development process in its own right.

The use of the term “production” might be misleading, as it can set the mind towards a process for replicating an existing product, while the term “development” can signify the making of something not yet existing. It becomes even more complex as the term “theatre production” can signify both the process as well as the end product. Still, the words are in practice more or less synonyms, as the end result in both cases can be regarded as “products” from a development process. (Merriam-Webster, 1998)

The actual development process in theatre productions does not change regardless of the audience, nor do the structural elements change, hence a unidirectional system. Then again there are examples of theatre performances with more explicit active interaction with the audience (interactive theatre), but these are not considered here.

Some might object to defining theatre performances as manual only systems, as a diversity of technologies is embedded behind and on the stage, and that today even computers are being used, e.g. in stage lighting, but, as I will point out in the following chapters, if we strip down the theatre production to the bare necessities to create a performance, we have extracted something I call “the core processes of theatre production”. In these there are no computers whatsoever, on which the process is dependent.

The performance of theatre is the result of a system development process; this makes the theatre performance a designed system even though it is also a human activity system. It is also a “hard” system in the sense that an objective or end-to-be-achieved can be taken as given, and hence it should be possible to “engineer” it. (Checkland, 1999)

## 4.6 The purpose for the study of theatre productions

There are two main paths I have taken in my research. The first was my path from the area of drama and theatre into the area of system development. This became the basis of the purpose of this dissertation.

- The purpose of my research is to apply perspectives of theatre and drama to the process of system development, in order to introduce concepts from theatre into system development and to achieve a greater understanding of underlying premises of system development

By separating the system development process from the technology, I have made available new perspectives on development and management of designed information systems, both computer-based and not computer-based.

With this research approach my process has been more inductive than deductive, as the uncertainty of what could be found was significantly large at the starting point.

One idea was that by considering the theatre production as a system development process, the dramaturgy of system development will emerge as a result of this research, as well as new perspectives on system developers as “creative artists”. In this case, the dramaturgy can be seen as the specific construction of the development process in order to achieve specific effects, whether functional or otherwise.

The second path of my research was from the area of system development into the area of theatre and drama, which became a means to achieve the purpose. In this process it was necessary to apply the perspective of system development to the processes in theatre and drama, in order to show more specifically the similarities between different development models, and at the same time show differences in the practical approach to system development. This part of the research has hence been more deductive, with concepts for system development used as “glasses” when I consider theatre and drama. Not having been previously considered to any extent as a manual information system within information systems research, the theatre production with its millennia-based experience is a never ending source of knowledge to that end.

#### 4.7 Steps to achieve the purpose

Actors and directors are mostly unaware that they are working with the development of an information system. They have thus not formulated any model of their work in terms of a “system development model”. It exists, but it is mostly formulated as another type of model, or not formulated at all. Since I have chosen theatre production as my research subject, I can structure my research process into the following steps:

1. Describe the system development process in the theatre production
2. Express that process in the form of a development model
3. Compare the concepts from theatre production with traditional information systems development

In order to show the relevance of this topic within the discipline of information systems, I need to generalize the results. This task engenders yet another necessary step:

4. Apply the concepts from theatre productions to another type of organization with a creative and social context.

This context has been chosen as it focuses on the human participation in processing and distributing information, i.e. humans as the “informers”. To show the generalizability of the development model of the theatre production, I have used it to analyze another type of organization, not connected to either computers or theatre; a folk high school.

## 4.8 The result and contributions

The theoretical contribution of this dissertation has mainly been to direct some new perspectives on system development, the need for enhanced contextualization of both the system and the development process, the developer as a creative artist, etc. but foremost on the fact that the development process of non-computer-based systems can follow paradigms different from the conventional.

An explicit contribution to theory is the visualization of the ISD processes of theatre productions. By unfolding the central concepts of theatre production in order to be useful in ISD, I have added conceptually to the theories of IS and ISD, with constructs that might have been used *in* ISD before, e.g. as in developing user interfaces and stories for interactive games, etc, but, to my knowledge, have never been used *on* ISD before, viewing the developers as playwrights, directors, actors, etc. If the new viewpoints from this dissertation can clarify some ambiguities in the development process, then the practical use is more of making use of the perspectives, with some inspiration derived from the type models and the model for analysis.

Through the study of the folk high school, I have also shown that it can be used for analysis of an organization. I have also given some indices that the concepts and models should be able to be used even further, as models for design and implementation of changes in organizations and other information systems.

Another contribution to theory has come as a side effect of the research process itself. In order to make rapid progress, I have invented the concept of “iterative and incremental research”, which I have put to practical use throughout the preparation of this dissertation.

Table 2. The results of the purpose and research steps

| Purpose/research step   | Presentation                                |
|---|---|
| P1: The purpose of my research is to apply perspectives of theatre and drama onto the process of system development, in order to introduce concepts from theatre into system development, as well as to achieve a greater understanding of underlying premises of system development. | Second Intermission<br>Epilogue             |
| S1: Describe the system development process in theatre production   | Act 1, chapter 9<br>Act 2, chapter 15       |
| S2: Express that process in the form of a development model   | Act 2, chapter 16                           |
| S3: Compare the concepts from theatre production to traditional information systems development   | Second Intermission, chapter 17<br>Epilogue |
| S4: Apply the concepts from theatre productions to another type of organization with a creative and social context  | Act 3                                       |

# ACT 1

## THEORETICAL FRAMEWORK

*Useful knowledge is good, too,  
but it's for the faint-hearted,  
an elaboration of the real thing,  
which is only to shine some light,  
it doesn't matter where on what,  
it's the light itself,  
against the darkness.*

Tom Stoppard: "Invention of Love" (Stoppard, 1997)

*This part presents the bulk of the theoretical framework referenced to in the dissertation, by elaborating on most of the central concepts.*

ABELLI: What if there never had been any computers, what would our discipline look like then?

FRIEND: Paper and pencil, I'd imagine...

ABELLI: I believe information systems have a history that goes even further back than that. We used information even before the rune stones, hieroglyphs and petroglyphs.

Think about it, how did the cavemen pass their knowledge to the generations to come? With rites and rituals! Dancing around the camp fires they imitated the animals, how they moved, what they sounded like, how to hunt them.

FRIEND: How do you know that?

ABELLI: Well, I can't be exactly sure, but that's what anthropologists assume, after studying the few remaining native tribes around the world in the early exploring days.

If we make that our starting point, we can see another phenomenon today, that has a more straight line ancestry from those rites and rituals; the theatre!

FRIEND: Amazing, so...

ABELLI: So one of the best things to study, in order to see what information systems would have looked like, if the evolution had taken another turn, should be theatre and drama.

FRIEND: Isn't that a bit farfetched?

ABELLI: I don't think so. The drama has all the elements of an information system; the input from a playwright, director and actors, the processing of information, both consciously on stage in order to communicate the information, as well as in the heads of the receivers of that information; the audience.

Theatre is also produced in a development process with different phases; analysis, design, implementation and operation, just like the modern computer-based systems are developed.

Do you know who wrote the first system developers handbook?

FRIEND: No?

ABELLI: Aristotle wrote "Poetics" in the year 350 B.C.

In that book he described the key elements of drama, how to use them in order to "build the system".

Now it's about time to pick up that thread again.



## 5 INFORMATION SYSTEMS

It has been questioned if information systems are really dealing with information - or data - or something else. In order to put the difference between computer-based systems and manual systems in perspective, we need to know what they are processing and distributing.

### 5.1 Data, information, knowledge and wisdom

An information system can be defined as a system to capture, process, store, retrieve, or display information, using some information technology to acquire and process information in support of human purposes. The definitions of information systems hence presuppose the use of “information”, but that concept in turn can be even more difficult to define. The definitions mostly end up bi-directional, information being defined in its relation to “data” and “knowledge”, sometimes even to “wisdom”. Information has e.g. been defined as articulated, verbalized and structured knowledge, as well as interpreted or processed data, whereas data in turn is defined as coded representation of information. (Eriksson, Dickson, & El Sawy, 2000; Laudon & Laudon, 1994; March & Smith, 1995; Merriam-Webster, 1998; Rowley, 2006, 2007; Tuomi, 1999)

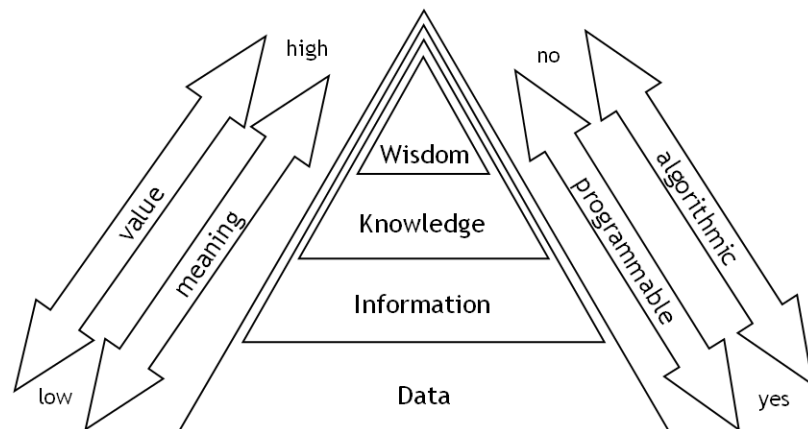


Figure 3. The DIKW-hierarchy. (Awad & Ghaziri, 2004; Chaffey & Wood, 2005; Rowley, 2006)

The definitions of information become even more complex as we look into different areas of research, where the definitions have more or less become “semantic foot-balls” in the discussion around the concepts of data, information, knowledge and wisdom, referred to as the DIKW hierarchy. The hierarchy has been illustrated in many ways, as a transition from data to wisdom with higher degree of meaning or value, or in relation to formalization with a decreasing degree of programmability, or even as subsets of each other. Some claim that wisdom is specific knowledge and that information consists of data, but knowledge is not necessarily wisdom and data is

not necessarily information. So wisdom can be seen as a subset of knowledge, which is a subset of information, which is a subset of data. Figure 3 is a combination of those views. Variants of the DIKW hierarchy also include other steps, such as intelligence, understanding or enlightenment. (Ackoff, 1989; Awad & Ghaziri, 2004; Burry, Coulson, Preston, & Rutherford, 2001; Chaffey & Wood, 2005; Rowley, 2006, 2007; Zeleny, 1987)

The DIKW relation can also be illustrated as a “linear” process from data to wisdom (figure 4). At least there seems to be a consensus that they relate to each other in a way that, through some process, they can be transformed from one to another, mostly by the process of “understanding” of what is presented. (Burry et al., 2001; Rowley, 2006, 2007)

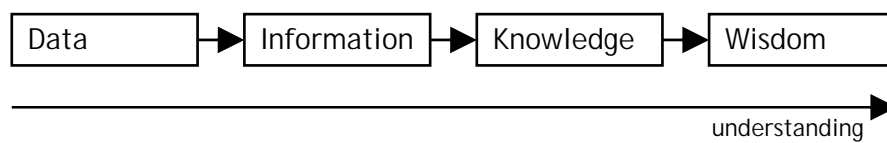


Figure 4. DIKW as a linear process.

Other discussions around the concepts notes that what is distributed is merely “signals” which can be interpreted in many ways, i.e. being the bearer of many “meanings” (Shannon & Weaver, 1949). However, in the context of information systems, to be useful for business or other human purposes, the information still needs to be considered from the content view, with the communication as an implicit part of the system.

## 5.2 Only humans can be “informed”

*Knowledge management* has become an important concept, where in the discussion knowledge is divided into *explicit* and *tacit* knowledge. *Explicit* knowledge is that which can be reproduced in speech, writing, images or other codifiable forms, and is therefore suitable for use in different types of computer-based information systems. *Tacit* knowledge is more of an abstract nature, as “we can know more than we can tell”. In the debate it is argued by many researchers that knowledge can only be tacit, and what is called explicit knowledge is merely information. It is important to realize that symbols, images or the words of any text do not “contain” the tacit knowing of the originating person, only an articulation of it. (Nonaka & Takeuchi, 1995; Spender, 1996; Stenmark, 2002; Sveiby, 1998)

Nonaka and Takeuchi (1995) show how knowledge can be transferred, or rather how it can be converted from one type to another. They stress that this is a *social* process *between* individuals and not *within* individuals, and have defined four modes of knowledge conversion (table 3).

Table 3. Four modes of knowledge conversion (Nonaka & Takeuchi, 1995)

|               | To tacit  | To explicit  |
|---------------|---|--|
| From tacit    | <b><i>Socialization</i></b><br>A typical example of socialization is apprenticeship, where the apprentice acquires tacit knowledge by observing and imitating the master and then practicing what he has learned.   | <b><i>Externalization</i></b><br>Tacit knowledge is made visible through metaphors, analogies, concepts, hypotheses and models thus creating explicit knowledge.                     |
| From explicit | <b><i>Internalization</i></b><br>Internalization is closely related to "learning by doing". As explicit knowledge can be verbalized or diagrammed into documents, manuals or oral stories, the individual still needs to internalize some of it to be able to make use of it in practice. | <b><i>Combination</i></b><br>Individuals exchange and combine knowledge through different media, such as documents, meetings, telephone conversations or computerized communication. |

Göranzon (2006) separates the different kinds of knowledge into three categories; *propositional or theoretical knowledge* as the part of professional tradition that has been expressed in general traditions, theories, methods and regulations; *skills, or practical knowledge* which contains experiences obtained from having been active in a practice; and *knowledge of familiarity* that we acquire from learning a practice by examining the examples of tradition. (Göranzon, 2006)

There is a close relationship between propositional knowledge, practical knowledge and knowledge of familiarity and skills we have gained from practical experience. If we remove all practical knowledge and knowledge of familiarity from an activity, we will also empty it of all propositional knowledge. What can be stored in a computer, processed in algorithms, propositional logic etc, and reported as a result in the form of a print-out is raw material that has to be interpreted by the actions of a person qualified in practice. (Göranzon, 2006)

Knowledge can therefore not be completely separated from the experiences, values, contextual information and insight that provide a framework for evaluating and incorporating new experiences and information. This makes it important to consider the concepts of "knowing" and "knowers" rather than "knowledge". Knowledge then becomes even more closely related to the human factor. (Davenport & Prusak, 2000; Malhotra, 1998, 2000)

Only human beings can play the central role in knowledge creation. Computers are merely tools, as knowledge resides in the user's subjective context of action based on information; it is how the user reacts to a collection of information that matters. Information is context-sensitive so the same assemblage of data can evoke different responses from different people, and it cannot be assumed that one person will react in the same way to data as another. (Hildebrand, 1999; Malhotra, 1998, 2000)

Börje Langefors' (1995) infological equation illustrates the notion of the receiver's interpretation being crucial in the information processes:

$$I = i (D, S, t)$$

$I$  is the information produced from the data,  $D$ , and the recipient's prior knowledge,  $S$ , by the interpretation process,  $i$ , during the time,  $t$ . In the general case,  $S$  in the equation is the result of the life experience of the individual.

Hence, not every individual will receive the intended information even from simple data. The final interpretation of a message in any form is always made at the receiver's end. What can be defined as information in one context becomes data in another. The same set of symbols might therefore be toggling between "data" and "information" depending on the circumstances. The interpretation is dependent on the individual's cognitive processes, and makes use of the individual's tacit knowledge in combination with the individual's perception of the context. The cognitive processes are essential for the final interpretation and transformation of the received data to information or knowledge. Examples of cognitive information processes are perceiving and recognizing stimuli, remembering and searching information, inducing rules, recognizing patterns, formulating concepts, and applying all these in sensing, formulating, and solving problems. The cognitive processes are essential for the human interpretation of any verbal (as in text) or non-verbal (as gestures, intonation) expression, and can involve all five senses. (Langefors, 1995; Ramaprasad, 1987; Sveiby, 1998)

Lundberg (1994a; 1994b) presents the concept of "informing systems" as a network or a set of agents communicating information, transferring messages between them in order to relay meanings. He points out the semantic problems involved in the communication of information together with the need for identification of informing competencies and the relationships between the agents. It may be preferable to communicate some information orally which makes the distinction between data and information more significant. He shows the informing systems on four levels of communication (figure 5). The most interesting part of his concept is the pragmatic level on which we consider the real-world implications of the information obtained during an informing process, constituted by actions triggered due to the informing process.

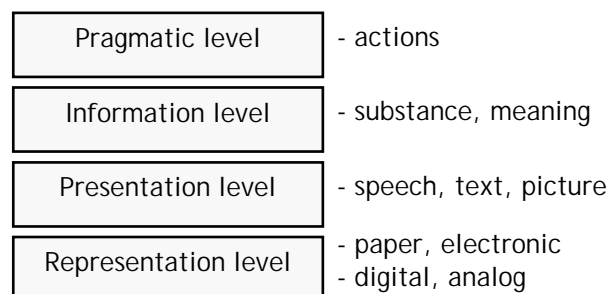


Figure 5. Levels of communication in informing systems (Lundberg, 1994a)

### 5.3 Information technology

The second part of the definition of an information system referred to “information technology used to acquire and process information”. Technology is defined as “practical implementations of intelligence” including the many tools, techniques, materials, and sources of power that humans have developed to achieve their goals (Ferre, 1988). March and Smith (1995) defines information technology as the technology used to acquire and process information in support of human purposes, and they claim that it is typically instantiated as IT systems – complex organizations of hardware, software, procedures, data, and people, developed to address tasks faced by individuals and groups, typically within some organizational setting.

Orlikowski and Iacono (2001) have a point in their proposal for a research direction that begins to take technology as seriously as its effects, context and capabilities. They claimed that the IT artifact tends to disappear from the researchers view, regarding information technology by itself as a “black hole”. The technology just “sits there” and is not explained or presented. But Orlikowski and Iacono seem to make a similar mistake themselves, as they constantly refer to IT as “hardware and/or software”, “computers”, “electronic communication” and so forth, which can be as big a mistake as to leave the IT “absent”. They appear to assume that the underlying technologies are computer-based, whereas information existed long before the development of computers and software. Systems for handling this information also existed using different technologies; cuneiform text, petroglyphs, Gutenberg’s printing press, etc.

To be able to make the information technology “appear” in IS research we must first recognize the diversity of IT, which can be made by searching for the different definitions that actually exist in the research. In this process we also must consider the fact that those definitions in turn rely on different definitions of information systems themselves (Verrijn-Stuart, 2003).

Roberts and Grabowski (1996) discuss several definitions of technology, but miss the original definition. When speaking of “technology” most people visualize machines, but the word comes from the Greek word *technologia*, systematic treatment of an art (Merriam-Webster, 1998); derived from *techne* art, skill. Then we come closer to the Scandinavian use of the word as “the science of technique”, which in itself has nothing to do with machines, but rather how some activity is performed.

Although March and Smith (1995) exemplify IT with “hardware and software”, they say that it is *typically* instantiated as such, not that this must always be the case. This deterministic view of information systems, as “typically computerized”, can be a great obstacle in information systems research as the most typical tools for an information system are, to this day, still paper-based, printed or manually written documents, at least when we talk about organized information systems constructed for a purpose. If we broaden the concept of information systems just a bit further, the most common information technology in use is plain human talk. (Verrijn-Stuart, 2003)

## 6 INFORMATION SYSTEMS DEVELOPMENT

This chapter describes the premises and functions of information system development models and processes.

### 6.1 Evolution of models

The earliest referenced research on information systems development was made to a large extent by practitioners or at least researchers “on the floor”, even though “the floor” itself could be at a university. Modern research in “information systems” has since developed, from the purely engineering research into information systems of the 50’s, when the focus was on software development for computers, to today’s research into the social science aspects of information systems. (Avgerou, 2000; Avgerou, Siemer, & Bjørn-Andersen, 1999; Benington, 1956; Boehm, 1979, 1988; Royce, 1970)

Each new development model has evolved from the need to come to terms with some deficiency in prior system development, which in many cases was blamed on the development process as such. It was then believed that the problems could be overcome by using a “better” development model. It is claimed that part of the success of IS projects is due to the use of clearly defined processes, in which roles, activities, work products and measures are defined in detail, but a recurring problem has been that the chosen development method has been used improperly, or has even been the wrong method for the specific project. Examples of the latter are when the method lacks support for certain activities, or lacks the necessary flexibility. (Barrow & Mayhew, 2000; Berry, Hungate, & Temple, 2003; Cugola & Ghezzi, 1998; Iivari & Maansaari, 1998; Middleton, 1997; Rolland, Nurcan, & Grosz, 1999; Truex, Baskerville, & Travis, 2000)

### 6.2 Core processes

Boehm (1988) claimed that the first model for system development had only two steps:

- Write some code
- Fix the errors in the code

Boehm (1988) meant that in the earliest days of system development the developer began to code before considering requirement specifications, design, test and maintenance. He meant that this model had at least three major problems:

- After a number of corrections, the code has become so unstructured that further changes will be too costly. The solution to this problem was to introduce a design phase before the coding.

- Even well designed programs were not always suited to the needs of the users, which led to their rejection or expensive redevelopment. The solution to this problem was to introduce an analysis phase before the design.
- Expensive correction of erroneous code was due to inadequately prepared testing. The solution to this problem was to introduce test phases which were to be planned within the preceding phases.

Each model consists of a number of activities to be performed in phases or steps. These phases are named differently in the different models, and overlap one another but basically the same basic steps are performed in each model, even if some steps are omitted in some models (Avison & Fitzgerald, 1995). Peters and Tripp (1978) performed a compilation of a number of different development models and summarized the phases with the same classification as “ACM Curriculum Committee on Computer Education for Management”; analysis, design, implementation and operation (Ashenhurst, 1972).

- **System Analysis** – The analysis should begin with a determination of what the problem is. An important requirement in information analysis is the willingness to accept that information problems may sometimes be solved most easily without resort to the computer. The client’s problem is examined, interviews conducted, and the requirements documented with the customer's concurrence. The information requirements and the patterns of information flow which will satisfy these needs are determined. The primary objective is to produce a statement which demonstrates an understanding of the problem and is then expressible during the design phase. (Ashenhurst, 1972; Peters & Tripp, 1978)
- **System Design** – The results of the analysis phase are considered in relation to the suitable design methods available to develop a logical solution to the problem. Considerations of logic, completeness, clarity, and adherence to a design discipline are strong factors in the solution's development. The result of this phase may include several potentially suitable designs. (Peters & Tripp, 1978)
- **System Implementation** – An implementation analysis is conducted to identify the most attractive design. The selected design is then implemented in the environment specified by the analysis phase. This implemented design is finally tested, installed, and documented in preparation for system operation. Implementation can also involve training personnel who will use, operate and maintain the system, and finally, the installation and commissioning of the system. (Ashenhurst, 1972; Peters & Tripp, 1978)
- **System Operation** – Operation involves the routine running of the system. The installed system is now to be maintained, changes are to be made in response to changes in requirements, environment, etc. The maintenance is documented with problems encountered and fixes attempted. (Ashenhurst, 1972; Peters & Tripp, 1978)

Each of these phases can be viewed as a process of its own, or rather a sub-process within the main development process. These core processes are supplemented with many supporting processes, required to cope with the increasing complexity of system development and the contexts in which the systems operate. Examples of these are recent development models, such as RUP (Rational Unified Process), DSDM (Dynamic Systems Development Method) and OPEN (Object-oriented Process, Environment and Notation). In those models, several activities are performed in parallel with the core processes, e.g. project management, environment management, management of requirement changes, and configuration management. (DSDM Consortium, 2002; Firesmith & Henderson-Sellers, 2002; Kruchten, 2002; Rational Software Corporation, 2003; Stapleton, 2003)

### 6.3 Types of development models

The names and descriptions of the activities in the different models and methodologies vary, but the activities are basically the same. The order of the performance of the activities is a reflection of the structural design of the models.

- **Sequential models** run through all activities in sequential order, one step after another, the classic example being the “lifecycle-model”, which has a history beginning as early as the fifties, being further developed into the “waterfall-model”. The opinion was that development projects could be “engineered”, just as in the production of any other technological product. (Benington, 1956; Boehm, 1988; Cugola & Ghezzi, 1998; Royce, 1970)
- **Cyclic models** perform the “lifecycle-model” several times before the product is ready to be deployed, but not all activities are performed in each pass. The sequential model was criticized as being unable to cope with changing requirements, and the “spiral model” was seen as one solution to these problems, with monthly revisions to successively manage new risks as they emerged (Boehm, 1988)
- **Iterative models** perform all the activities in several cycles, each cycle being in itself a sequence of all steps. A topical model of this type is the Rational Unified Process. (Kruchten, 2002)

The generic models described above are in specific models and methods often associated with certain concepts for control of the process, e.g. document- or code-centered. The waterfall model is referred to as a document-centered model, in which the documents, as end-products of each phase, indicate if and when it is possible to move forward to the next phase. (Boehm, 1988; Royce, 1970)

The management of the product, the system, is also different between the models during the development process:

- **Prototype development** – A separate development of a prototype of the system, intended to provide an additional basis for analysis and design of the actual sys-



tem development. This is used for example in the waterfall model to provide a better foundation for the documents. (Royce, 1970)

- **Evolution** – The system is developed gradually, from prototype to an increasingly functional system. This is used foremost in the cyclic models, where the product, or some aspect of it, becomes increasingly detailed with each cycle. (Boehm, 1988)
- **Increment** – The system is developed in smaller, discrete parts, which more or less presupposes the iterative model, by means of which an increment can be delivered in each cycle. The increments can be ready components or models for further development. (Kruchten, 2002)

In addition to these, there are many models associated with specific aspects of development beyond those which are pure “engineering”, e.g. user-centered or emancipatory development. (Hirschheim, Klein, & Lyytinen, 1995)

## 6.4 Risk with standardized development models

Development models must be structured and detailed to a high degree but at the same time they need a certain flexibility to permit variation. Practical examples have shown both pros and cons with more or less restrictive development methods. The possibility of rapid adjustment to changes in requirements has been seen as a success factor, but at the same time the same “possibility” has been noted as the source of many failures, e.g. failures to keep within budgets and timetables (Boehm, 1988). A description of a process can never include all the conditions of the process, and permits no reasoning about methodological choices from existing alternatives (Rolland et al., 1999). Methods which are too detailed are unsuitable for use in practice (Middleton, 1997).

Lyytinen (1987) explains the causes of problems with insufficient, unstructured and incomplete use of development models. On another note Middleton (1997) pointed out the difficulties of trying to standardize professional techniques where so many interpretations exist but are understood by so few. An exaggerated trust in a specific development model can lead us to ignore activities which do not fit into the given frame (Truex et al., 2000). This becomes especially problematic when the model is applied in a context for which it is not designed (Cugola & Ghezzi, 1998). The incorrect application of a specific model can also have other negative consequences. Many developers use their development model as a “manual” instead of as general guidelines. This can lead to the developer blaming the model, instead of considering his own errors in its application (Cugola & Ghezzi, 1998).

In development projects the system is viewed from many different viewpoints by different stakeholders and the purpose of the system differ correspondingly. The same complication occurs with respect to the development methods and their application (Iivari & Maansaari, 1998).

Many organizations develop their own methods, or adjust existing methods, and some organizations claim that they perform development project without any method (Iivari & Maansaari, 1998). The possibility of configuring the development process as such is neglected in many projects, as this only concerns the process and not the “creative” parts of the development (Rolland et al., 1999).

## 6.5 People in information systems development

Pinto and Slevin (1987) came to the conclusion that it is not technical problems that defeat many development projects, but rather different types of personnel- or organization-related problems. DeMarco and Lister (1999) describes these as “sociological” problems. Both Pinto and Slevin (1987) and Field (1997) related success in development projects to effective project management.

In the early stages of software development, the developer was everything; hardware technician, programmer, user and even researcher; but when these roles became separated and specialized and the “end users” became more and more important; the development process was required to evolve. This evolutionary development has been engendered by the greater variety of tasks and activities as the larger the systems and more complex the context of system development have become. The diversity and magnitude of necessary skills and ability to perform development activities has brought on the need for specialization into different developer roles. Just to mention a few; project manager, requirements analysts, systems engineers, architects, programmers and testers. (Benington, 1956; Boehm, 1979, 1988; Humphrey, 1990; Kraut & Streeter, 1995; Royce, 1970; Standing, 1999)

Roles are not individuals; instead, they describe how individuals behave in the business and what responsibilities these individuals have. A role is more of an abstract definition of closely related and functionally coupled activities, typically realized by an individual, or a set of individuals, working together as a team. A project team member typically fulfills many different roles. While most roles are realized by people within the organization, people outside the development organization play an important role: e.g. that of the stakeholder of the project or product being developed. (Rational Software Corporation, 2003; Westelius, 1996)

The “complete system developer” as well as the employer must consider a large number of factors, ranging from technical, interpersonal, political and business skills to personal qualities such as motivation and ambition. There is probably not one single system developer with all the skills and qualities really needed, but each of those can be needed from a developer in any one situation that can occur. The solutions tend to focus on the composition of developer teams, with all necessary skills included, including the knowledge of the business as such. This is not done without problems, as inadequate management of the composition, interaction and participation of developer teams often leads to bad results, not to mention possible conflicts of interest when different departments and sections of the organization have different

opinions on the possible outcomes. (Barrow & Mayhew, 2000; DSDM Consortium, 2002; Keil, Cule, Lyytinen, & Schmidt, 1998; Standing, 1999; Stapleton, 2003)

Coordination difficulties are an inherent aspect of work in any large organization, utilizing both formal and informal communication mechanisms. Coordination has been defined as the direction of “individuals’ efforts toward achieving common and explicitly recognized goals” and “the integration or linking together of different parts of an organization to accomplish a collective set of tasks”. It means that different people working on a common project agree on a common definition of what they are building, share information, and mesh their activities. They must have a common view of what the artifact they are constructing should do, how it should be organized, and how it should fit within the overall system. In sum, they must coordinate their work so that it gets done and fits together, so that work is not repeated unnecessarily and so that components of the work are handed off expeditiously. These efforts are important between individuals as well as between collaborating developer teams. (Humphrey, 1990; Kraut & Streeter, 1995)

The coordination activities can involve several different means; some manual (e.g. meetings, workshops, memos, verbal communication) and some computer-based (e.g. CASE tools, versioning systems), some formalized but according to some studies, the most of coordination is made through informal channels. (Kraut & Streeter, 1995)

## 7 MANUAL INFORMATION SYSTEMS

This chapter defines and discusses manual information systems and their development.

### 7.1 From manual systems to computers, and back again

The field of information systems has been broadened from pure engineering to include management and “social” areas. However, even if human and social aspects have long been considered in the creation of successful systems, they have mostly been seen as factors “outside” of, and not a part of the information system itself. (Avgerou, 2000; Avgerou et al., 1999; Boehm, 1979)

The usual definitions of information systems imply their being computer-based but they do not exclude the possibility of information systems operated manually. Historically, prior to computers, organizations produced, processed and distributed information, the work being performed by humans. As the details of the procedures were (and are) not defined, the procedures could accommodate informal elements, particularly as such systems rely almost entirely on the human factor. (Avgerou, 2000; Blume, 1999; Brooks, 1987; Tiarniyu, 2000)

Manual information systems could be defined as consisting of formalized procedures which are not automated with computers, but rely on other types of information technology for the processing of information within an organization. Although the word “manual” in other areas is very closely connected to its etymological origin, the Latin word “manus” meaning “hand”, its use today is more in terms of “not by machine”, which widens the concept. This is analogous with its use in many research papers, as describing what computer-based systems have *replaced*. (Avgerou, 2000; Blume, 1999; Brooks, 1987; Tiarniyu, 2000)

There are many situations in which manual information systems can be preferred; when some specialist skills can not be replicated in a computerized system; when organizations are simply unwilling to invest in new technology; in geographic areas with inadequate technological infrastructure; or when security and legal considerations arise, such as legislation relating to personal integrity or persistence of book-keeping for tax-purposes. It has also become an awareness of risks with excessive computerization of information systems. With the availability of both computer-based systems and manual systems, the computer-based system has been preferred, with the effect that information or knowledge that only existed in the manual systems has been overlooked. (Blume, 1999; Tiarniyu, 2000)

The evolution of development models has now moved the “systems border” further away from the technology itself, once again including the users, the organization and today even the “organization users” (customers and other business – B2B), even though the focus is still on developing software as the end product, steps and activi-

ties have been added before and in parallel with software development activities, such as “business modeling”, to be able to produce software more suitable for a specific enterprise. (Boehm, 1988; Kruchten, 2000, 2002; Martin, 1991; Peters & Tripp, 1978; Stapleton, 2003)

## 7.2 Acknowledging the manual routines

In some explicit implementations of process models there have been activities aimed at the manual routines associated with the use of software, or more precisely they were “information centric” and modeled the information flow through the organization, and hence could structure and develop both computerized and manual routines for the coded information (data). One such model is ISAC<sup>7</sup> developed in 1971 by a research group at the Department of Administrative Information Processing at the Swedish Royal Institute of Technology and at the University of Stockholm, but the model gained popularity outside Sweden as well, as one of the models integrated into Euromethod. (Lundeberg, Goldkuhl, & Nilsson, 1978)

In the description of the MBI/SAK-method<sup>8</sup> developed in collaboration between Programator and Chalmers/Gothenburg University, it is claimed that, in principle, it would be *possible* to formalize all the information that exists within an organization, but that it would not be *appropriate*. Even if it were possible to formalize the information, it must be decided if its processing should be computerized. Figure 6 show some of the aspects put forward along these lines. The appropriateness of mechanizing or computerizing routines must be considered, where work satisfaction is one of many aspects to be considered. (Hugoson et al., 1983; Wigander et al., 1979)

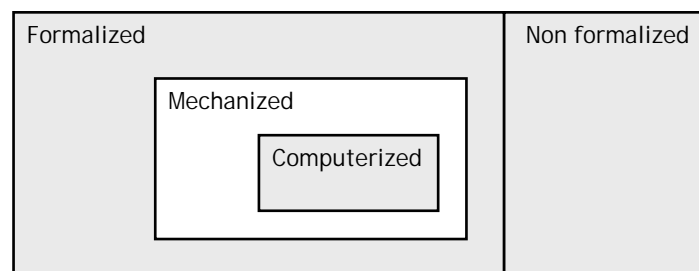


Figure 6. Formalized and non formalized processing and information in a system (Wigander et al., 1979)

<sup>7</sup> ISAC: Information Systems and Analysis of Changes

<sup>8</sup> MBI: Mål – Beslut – Information (Goal – Decision – Information)

SAK: Strukturerad Analys och Konstruktion (Structured Analysis and Construction)

RAS<sup>9</sup> presents a similar reflection, though it is more on the lines of what is *possible* to automate. In the “Processing Study”, the developers are required to propose alternatives for the forthcoming system, including which routines should be manual and which should be computer-based. In the later stage, “Process Analysis” the data relationships in automated and manual processing are analyzed. (Révay, 1977; SIS, 1973, 1975)

SSADM<sup>10</sup>, originally developed by Learmonth and Burchett Management Systems (LBMS) for the Central Computer and Telecommunications Agency (CCTA), has been used by the UK Government in computing since its launch in 1981. In one activity in SSADM, “basic tasks” are specified, whether manual or computer-assisted, but without the notion of any techniques for design or analysis. Apart from that, manual procedures are only mentioned in terms of the importance of integrating them with the automated procedures in the overall system. (Bentley, 1996)

These notions of even the possibility of considering manual alternatives have more or less disappeared from later development models. Modern development models such as RUP or DSDM contain no explicit directions on how to develop manual systems or even manual routines, while OPEN is explicitly aimed toward computer-based systems only. (DSDM Consortium, 2002; Firesmith & Henderson-Sellers, 2002; Rational Software Corporation, 2003)

### 7.3 Development of manual information systems

James Martin (1991) defined quality as “meeting the true business (or user) requirements as effectively as possible at the time the system comes into operation”. He argued that quality in most organizations is defined inappropriately as “conforming to the written specifications as effectively as possible”. Humphrey (1990) took it even further by saying that :

- *The customer doesn't generally know what is needed and neither does anyone else!*
- *The initial requirements are therefore often wrong and will change.*

Although these arguments concerned computer-based system development, they should be easy to generalize. If the customer doesn't know what is needed, then he also doesn't know if the information system should be manual or computer-based. Planners of information systems must be able to match the requirements of the system to be planned with one of the alternatives from which the management can choose. (Ashenhurst, 1972; Humphrey, 1990; Martin, 1991)

---

<sup>9</sup> RAS: Riktlinjer för Administrativ Systemutveckling (Guidelines for Administrative System Development), by the Swedish Standards Institution (SIS).

<sup>10</sup> SSADM: Structured Systems Analysis and Design Method

Dahlbom and Mathiassen (1996) discuss the problem of how to transform knowledge into information and information into data. They state that codifying knowledge is a difficult task as soon as we aim beyond anything but the most formalized and routinized type of knowledge. An information system, no matter how effective at manipulating data, is of no help – or may even be counter-productive – to the user if the relevant knowledge and correct information has not been encoded into the system.

Some of the concepts from computer-based systems development have been used, though not extensively, in the process of engineering the total system, including the experiences of the end-user in the context of not only the computer-based routines, but also the manual routines (Berry et al., 2003). Another example is the use of techniques to model the information system or information system development linked to business processes (Beeson, Green, Sa, & Sully, 2002; Nilsson et al., 1999).

Checkland (1999) tested the use of the systems engineering approach to technical problems on organizational issues. The approach could not be used directly but by combining systems thinking with real-world practice Checkland developed an alternative approach - Soft Systems Methodology (SSM). Checkland distinguishes between four kinds of systems; natural, designed physical, designed abstract and human activity systems. SSM is aimed primarily at the human activity systems, as a method opposed to the “engineering” approach. As Checkland himself points out, SSM is not a technique which can guarantee a particular kind of result; it leaves room for personal styles and strategies of problem-solving. Although Checkland’s work, the methodology and perspectives had a great influence on ISD research, SSM is *not* an ISD methodology (Holwell, 2000).

Some of the supporting processes mentioned in connection with system development can be seen as separate development processes, usable in other areas than computer-based systems development alone, e.g. management of quality, projects, human resources, communications and procurement, to mention only a few. In business studies, we find several other models and processes, such as Enterprise Resource Planning (ERP), Business Process Re-engineering (BPR), Total Quality Management (TQM), etc. that also can be considered to be such development models

## 8 ORGANIZATIONS

As my presentation will show that the borders of the manual information systems and organizations converge, some of the relevant characteristics of organizations are presented here.

### 8.1 Organizing

No information system can be considered in isolation from the organization or context in which it is deployed. If it does not support the business processes of the organization, it is more counter-productive than productive (Nilsson et al., 1999). To understand the development processes in an organization, one must understand the organization itself, but just as the concepts of information and information systems, the definitions of “organization” vary considerably (Burell, 1996).

Some refer to Barnard (1938) who argued that formal organizations arise when technological conditions demand physical power, speed, endurance, mechanical adaptation, or continuity beyond the capacity of a single individual. March and Simon (1958) argued that an organization will exist as long as it can offer its members inducements which exceed the contributions it asks of them.

The focus on organizations as consisting of people continues with Blau and Scott (1962) defining a formal organization as an aggregation of individuals who exert concerted effort toward a common and explicitly recognized goal, even though Simon (1997) claims that individuals within organizations rarely have a common understanding of the goals, which contradicts the necessity of a high degree of consistency between organizational goals, structures, processes, behavior and outcomes. This consistency is often referred to in terms of effectiveness (doing the right thing), and efficiency (doing the thing right). The quality of achievement depends then directly on organizational structures and processes (Brunsson & Olsen, 1998; Pfeffer & Salancik, 1978). Another obstacle presented by Powell and DiMaggio (1994) who argued that an institutionalization perspective shows that an organizational structure does not necessarily support the work that goes on in the organization.

The definitions stem from a structural or a process point of view, with some specific characteristics in mind, and some still try to combine those perspectives, e.g. McKelvey (1980) defining organizations with four major properties, with both structural (resources and boundaries) and process characteristics (intentionality and exchange), that he sees as the minimum for recognizing an organization. (Barnard, 1938; March & Simon, 1958; McKelvey, 1980; Mintzberg, 1983; Scott, 2002; Thompson, 1967; Van de Ven & Ferry, 1980; Weber, 1978; Weick, 1979, 1995)

Organization theories mostly focus on the humans making up the “contract” of what the organization is and what it’s used for. According to Yu and Mylopoulos (1994)



organizations are built by social actors who are intentional, having motivations, wants and beliefs and are strategic, evaluating their opportunities and vulnerabilities with respect to each other. Winograd (1987) refers to them as “agents” who generate the space of cooperative actions in which they work, emphasizing the social activities carried out by language and communication. Modern organization theories tend to lean more towards the verb “organizing” rather than the noun “organization”, especially with a perception of organizations as a means to achieve strategic goals, or even making the organization equal to the strategy of the enterprise, as the verb form emphasizes the processes of becoming and sustaining (Pettigrew et al., 2003).

## 8.2 People in organizations

In a rational organization, the operational roles are sharply differentiated and codified by established formal rules. Decisions are implemented by a disciplined, specialized, continuously and rationally operating staff. Staff recruited on the basis of merit and given a life-long career in the organization can be expected to work according to the rules and instructions for the position. The staff will execute general policies as well as specific commands and bring about compliance or sanction violations. The organizational order, including the distribution of authority, power and responsibilities, should, in a rational organization, be legitimate. That is, discipline is based on a belief that actors holding certain positions have the authority to impose orders and rules and others have a duty to obey. (Brunsson & Olsen, 1998; Weber, 1978)

In Weber’s ideal model, there is only one locus of final authority and power in the organization able to make and enforce binding collective decisions and to sanction non-compliance. Leaders at the center control the combined efforts of the organization, making it a unitary, hierarchical actor. (Brunsson & Olsen, 1998; Weber, 1978)

However, management of an organization also implies leadership, which isn’t confined to the managerial level as such as there are many executive functions throughout the organization. Barnard (1938) defines the executive functions in an organization as:

- maintenance of organizational communication (including scheme of organization, personnel, and informal executive organization),
- the securing of essential services from individuals,
- the formulation of purpose and objectives.

To ensure those results from the executive functions the organization relies on different types of authority. Weber (1978) talks about “ideal types” of legitimate domination. Associated with each authority type is a distinctive administrative structure. Weber's typology of authority is of interest because it underlies his conception of basic changes occurring in administrative systems over time and serves as the basis for his conception of bureaucracies. In Weber's view, only the traditional and rational-legal authority relations are sufficiently stable to provide the basis for formation of

permanent administrative structures. All economies of scale are inconceivable without some bureaucratic form of organization and authority.

Weber defines authority as legitimate forms of domination, that is, forms of domination which followers or subordinates consider to be legitimate. Legitimate does not necessarily imply any sense of rationality, right, or natural justice. He outlines three major types of legitimate domination: *traditional*, *charismatic*, and *legal or rational*. *Traditional authority* is founded on traditional rights to lead, such as in religious congregations, clans, tribals or families, etc. *Charismatic authority* is based on extraordinary powers or qualities the leader possesses which makes people follow. These qualities really need not exist; that followers *believe* that they exist is what is important. *Legal or rational authority* is connected to the development of rationality and bureaucracy, and is based on a belief in the legality of enacted rules and the right of those given authority under such rules in systems of convention, laws and regulation, etc. These three forms do not constitute the totality of types of domination but they show how it is possible for some people to exercise power over others. Also note that these are ideal types, with any actual use of power being likely to have aspects of more than one type of authority, and perhaps even other forms of power such as the use of force or coercion. (Weber, 1978)

Pfeffer and Salancik (1978) makes another division of the managerial roles based on what the manager actually does; the *symbolic* role, in which the manager is a mere symbol for the organization, its success and failures, the *responsive* role, in which the manager is a processor and responder to demands and constraints, in order to assess the context and adapt the organization in response to the demands of the environment, and the *discretionary* role, in which the manager is to alter the demands and constraints to suit the interests of the organization.

### 8.3 Organizations as systems

One question in a discussion such as this is where the borders between the organization and its information system really are, if there are any. In Weber's (1978) ideal model, the organization has clear and definite boundaries, and constitutes a social unit which is either closed or limits the admission of outsiders. It has a collective identity of its own and there is a strong differentiation between the personnel and resources that belong to the organization and those that do not (Brunsson & Olsen, 1998). Pfeffer and Salancik (1978) claim that the organization's boundary can be defined in terms of its influence over activities compared to the influence of other social actors over the same activities of the same participants. In that sense, the organization can be viewed as a system of human action, where according to Susman and Evered (1978) the means and ends are guided by values. They also describe organizations as humanly created in order to serve those needs.

Barnard's (1938) definition of an organization concludes that an organization in itself is a system, as does Deming (1986) who built a case for treating the organization as a

total system, and maybe the most noted contribution in this respect was that made by Scott (2002) with perceptions of organizations as rational, natural or open systems, which to some degree questions the Weberian view of definite boundaries of an organization.

The general diagnostic model based on systems theory that underlies most of organizational development is the open systems model, which focuses on the organization's relations with its environment. Open systems exchange information and resources with their environments, which can make the boundaries seem fuzzy; assignment of actors or actions either to the organization or environment varies depending on the function under consideration. Open systems cannot completely control their own behavior and are influenced in part by external forces. Understanding how these external forces affect the organization can help explain some of its internal behavior. (Cummings & Worley, 2005; Scott, 2002)

Any organizational system is composed of three related parts; inputs, transformations, and outputs (figure 7).

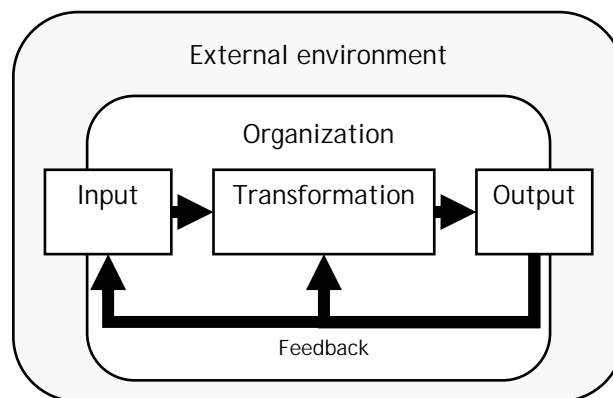


Figure 7. The organization as an open system. (Cummings & Worley, 2005)

*Inputs* (resources) are raw materials, money, people (human resources), equipment, information, knowledge, and legal authorization that an organization acquires from the system's external environment, e.g. a manufacturing organization acquires raw material from an outside supplier. (Cummings & Worley, 2005; Harrison, 2005)

*Transformations* are the processes of converting inputs to outputs, including interaction between individuals and groups. In organizations, a production or operations function is composed of both social and technological components to perform the transformation. The technological component involves tools, techniques, and methods of production or service delivery, whereas the social component consists of people and their work relationships. Subcomponents of behavior and processes that are particularly important for handling functional challenges include cooperation, conflict, coordination, communication, controlling and rewarding behavior, influence

processes and power relations, supervision, leadership, decision making, problem solving, information gathering, self-criticism, evaluation, group learning, and goal setting. Members' goals and objectives often refer to their expectations for current system performance or for desired future states of inputs, processes, outputs and other components. (Cummings & Worley, 2005; Harrison, 2005)

*Outputs* are the results of what is transformed by the system and sent to the environment; products, services, and ideas that are the outcomes of organizational action, ready to leave the system or to be used internally. Human outcomes, which are by-products of the system function, include behavior such as work effort and cooperation, turnover, and employee health and safety. In addition, there are subjective outcomes, such as employee satisfaction and perceived quality of working life. (Cummings & Worley, 2005; Harrison, 2005)

The question of closed or open systems is not a matter of black or white, rather a scale ranging from rigidly controlled, deterministic, purposive, heuristic to purpose seeking systems. Theatre is usually considered as being in the last category, purpose seeking systems, which are complex, ideal-seeking systems guided by images of the future they shape themselves. They are adaptive to the environment and are shapers of the environment, as well as being able to seek and explore new purposes. Theatre is hence considered among the "most open" types of systems, along with other artistic/creative enterprises, integrative community systems, alternative educational systems, alternative security systems, peace development and other non-profit organizations, but it should also be noted that in many systems the boundaries of system types are blurred and most systems embed other types. (Banathy, 1988)

## 8.4 Temporary organizations

Both theatre productions and system development take the form of projects, which can be defined as temporary organizations, established by a base organization to carry out an assignment on its behalf. In project-oriented organizations people with different skills are brought together to develop innovative products and services within fixed periods of time, and business functions become embodied in project teams. In such organizations, knowledge, capabilities, and resources are accumulated through the execution of major projects. The ideal project-oriented company is often described as a flat organization with a strong project management culture, but in practice, what defines a company as project-oriented is that these companies perceive themselves as being project-oriented and shape their policies and practices for working, for organizational culture and for strategy towards the challenge presented by the management of projects. (Huemann, Keegan, & Turner, 2007; Lindkvist, 2005; Vaagaasar & Andersen, 2007; Whitley, 2006)

Project-oriented organizations are hence constructs, as they can vary in the degree of their project-orientation, depending on the size, the number and the types of projects they execute. These impact the relation between the permanent organization and the

temporary organizations. An organization may decide that project-orientation is the appropriate working form for it as a whole (as in a construction company) or only for some of its organizational units (as development departments in companies or other organizations). (Huemann et al., 2007)

The permanent organization gives the temporary organization an assignment and resources for its work, describes the project's areas of authority and responsibility and defines its boundaries, thus giving it the embryo of an identity, but the direction of the project is shaped by the interactions between the two organizations, and it is also affected by other actors and events that are related to the project. The acknowledgment of projects as continuously evolving processes has consequences for the project owner's control of the project. The base organization cannot fully control the project and its products, and must in some cases transfer all responsibilities to the temporary organization. (Vaagaasar & Andersen, 2007)

## 8.5 Organizational aesthetics

Aesthetics is concerned with knowledge that is created from our sensory experiences, sensing and feeling, on empathy and intuition, and on relating conception to perception and how reasoning around our thoughts and feelings inform our cognitions, making us experience something as beautiful, ugly, elegant, or repulsive. (Ramírez, 2005; Taylor & Hansen, 2005)

The entry of aesthetics into social science came broadly from the search for alternate methods of knowledge building. It emerged along with the movement from positivist/functionalist to interpretive/critical perspectives in organizational studies. The knowledge they generated was accompanied by the associated problems of representation and form.

Early aesthetic organizational research focused on physical organizational artifacts such as offices, chairs or conference rooms; and on the benefits of analyzing organizations through an aesthetic lens. The research continued to conceptions of the manager as artist and the beauty of social organization, how management can learn from artistic form and content. This research aimed for the understanding of organizations and how people in them behave and understand them. (Ramírez, 2005; Taylor, 2002; Taylor & Hansen, 2005)

The idea of organization as theatre has been used extensively and is closely connected to another major metaphor for organizations and organizational activity, storytelling and narration. Here organizations are conceptualized as a collection of stories and organizational action is understood as enacting or relating stories. There is an extensive literature on storytelling in organizations that covers all aspects of management. (Taylor & Hansen, 2005)

## 8.6 Organizational change and development

The scope of organizations is widened when their goals, boundaries, significance, acceptance, etc, changes over time, adapting to a changing societal context. Weber (1978) claimed that organizations are rationally designed tools, structured and re-structured in order to improve their problem-solving capacity and their ability to realize predetermined goals, but as the organizational environment changes, strategic responses must be made in order to survive, which leads to new organization designs. Though Weber differentiates between internal changes (malleability) and the effects of external changes (societal transformation), many researchers connect these, considering internal structuring, to some degree, to be the result of external pressures. (Park & Krishnan, 2003; Van de Ven & Poole, 1995; Weber, 1978)

Organizational change has become a more or less conscious process, with different methodologies and perspectives in use. Van de Ven and Poole (1995) made a loose typology of four “motors”, which emerged as the “least common denominators” of the change theories reflected in research; *life-cycle theory*, *evolution*, *dialectic* and *teleology*. (Van de Ven & Poole, 1995)

- *Life cycle theories* describe change in terms of institutional, natural or logical progress: start-up, grow, harvest, terminate, and (re) start-up. Change is driven by maturation processes, and challenges reflect obvious gates as the organization (and industry) moves from one phase to another. (Walton & Russell, 2004; Van de Ven & Poole, 1995)
- *Teleological theories* describe change as goal-driven. Goals are envisioned as a result of dissatisfaction or ambition and drive implementation. The cycle is goal set/ search/ evaluate to reset/search/ evaluate, and so on. Change is generated by purpose and social consensus. (Walton & Russell, 2004; Van de Ven & Poole, 1995)
- *Dialectical theory* sees changes as events in which circumstances emerge, and then make their opposites clear by their own existence. To put it simply, the emergence of a thesis makes it possible to see the antithesis. The thesis and antithesis resolve via a synthesis which then enables the identification of another antithesis. Change is driven by pluralism, confrontation, and conflict. There is no clear or determinate direction in this model. (Walton & Russell, 2004; Van de Ven & Poole, 1995)
- *Evolutionary theory* sees change as an event sequence of variation, selection and retention among entities in a designated population. It has a generative mechanism of competitive selection and resource scarcity. (Walton & Russell, 2004; Van de Ven & Poole, 1995)

Though the definitions of organizational development differ slightly, they can all be summarized as a structured process of change in or of an organization using methods based on behavioral science. (Cummings & Worley, 2005)

## 8.7 Organizational learning

Definitions of organizational learning are numerous, usually focusing on a change in behavior or cognition or the “range of potential behaviors” of an organization. Multiple theoretical models have been proposed; typologies have been delineated; learning-related processes such as knowledge acquisition, information distribution, information interpretation and organizational memory have been identified; and factors thought to influence the process of organizational learning have been discussed. In addition, the literature on organizational learning is now distinguished from the literature on the learning organization, the latter emphasizing a prescriptive approach and the former being more theoretical and empirically based. Others have advocated exploring organizational learning as a multidisciplinary topic. (Casey, 2005)

The two primary frameworks that emerge from the literature on organizational learning are behavior change (adaptation) and cognition (knowledge creation). Underlying the definitions of organizational learning in these frameworks are varying assumptions regarding learning. (Casey, 2005)

The organizational learning theories that focus on knowledge creation suggest how knowledge is created, stored and transmitted, while the adaptation theories evolve from the stimulus-response concepts of learning and describe how organizations change on the basis of their experience. In most of these theories, knowledge creation is viewed as a social process that is dependent on shared assumptions or frameworks for communication in organizations. (Casey, 2005)

## 9 THEATRE

Even though my research on theatre was mainly inductive, it is appropriate to present some central concepts from the literature of the theatre before the presentation of the empirical study.

### 9.1 Theatre as an origin of information systems

Information existed long before the development of computers and software. Systems for handling this information also existed, using different technologies (cuneiform script, petroglyphs, Gutenberg's printing press, etc). We can go even further back in time. Long before humans could use written language, they could communicate information and knowledge through myths and rituals. These rituals may be some of the first constructed information systems. Hunting stories and other extraordinary events became part of the stories told, and when they were acted out in a simple drama, divorced from all ceremonial concerns, the first significant step had been taken toward theatre as a specialized activity. (Brocket, 1987)

Studies of primitive societies still existing in modern time have told us much about the use of those rituals (Brocket, 1987):

- Ritual is a form of knowledge. Myth and ritual reflect a society's understanding of the universe, as they are attempts to define the human situation and its relationship to the world.
- Ritual may be didactic. In the absence of a written language, ritual may serve as a means of passing on traditions and knowledge, many human societies (both primitive and modern) using initiation rites for this purpose.
- Ritual may be expected to influence or control events. One of the fundamental premises of many rituals is that a desired effect – such as success in battle, adequate rainfall, or the favor of some supernatural power – can be achieved by acting it out.
- Ritual is often used to glorify – a supernatural power, a victory in hunt or war, the society's past or a hero.
- Ritual may entertain and give pleasure.

In this summarized introduction we can already see some similarities with the information systems of today. The dramas of the Greeks and Romans were a direct continuation of their rituals, the “premise” of the plays often being simplified to a *sententia*; a thought expressed in words, a philosophical proposition, an aphorism, apophthegm, maxim, axiom (Lewis, 1993). As early as these times, the power of drama was feared by the government. Plato argued for censorship and strict state control over drama, the powerful influence of which he feared. (Brocket, 1987)



The “premise”, “sentence” or “maxim” has always been the main message of the drama, but in modern history, it has evolved to “statements” about man or the society:

- **Theatre as positivistic science.** “Realism” as an art form owed much to the "positivism" of Auguste Comte who argued that the sciences would supply the necessary knowledge for predicting human behavior and controlling society. These arguments were adopted by many artists, who sought to make art "scientific." Out of these attempts emerged realism as a new form of the art of drama; art must depict truthfully the real, physical world; truth can be attained only through direct observation; only contemporary life and manners can be observed directly; and the observer must strive to be impersonal and objective. (Brocket, 1987)
- **Theatre as emancipatory science.** Drama subsequently assumed a more active purpose. Berthold Brecht wanted the audience to have an active role, to observe critically rather than passively, in order to relate what they saw on the stage to social and economic conditions outside the theatre; ultimately, he wished the audience to apply its new perceptions by working for changes in the social and economic system. The 1970s saw the advent of an approach, usually referred to as "emancipatory theatre" that seeks to free its audience from false conceptions and traditional repressions. Productions increasingly treated the stage as a place where reality is to be examined rather than just presented. (Brecht, 1964; Brocket, 1987)
- **Theatre as propaganda.** Following the Russian Revolution, the Communists considered the theatre a major tool for instruction and placed it under the authority of the Commissar of Education. Meyerhold staged Soviet propaganda pieces, in which real news bulletins were read from the stage and a public meeting was held with the audience taking part. (Brocket, 1987)
- **Theatre as statements relating to man and society.** Samuel Beckett was not so much concerned with man as a social and political creature as with the human condition in a metaphysical sense. Eugene Ionesco was, unlike Beckett, concerned primarily with man's social relationships, typically those of middle-class characters in family situations. All of his plays seek to discredit clichés, ideologies, and materialism. After 1960, several playwrights treated political and socioeconomic themes. Cousin wrote in the Brechtian vein, although with a Christian rather than a Marxist slant. Gatti advocated a humanitarian socialism and expressed hope for the exploited people of the world. Since the late 1960s, Gatti has devoted himself to encouraging audiences to question the assumptions of their society, and he has worked directly with ordinary people in writing plays incorporating their views. (Brocket, 1987)

## 9.2 The Aristotelian handbook

Aristotle (384-322 BC) wrote the first “handbook” for playwrights and directors in his *Poetics*, the first systematic treatise ever written on drama. In addition to its discussion of tragedy, *Poetics* contains, in its early chapters, the oldest surviving history of dramatic forms. Aristotle states that every drama has six parts: plot, character, thought, diction, song and spectacle. He discusses unity of action, probability, and the requirements of plot, characteristics of the tragic hero, problems of diction, and many other topics. Even though some of the elements have been excluded in modern drama, e.g. the chorus, *Poetics* remains one of the key works in theatre literature. (Aristotle, 1961; Brockett, 1987; Szondi, 1987)

*Tragedy, then, is an imitation of an action that is serious, complete, and of a certain magnitude; in language embellished with each kind of artistic ornament, the several kinds being found in separate parts of the play; in the form of action, not of narrative; with incidents arousing pity and fear, wherewith to accomplish its catharsis of such emotions.* (Aristotle, 1961)

Aristotle considered that the medium of theatre is action rather than text; tragedy “shows” rather than “tells.” His consideration shows a close relationship with the discussion of “knowledge” and “wisdom” as Aristotle claims that history simply relates to what *has* happened while tragedy dramatizes what *may* happen at any time or place - because that is the way the world functions - and the audience can envision themselves within this cause-and-effect chain. (Aristotle, 1961)

### 9.2.1 Thought

The concept of “thought” comprises both the rational processes through which characters come to decisions, as represented in the drama, as well as values put forward in the form of maxims and proverbs. In that sense it comes close to what modern drama theorists consider the perhaps most important concept, the *premise*. The premise is the idea or theory on which the statement or action in the play is based, the “theme” of the play. It can be expressed as a “statement”, “sentence”, “proverb” or “maxim” that the writer intended to communicate to the reader/audience. In that sense the premise can be defined as the *purpose* of a system, being formulated as an “end to be achieved”, or, in terms of system development, the result of the analysis of the requirements of the system. As being a statement to be mediated to an audience, the premise can also be compared with the “information” in an information system, which must be interpreted by the end-user, the spectator. (Aristotle, 1961; Dyfverman, 1949; Egri, 1960; Lewis, 1993)

In many cases the premise is formulated in the terms of a conflict, which in turn can be expressed differently depending on the type of premise. It can be “a personal issue” with an “inner conflict” within the character, with focus on psychological or social psychological issues and dilemmas, or it can be an “outer conflict” based on

“societal issues” with more political or practical statements in focus, often expressed as the different attitudes of the characters to the issue of the premise. (Aristotle, 1961; Egri, 1960; Mills, 1996)

For Aristotle, different art forms incorporate *mimesis* (imitation) using different means of representation of different levels of ethical behavior and different ways of communicating that representation to an audience. Aristotle believed that poetry springs from a fundamental human "desire to know". Humans learn through imitating and take pleasure in recognizing imitations of the perceived world. (Aristotle, 1961; Golden, 2004)

### 9.2.2 Plot

The *story* is the chronological chain of events; the chronological sequence of actions in the play, i.e. what is actually happening, while the *plot* is the presentation of the story, which can be in another order, how the story, the characters and the conflict are presented, based on a chosen dramaturgy. Aristotle ranks the plot as the most important element of a drama, emphasizing that it is first and foremost the representation of actions, and not of characters. Some drama theorists argue that Aristotle in this way denied the importance of character, but among most, the plot accepted is accepted as an important part of a well-written drama. (Aristotle, 1961; Egri, 1960; Mills, 1996)

The classical dramaturgy of Aristotle has been scrutinized and criticized through history. Aristotle only defined three parts of the drama; a beginning, the middle and the end; but Gustav Freytag developed this into five parts (figure 8). (Heed, 2002)

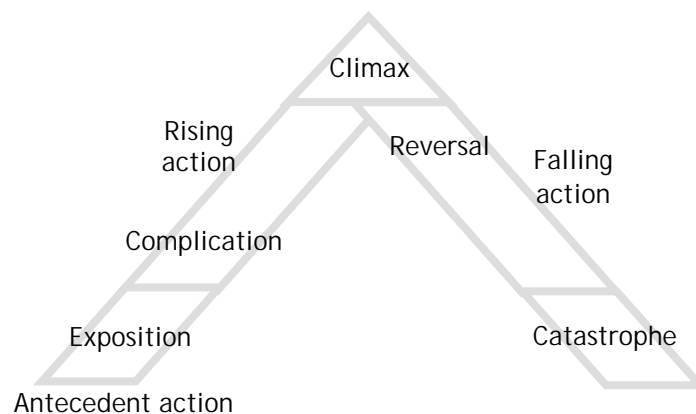


Figure 8. Freytag's pyramid. (Heed, 2002)

The play begins with an *exposition*, referred to by modern critics as the *incentive moment*, which presents the context of the play, explaining the background to the situation (the *antecedent action*, that which has happened before the curtain rises) and begins the cause-and-effect chain. (Aristotle, 1961; Egri, 1960; Heed, 2002; Mills, 1996)

The action rises through a *complication* (the *desis*, where the protagonist is opposed) to a high point or *climax* (*peripeteia*, the *middle*, a moment at which tension is high, and which is a decisive turning point). This must be caused by earlier incidents and itself cause the incidents that follow. From the climax the action goes through a *reversal* in which the characters find themselves. (Aristotle, 1961; Egri, 1960; Heed, 2002; Mills, 1996)

*Anagnorisis* is the recognition, which accompanies the *peripeteia*, by the tragic hero of some truth about his or her identity or actions. According to Aristotle, the change of fortune for the hero should be an event that occurs contrary to the audience's expectations and that is therefore surprising, but that nonetheless appears as a necessary outcome of the preceding actions. (Aristotle, 1961; Egri, 1960; Mills, 1996)

The *end* (also referred to as the *resolution*, *catastrophe*) must be caused by the preceding events but not lead to other incidents outside the compass of the play. (Aristotle, 1961; Egri, 1960; Heed, 2002; Mills, 1996)

The end should solve or resolve the problem presented during the incentive moment. Aristotle therefore termed the more rapid cause-and-effect chain from the climax to the resolution the *lusis* (the unraveling), in modern terminology the *dénouement* (the unknotting). (Aristotle, 1961; Egri, 1960; Mills, 1996)

At the end, the audience should have experienced *catharsis* which is another Aristotelian term that has generated considerable debate. The word has been interpreted in three main ways; metaphorically as a homeopathic purgation, moral purification as a way of experiencing pity and fear virtuously (i.e. in moderation), or as a cognitive pleasure taken from the learning and insight that *anagnorisis* and *mimesis* give. Current research on tacit knowledge uses latter definition in the first place, as the kind of insight we gain on the basis of intense emotional experience. (Aristotle, 1961; Golden, 2004; Janik, 2005; Pateman, 1991)

The Aristotelian dramaturgy remains the most common dramaturgy used in dramatic theatre even if others exist. One example of an alternative dramaturgy is the epic drama, in which the scenes are separated from each other, episodic, and only loosely coupled in the overall story as they can, more or less, stand alone. (Brecht, 1964; Brocket, 1987; Heed, 2002; Pateman, 1991)

Even if Aristotle claimed that the more complex, the better the plot, it still had to be "complete," having "unity of action." By this Aristotle meant that the plot must be structurally self-contained, with the incidents bound together by internal necessity, each action leading inevitably to the next with no outside intervention, no *deus ex machina*; playwrights should exclude coincidences. (Aristotle, 1961; Egri, 1960; Golden, 2004)

### 9.2.3 Character

Characters in tragedy should according to Aristotle be “good or fine”, “true to life and yet more beautiful” and “necessary or probable”. They should also have “fitness of character” and “consistency”. Each character must support the plot, i.e., personal motivations will be related to the cause-and-effect chain of actions. Aristotle (1961) defined several key roles for a play, the most important being the *protagonist* and the *antagonist*. The protagonist is the character in the play whose conflict (inner or outer) motivates the actions in the play, while the antagonist is his “opponent”. If the premise is expressed as an “inner conflict” the protagonist can be his own antagonist. (Aristotle, 1961; Egri, 1960; Mills, 1996)

### 9.2.4 Diction

Aristotle addressed *lexis* (diction), the way in which the thoughts of the speaker are expressed. *Lexis* includes words, syntax, and delivery; everything related to “the expression of the meaning in words” and how the language of the play is delivered by the actors. Aristotle suggested that experts in the art of oratory and the actors themselves are more responsible for the success of this dimension of tragedy than the poet. *Lexis* should be proper and appropriate to the plot, the characters, and the end of the tragedy. (Aristotle, 1961)

### 9.2.5 Song

Aristotle argued that the chorus should not be separated from the play, interrupting the plot, but should contribute to it in the same way as every other part of the play. The chorus has more or less disappeared since the renaissance. (Aristotle, 1961; Szondi, 1987)

### 9.2.6 Spectacle

Aristotle meant that though spectacular effects could attract emotions from the audience, they should not distract its attention from the plot. Superior poets should rely on the structure and inner workings of the play. (Aristotle, 1961)

### 9.2.7 Rhetorical elements

In some works on drama, the concepts presented in Aristotle’s “*Poetics*” are often confused with those of his “*On Rhetoric*”, almost as if the two works were one and the same. This is not surprising as rhetoric can be defined as “the art of speaking or writing effectively” which should be a necessity for a good playwright as well as for good actors. Aristotle defines rhetoric as the ability “to see the available means of persuasion” (*pisteis*) which can be divided into two classes: the non-artistic and the artistic. Laws, witnesses, and contracts are all examples of non-artistic means of persuasion, because they involve no creative element on the part of the speaker. In contrast, artistic means of persuasion are those methods that are invented by the speaker. It was these artistic means of persuasion in which Aristotle was chiefly in-

terested in when writing "On Rhetoric". Aristotle identified three means of artistic *pisteis* (Aristotle, 2007; Merriam-Webster, 1998; Molina & Spicer, 2004):

- **Ethos** – appeal based on the personal character of the speaker,
- **Pathos** – appeal based on the emotions aroused in the audience
- **Logos** – the logical argument presented by the speaker.

Rhetoric also has a symbolic meaning beyond the literal. We find that meaning in images such as silent advertisements, figures, tropes, symbols, signs or actions. Rhetoric involves "the conscious, deliberate and efficient use of persuasion to bring about attitudinal or behavioral change" and occurs in a context that suggests a persuasion motive. (Kallendorf & Kallendorf, 1989; Sillince, 2006)

Visual rhetoric is central to many genres of communication in the business world, not only advertising, e.g. in the growth of e-business, with a special attention on web-design where the message of a site may be conveyed almost entirely through visual elements. (Brumberger, 2005)

### 9.3 People in theatre

Just as in any development process, the theatre production needs developers. There are several more or less independent subprocesses in progress in parallel, each associated with a specific role in the production process. The boundaries of each developer role in a theatre production have not always been distinct. The playwright's key role from the beginning is indicated by the term applied to him, *didaskalos* (teacher), for he was considered to be the instructor of both the performers (during the process of play production) and the audience (through the finished product). Often the responsibility for training the actors fell upon the sponsor (producer) instead. Other combinations were also common, such as the playwright acting in and directing his own plays. (Brocket, 1987)

The professions in theatre can be divided into three categories; the *artistic*, the *technical* and the *administrative*. They have different areas of work, but have a common goal; when the audience is sitting in the auditorium they are to experience a good theatrical performance. The division of the organization becomes emphasized on the executive level where there is often a clear division between the administration on one side, the artistic creativity on the other, and the technical considerations somewhere in between. In some cases the theatre manager is the executive for the whole organization, but in many cases the leadership is divided into one executive manager and one artistic manager. (Kull, 1997; Wetterström, 2001)

The *artistic* staff consists of people with different perspectives who contribute to the shape of the performance through creative giving and taking, e.g. director, dramaturge, play actor, understudy, swing, choreographer, dancer, scenographer, lighting designer, costume designer, make up artist, etc. The playwright is one professional in

the artistic field seldom directly employed by theatres.(Bergström, 1988; Dyfverman, 1949; Griffiths, 1982; Kull, 1997)

Theatre *technicians* are of many kinds, working in workshops and studios, on and behind the stage, and on tours, e.g. blacksmiths, carpenters, painters and upholsterers, attributeur, tailors, cutters, dressmakers and seamstresses, patinator, property master, wigmaker, stage manager, stage master, lighting manager, lighting technician (Griffiths, 1982; Kull, 1997).

The organization of the *administrative* staff in a theatre is usually similar to that of any other enterprise, with personnel for marketing, handling of payrolls, etc. There are other important administrative functions which are virtually exclusive to the theatre, the artistic manager and the producer. (Kull, 1997)

## 9.4 Core processes

As in the development of a computer-based information system, theatre production can utilize different procedures. There are also several more or less independent subprocesses in progress in parallel, each associated with a specific role in the production process. A theatrical performance must include at least two individuals; an actor and a spectator. However, the actor must have a story to tell, or rather to enact, which requires a playwright, and the story must be given a form for the stage presentation, which requires a director. The creative part of any theatre production thus needs at least three persons, the playwright, the director and the play actor. To make it a completely deployed production there is also another role to be filled, the audience. Expressed in terms of individuals it can come down to two; the theatrical worker (playwright, director and actor in one) and the spectator. (Bergström, 1988; Brocket, 1987)

All the other roles in the theatre production can be more or less eliminated in some way; if the artistic idea is to perform the play without any specific scenography or costumes, there is no need for a scenographer or costume designer; if the play is to be performed without special lighting effects, with only plain white light, or outdoors, a lighting designer need not be employed, etc. I have also excluded the process of deciding which play to perform as this has been done before the actual production starts.

The three necessary processes in a theatre production, the core processes, are those executed by the playwright, the director and the actor.

- The **playwright** is the author of the manuscript for the play. It is often said that good novelists make bad playwrights; the dramaturgy can differ considerably when writing for a reader as compared with writing for the stage. (Bergström, 1988; Dyfverman, 1949)
- From the script of a play, the **director** formulates an idea for its production, what message to communicate to the audience (the premise), and how this is to be ex-

pressed on the stage. The director is the leader of rehearsals and responsible for the artistic quality of the production. (Bergström, 1988; Griffiths, 1982; Kull, 1997)

- The **play actors** express with their own bodies and voices the characters of the play in the story told. This work is said to consist of creating plausible, living characters of flesh and blood from the given text. The actors can have leading roles in the plays as well as supporting roles. (Bergström, 1988; Griffiths, 1982; Kull, 1997)

A performance is incomplete without at least one spectator, and therefore the presence and reactions of the **audience** can also be considered as a process. In many cases, this process is out of the control of the theatre production as viewed by the theatre company. This process will be included in type models of theatre production presented in the following chapters but will not be given as much importance as the other three.

Just as in system development, the more complex the system or context becomes, the greater the need for the supporting processes mentioned. Most of the activities of the supporting artistic roles were historically the responsibility of the director, who remains responsible for the artistic entirety of the performance, but as productions became more complex, the specialization in different roles began and continues to this day. (Brockert, 1987)

Table 4. The phases of artistic creativity. (Bergström, 1988)

|              |  |
|--------------|--|
| Preparation  | The artist gets an idea. To find a solution he gathers all facts he can find on the subject.   |
| Incubation   | The subject is laid to one side and the concept ripens. Everything he has read and gathered is worked on subconsciously. In the process the artist's knowledge and imagination remain active. It is important not to hurry this process and allow it to take its time. A conscious search for the solution limits the imagination. |
| Illumination | The inspiration for the solution comes suddenly, often when the artist is otherwise occupied. This is often called the artist's "vision", a conception which he formulates and hence works further upon.   |
| Verification | When the artist finds the solution the work of realizing the idea begins.  |

Each of the artistic roles are required to make use of their creativity, which can be compared with the system development process for each role, but not with the overall development process, as the creativity process is individual. (Bergström, 1988)



#### 9.4.1 The playwright's development process

At different times in history, theorists have attempted to create a specific formula for writing plays. These include the Roman dramatist Lucius Anneus Seneca (5 or 4 BC-65 AD) who has inspired many playwrights and directors in modern time. Among the characteristics of his plays were his interest in morality, reflected through sensational deeds that illustrate the evils of unrestrained emotion and in *sententiae* (or pithy, proverbial generalizations about the human condition), characters who are dominated by a single obsessive passion (such as revenge) that drives them to their doom, and the introduction of certain technical devices, such as soliloquies, asides, and confidantes into the dramaturgy of the plays. Another playwright with great influence on modern playwrights was Scribe who is remembered primarily as the popularizer of the "well-made play" formula. The "well-made play" can perhaps best be understood as a combination and perfection of dramatic devices, common since the time of Aeschylus; careful exposition and preparation, cause-to-effect arrangement of incidents, building scenes to a climax, the use of withheld information, startling reversals, and suspense. (Brocket, 1987)

When a playwright has an idea for a play he begins by choosing raw material consisting of the complications he wants to describe. The material is collected from folktales, myths or other stories, articles in magazines, journals, trial records, the author's own experiences, etc. The same material can be used in several plays, but is seldom recognized as the playwright transforms it into his own, with the story placed in another time, another society, with changed names of the characters, etc. (Bergström, 1988)

The most important elements of a play script are considered by many theorists to be "premise", "character" and "conflict", where the conflict is a reflection of the premise and the characters are visualizations "in flesh and blood" of that conflict. (Dyfveman, 1949; Egri, 1960)

The playwright decides in detail how the conflict is to be developed and presented. He writes a scenario in which the story is structured, the ordering of the scenes is decided, how diverging wills are confronted and how the conclusion will be reached. (Bergström, 1988)

The end-product of the work of the playwright is the manuscript, the written text which consists of four integrated elements which can all be utilized and interpreted in different ways in the other core processes (Heed, 2002; Szondi, 1987):

- the dialogue (and monologues)
- stage directions
- descriptions of the environment
- descriptions of the characters

It is important to note that dramatic texts are not literature, and they should not be confused with narrative forms other than theatre (Janik, 2005).

#### 9.4.2 The director's development process

The director's role in classical Greek theatre was that of a teacher, telling the actors what to say, how to say it, and how to move on the stage. In more recent times the director's role has been more explicit, to provide the actors with discipline and orientation and to realize the implicit intentions of the play, on the stage, through the actors' performance. (Brockert, 1987; Janik, 2005)

The director's work begins when assigned a play to stage. His first step is to analyze the manuscript in order to determine the premise of the play and to find the artistic form of the staging, often in collaboration with a dramaturge. The text is interpreted at many levels, from the author to the audience. Each interpretation is an extension of the text into the context of the reader or spectator; his or hers experiences is the foundation upon which the interpretation is made. Because of the multitude of possible interpretations, a common approach by the director is to clean the manuscript from didascalies (words not to be spoken; stage directions, character list, title of the play), so that the dialogue stands free from any given interpretation. (Bergström, 1988; Heed, 2002; Kull, 1997)

In this process the director disassembles the manuscript. The division of the manuscript usually follows the following scheme; each part that follows the unity of environment (occurs in the same time and space) is an act, each part within the act that follows the unity of characters becomes a scene (every entry or exit of a character is the start of a new scene), and finally the unity of consistency in action or subject becomes an action section (when something new happens in the scene, e.g. change of subject in the dialogue). From this division the director often creates a *fable*, a recollection of the totality of events that will occur in the play. (Heed, 2002)

At the collation, the first organized meeting between the director and the actors, the director has done half the work. Most of the planning is done, and much is already implemented. The director presents the intended premise, his staging ideas and, starts his work as the guide for the actors in finding the characters. Some directors already have a clear idea on how they want each character to be played, others have formulated questions at issue and use the rehearsals to explore the course of events to discover and set the actions. The former type of director gives the answers, the latter asks the questions. (Bergström, 1988; Kull, 1997)

#### 9.4.3 The actor's development process

At the collation the director presents the staging ideas for the actors, and they read from the manuscript together. During the collation questions relating to the play, the staging and the premise emerge, and are discussed to create a common starting point for the further work. This is also the starting point for the rehearsals. During the rehearsals the actors receive their blocking directions (when and where to walk, stand and sit on stage) with instructions from the director. For the play actors the premiere

is a new starting point where each performance must recreate the expressions constructed during the rehearsals. (Kull, 1997)

Janik (2005) claims that performing the text is far more than just saying the words, as it involves imparting the appropriate shade of meaning to them by incorporating them into adequate gestures with a fitting tone corresponding to the situation at hand. This implies the actor's need for specific tacit knowledge and skills in order to enact the dramatic text in collaboration with equally skilled colleagues. (Janik, 2005)

There has historically been a continuous debate in theatre on *how* to act, with two dominating schools; the empathic (experiencing) actor, and the displaying (illustrating) actor. The first school is represented by Stanislavskij, who argued that the actor must empathize with the character so deeply, that he becomes the character, and through this rich acting, make the audience recognize their own situation in life. Brecht as a representative of the latter school on the other hand demanded from his actors that they should keep a distance (alienation, *verfremdung*) from the character; the actor should have a critical attitude towards the character as the audience should question the character and the course of events on stage. (Brecht, 1964; Kemecsi, 1998; Stanislavskij, 1936, 1949, 1975; Strasberg, 1988)

The common approach today is related to the methods of Stanislavskij, also called "method acting". The actor is intended to "become" the character in order to make his acting as realistic and natural as possible. Some central concepts are (Kemecsi, 1998):

- the actor's "W":
  - Where am I?
  - Who am I?
  - Why am I here?
  - Where do I come from?
  - Where am I going?
- the "given circumstances" – the context within the play
- the "magical if" – the actor acts "as if" it was true

The two former are brought to the actor through a thorough analysis and dissection of the play, disassembling the descriptions of his character from the text; visible biological, physiological and psychological traits; followed by a synthetization of the parts to a new whole, in collaboration with the director but possibly in solitaire. The latter depends on the actor's ability to empathize and to make use of the emotional memory. (Kemecsi, 1998)

The premiere is the endpoint for most of the artistic roles, the director, scenographer, costume designer, etc, but for the play actors and the technical crew it's a new starting point where each performance must recreate the expressions constructed during the rehearsals. (Griffiths, 1982; Kull, 1997)

#### 9.4.4 The audience' development process

Audience research in theatres by means of surveys has a long and venerable tradition, certainly within research oriented toward the arts and humanities. Through the on-site collection of data by means of a survey, researchers try to map and analyze a diversity of personal, aesthetical and attitudinal characteristics of a theatre audience. Yet, these studies focus almost only on demographic variables, not on the audience participation in the theatre production. (Roose, Waeye, & Agneessens, 2003)

For the audience, the theatrical experience does not begin in the auditorium, but as early as when the play is announced in advertising, reviewed in daily papers, magazines or on TV. From that point on there are several possible paths towards the seat in the auditorium. The experience is not confined to the performance only. In the cognitive processes of the audience, several factors play their part. A good theatre building provides isolation from outside influences, which allows the audience to concentrate on the play; suspend their disbelief, and enter the theatrical illusion. In the darkened auditorium the audience waits until the lights come up on the stage. Before a word is spoken, the "stage picture" tell us where we are and what the physical place is like. Carefully planned lighting and sound creates atmosphere which adds to the illusion and the context of the play. Supporting processes such as marketing and customer services also play a significant part. (Graham, 2002)

Experiencing live theatre performance is not like watching TV or going to a movie, as the audience has an active role in live performance (Simon, 2003). We lack any detailed picture of the theatre audience, especially in their roles in the production-reception relationship. What is agreed upon is the complexity of a process that previously was considered "natural", but involves decoding of several signifying systems. Neither theories of reading nor theories of semiotics can go beyond the issue of individual subjectivity (Bennett, 1997). This sort of experience is a production process – not only consumption. We are producing the performance together, as we create images and emotions during the performance (Diesing, 1997). One of the perhaps most important elements in the success of a well-rehearsed play is the non-verbal interaction and communication between the performers and the audience, a play in the play where the audience "feels together" with the actors on stage (Janik, 2005).

Attending a performance is also a social event, which makes the play live long after the performance. We share the same experience as the other spectators, the same feelings, and know we are sharing them. Later, at intermission and afterwards, we can talk over our experiences, note similarities and differences, and appreciate the high points again. We can also empathize with the characters and share their experiences. Perhaps the difficulty of examining the audience through this social coordination and cultural constraints is the reason to why theatre audiences tend to be neglected, in research as well as in productions. (Bennett, 1997; Diesing, 1997)

One possible reason for this neglect, noted by Conway and Whitelock (2007), is that for many theatres, the income from ticket sales is really marginal, as they rely on

subsidizes. For them, their relations with other stakeholders are more important than their relations with their audiences. The demands made on the theatres by stakeholders, has shifted the perspective from “what message to bring?” to “what plays will attract the required audience?”, and to “how marketing efforts can bridge the gap”. (Rentschler, Radbourne, Carr, & Rickard, 2002)

As even theatre research itself recognizes a lack of theories on how the audience actually conceives the performances and what significance it might have, we must consider other factors that could explain this process. One such area is pedagogy (which has almost the same ancient ancestry as theatre itself), in which theories from experiential learning might be the best suited. As the spectator might know conceptually what he’s going to experience, without knowing the actual outcome, the performance from the spectator’s point of view can be regarded as an adventure. One model from the field of experiential learning that then comes to mind is the *adventure-based learning model*, proposed by Richards (1992). There are four distinct phases of the cycle; separation, encounter, return and reincorporation:

- **Separation** – It’s necessary to leave old ideas behind, dare to experiment with new ideas and be open. This demands great motivation to begin the journey. Motivation and preparation are the most important parts of this phase.
- **Encounter** – When the “traveler” leaves the comforts of his home, she’s ready to meet the new and unpredictable. The challenge in solving problems and the unpredictable outcome is what makes it an adventure.
- **Return** – The adventure is incomplete if you can’t talk about it, write about it or reflect upon it, connecting the experience to your own life.
- **Reincorporation** – After a successful adventure, incorporated into your other experiences, the participant is ready to take on new challenges to seek new experiences. This phase is important as it makes sure that the experiences come to use in a learning process.

## 9.5 Theatre, knowledge and conception

The creative processes in theatre involve interpretations at several levels, as well as in parallel, from the author to the audience (figure 9). Each interpretation is an extension of the text into the context of the reader or spectator; his or her experience is the foundation upon which the interpretation is made. It begins with the playwright's first interpretation of reality which is expressed in the manuscript. All of the artistic workers read and interpret the play, which results in several individual interpretations. A common approach in the different analysis steps in the core processes is to try to eliminate any interpretation, so that the exact wording of the text and a multitude of possible interpretations emerges. They then compare the different interpretations with each other and agree upon a single interpretation for the staging of the play. The audience experiences the performance and each spectator makes his own interpretation on the basis of how he associates and understands what occurs on the stage, i.e. simultaneous cognitive processes lead to a great number of interpretations to be stored in each individual's memory. (Bergström, 1988; Heed, 2002)

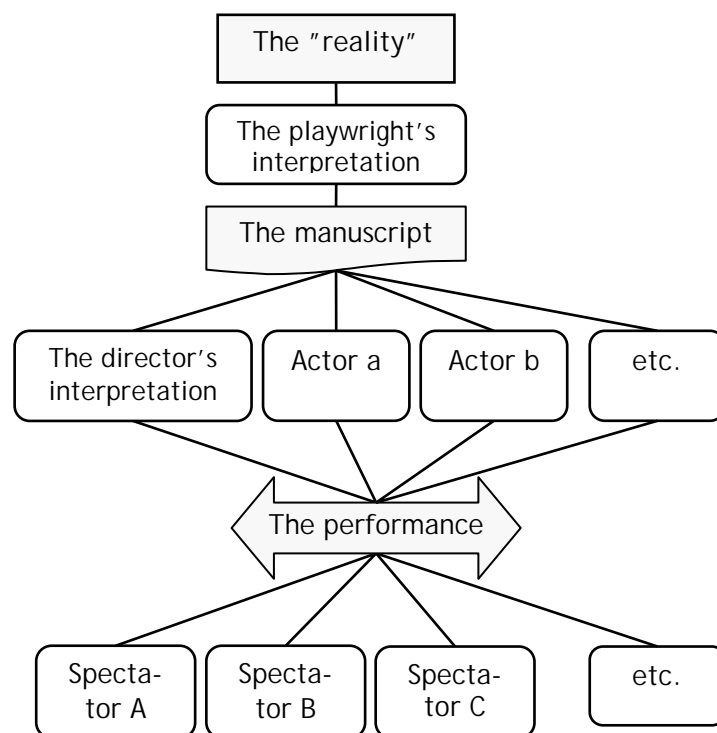


Figure 9. The levels of interpretation.

Derrick De Kerckhove (1982) argues that the Greek theatron had played an important role in introducing the new cognitive standards of the alphabet and literacy even to an audience with a large percentage of still illiterate spectators. Theatre worked as a

perfect training ground for these new perceptual standards, especially as the visit to the annual theatre festivals had been mandatory for the people of ancient Athens. The theatrical performance educated its public to a new, detached, and unified perception of itself. Space itself became a mental construct, a neutral, abstract container for a programmed experience. (De Kerckhove, 1982)

At the media-technological watershed of the introduction of the phonetic alphabet, theatre as a mass medium thus helped to overcome traditional oral culture by implementing all relevant new cognitive strategies within the sensorial apparatus of its spectators. Traditional drama today addresses an equally traditional audience which might tend to be “illiterate” with computer technology. (Boenisch, 2003)

The cognitive science is related to another aspect of communication, that of semiotics. Marvin Carlson (1990) consider what he calls the “corporeality of theatrical signs”, an attribute that can interfere with the satisfactory use of signs as aesthetic devices. We are presented on stage not with the linear focus of a novel, but with a multiple perception of presences from which the spectator is necessarily left free to choose. At the same time a performance has the compensating power of “psychic polyphony” through the way the audible and visual elements (including the actors) offer a multiple perspective to the observer. (Carlson, 1990)

There has been extensive research on theatre semiotics, one of the dominating areas in theatre science, as it has given the discipline an instrument to theoretically explore something that has been an essential part of the theatre since antiquity, its way to create meaning with the use of signs. (Heed, 2002)

The semiotic signs in theatre are not confined only to the dramatic text. It includes all verbal and non-verbal visual and audible signs that can occur on stage or in its vicinity. With this approach we come closer to the theories of information processing in the cognitive sense, as more of the contextual information can be considered. (Heed, 2002)

All of the artistic staff in the theatre production are aware of the importance of the signs in the staged production, and thus an important part of the process is to structure this amount of information, to support the final interpretation from the audience. As the theatre production includes the audience cognitive processes, the theatre performance is not only a medium for information; it is also an information technology. Just as classical drama has entered into the world of IT, business information systems can make use of the information processing of the theatre. (Lan, 2003)

With the communication of knowledge and statements of different types the theatre form can be used in several areas. Simple divisions of “art for art's sake” or art with a clear social function do not express the possibilities presented by the many different artistic traditions. There are examples of how drama and theatre have been used in therapeutic situations or rehabilitation programs, several ethnic groups interact to produce dynamic debates about how and why art should be involved with society.

Theatre and other forms of dynamic, transitive rehabilitation and education have the potential to create active, critical citizens. As a public, social experience, theatre is appropriately politically financed in large part by the community and provides young people with an educational, socializing experience; it gives youths the experience of a social process and encourages them to develop such skills at home. (Diesing, 1997; Kincaid, 2002; Orme & Salmon, 2002; Thompson, 1998)

Theatre and arts programs which are participatory have a real role to play. They encourage young people to be subjects of a learning process, and stimulate self-reflection and a wider reflection on society. Innovative drama can be an effective medium for communicating topical issues and increase the audience's knowledge and skills in a variety of contexts. (Kincaid, 2002; Orme & Salmon, 2002; Thompson, 1998)

The "enacting" of situations, as in different scenarios, through "role-playing", has been fruitful in many areas where the anticipated outcome of a specific course of events has been uncertain, or when a specific behavior pattern has been educated (Stickley, 2003).

Janik (2005) points to three aspects of theatre that are particularly relevant to an investigation into practical knowledge:

1. Theatre is first and foremost a practical activity. Therefore theatre is a repository of practical knowledge.
2. Theatre can provide us with insights into human problems on the basis of our emotional responses to performed stories.
3. Theatre has a very special place among the arts.

Theatre powerful enough to induce catharsis in the audience involves a complex set of skills that have been developed over 2,500 years, skills that can be obtained only through "learning by doing". Catharsis is a kind of *insight* into the nature of a situation that one gets from experiencing a theatrical performance, and theatre hence transfers a species of knowledge; the kind of emotionally laden insight that theatre can produce in an audience which experience a narrative acted out "live" before it. Although all of the arts can lead us to experience catharsis, it is most fully experienced in encounter with live actors performing stories on the stage. Theatre is the only human activity that aims at "concentrating" human life, without simplifying it; no two performances of a play are identical. As such theatre is an extraordinary repository of tacit knowing. (Janik, 2005)



## 10 MY CONCEPTION OF THE CONCEPTS

|   |
|---|
| In this chapter I present my conception of the central concepts from the different areas. |
|---|

### 10.1 Concepts from information systems

Even though I have established that there exist differences between the concepts of data, information, knowledge and wisdom, the use of them in this dissertation becomes even more problematic, as an IS in reality deals with “all of the above”, mainly because what is considered information by one is considered data by another, etc., e.g. with the debate within knowledge management that which some consider explicit knowledge is considered information by others. As I see no consensus on these issues, I even question if such a consensus really is fruitful. The debate as such is.

I consider *data* as the smallest pieces, really just signals or expressions of signals, the bits and bytes in a computer-based system, the sound waves of speech, the letters in a written text, etc., hence closest to Shannon’s and Weaver’s (1949) use of the concept of signals as not containing an explicit meaning.

It becomes *information* (or misinformation, disinformation) at the point someone understands *some* meaning in it, whether intended or not from the sender. When meaning is applied on the data, it must be with some knowledge within a specific context. If we can *inform* someone using simple signals, that data is the bearer of some information. This also means that the definition of information really should consider the *purpose* of the *informing* process. Communication is implicitly used, but the information as such must be the *meaning* of the content, as constrained by the purpose.

Though some connect *knowledge* only with the *use* of information, I connect this use not only with *practice*, but also with e.g. *reflection*. The ability to apply meaning to data in order to use it as information is in itself an expression of knowledge.

Finally, I mean that *wisdom* only is useful as a philosophical concept, as it concerns the *expansion* of knowledge, perhaps even beyond the ability to foresee consequences, “thinking outside of the frames”, etc.

In this dissertation I will use the definition of *information technology* as the tools and techniques used to acquire and process data and information in support of human purposes, hence closer to *techne* than to *technologia*. (Ferre, 1988; March & Smith, 1995)

Finally, I use the definition of an *information system* as a system by means of which data is acquired, processed and distributed with the purpose to inform, including the informers and the informed, as the information processing wouldn’t be complete without them.

## 10.2 Concepts from information system development

I will focus on the core concepts; analysis, design, implementation and operation, as defined in chapter 6, only on a generic level.

## 10.3 Concepts from organization

Most theatre productions are temporary organizations, as are most system development projects. Still, they are organizations, with the necessary characteristics.

But also a permanent but dynamic and adapting organization needs some of the characteristics of temporary organizations, as new premises need to be defined continuously.

The modern view of organizations, shifting the perspective to “organizing”, leads to the definition that it becomes an organization when several units are assembled, in order to achieve a specific purpose.

In the context of manual information systems, the significant units are humans, who achieve the goal, preferably by performing certain activities.

## 10.4 Concepts from theatre

I will not disclose my own previous use of the concepts from theatre at this point, as that would be to forego the empirical study of theatre productions. My present and somewhat revised use of the concepts can be found in the final conclusions of the dissertation.

# FIRST INTERMISSION

## METHODOLOGY

*I don't understand.  
I don't know what that Method is.  
I've read Stanislavsky, naturally, and it seems to me that the Method is:  
if you say something, you've got to say it as interestingly as possible.  
But that applies to life--and acting is life, to me, and should be.*

Actress Vivien Leigh in interview (Funke & Booth, 1961)

*Before we go on to the real world and the empirical material, I'll take a moment to explain my study method. In this intermission you'll read about epistemological and ontological concerns, which led me to some quite specific use of research perspectives and methods.*

*This far, I have tried to make my point by presenting the "why" and "what" of my story, i.e. the "facts" retrieved from previous research. Here comes the story on "how".*

FRIEND: Didn't you work as a director before?

ABELLI: That's correct, and as an actor, producer, light and sound technician, playwright...

You name it; I've dabbled in most theatre occupations at some point.

FRIEND: So, doesn't that mean that you're too colored by those experiences? Shouldn't scientific research be objective?

ABELLI: Firstly, I think that could be debated as such. I don't think any researcher can be truly objective, at least not in social sciences. You'll always be colored by your experiences, values, etcetera...

FRIEND: Hmpf, I don't think Darwin would agree...

ABELLI: ...secondly, It's rather how you USE those experiences that might affect the "rigor" of your research.

If you can persuade the reader to believe that the methods you've used should point in the same direction, whoever would have done the research, should be evidence enough.

FRIEND: You mean that another researcher could interview the same people, reading the same scientific articles...

ABELLI: Well, do you think the people I've interviewed can be "the same" next time they're interviewed?

FRIEND: Yeah, sure, (giggle) or do you mean that they're replaced with clones?

ABELLI: No, but are you the same guy now as you were five years ago? Don't you have more experience now? More knowledge?

FRIEND: (thoughtful pause) But then nobody can ever replicate your research?

ABELLI: Cratylus, a Greek philosopher, once said that "You cannot step twice into the same river". The water will be different water the second time.

FRIEND: (longer pause) Then no research dealing with humans can ever be replicated! How can you trust any research in social or behavioral sciences?

ABELLI: It's always up to the reader to judge whether the results are trustworthy or not. All I can do is to present what I have done in the research as truthfully and transparent as I can...

## 11 PERSPECTIVES AND METHODS

This chapter presents the viewpoint of the researcher in order to explain some of the choices made on methodologies and methods.

### 11.1 The views of a researcher

When I now return to the world of theatre, but as a researcher, I must formulate what I already know about the similarities between theatre production and system development in a scientifically acceptable manner.

My standpoint is that theatre production is an information system development process. This viewpoint is based in part on the education I have for the professions of drama pedagogue and system developer, but mainly on my practical experiences from theatre productions and system development. These in turn affect the ontological and epistemological views on my research.

Qualitative research is often performed in accordance with one of three underlying epistemologies; positivist, critical and interpretative. However while these three research epistemologies are philosophically distinct (as ideal types), in the practice of social research, these distinctions are not always so clear cut. (Lee, 1989; Orlikowski & Baroudi, 1991)

In my experience from the processes of both theatre and system development, the “developers” in both fields have their own personal views of what the processes are really comprised of, and have different views on how they should be executed. A social constructivist view could influence part of the research, but there is an “engineering” view in both fields that tries to mechanize the process as if no humans were involved, and hence a form of positivism. However, Orlikowski and Baroudi (1991) claim that the positivist research approach is not complex enough to reflect all of the inherent complexity, ambiguity, and instability of organizational systems. I agree with Klein and Myers (1999) that the interpretive research can help information system researchers to understand human thought and action in organizational contexts.

Although I agree with the critical epistemological concept that social reality is historically constituted and that it is produced and reproduced by people, and although some of the restrictive conditions of the status quo will be brought to light, the objective of this dissertation is not to be social critique (Myers, 1997).

As my research is based partly on my personal experiences and that of other practitioners is based to a large extent on their experiences, a pragmatic approach could be seen as a possible alternative view. Some pragmatists claim that there is no authority to which we can appeal outside of our own experience. In the absence of any uncontroversial higher ideal, we are faced with the necessity of constructing our own

norms and institutions. As the pragmatic view gives the result of an investigation of a subject matter the properties of fitness and efficacy rather than the properties of truth-falsity, there has been the misconception that pragmatism is simply another version of constructivism. Pragmatism does not deny the concept of truth, but as pragmatism accepts a naturalistic reality, its definitions of knowledge and truth are not exactly similar to those of social constructivism. (MacGilvray, 1999; McCarthy & Sears, 2000)

Table 5. Ontological and epistemological views on social constructivism and pragmatism.

|                       | Ontology  | Epistemology   |
|-----------------------|---|--|
| Social constructivism | The world exists only as a social construction, in "social agreements" on what's "true". (Myers, 1997; Orlikowski & Baroudi, 1991)  | Understanding phenomena through the meanings that people assign to them (Orlikowski & Baroudi, 1991; Walsham, 1993)  |
| Pragmatism            | The pragmatic perspective is one that is ontologically realist; the world exists as a reality, but during the course of human thinking one ontologically real situation is changed into another. Those positions render meaningless the question of whether objects have an existence independent of the mind. (MacGilvray, 1999; McCarthy & Sears, 2000) | Those things are true which are verified through experience. A proposition may be said to be verified if it serves as a useful guide to future conduct. Pragmatic approaches take a stance against absolutist foundational epistemology, and do not make a distinction between the theoretical and observational aspects of science. (Boylan & O'Gorman, 2003; Creath, 1998; MacGilvray, 1999) |

Though the ontological and epistemological views in this respect are somewhat different from each other, it is still to some degree possible to combine the perspectives.

The ontological assumption in this dissertation is that the social world (social relations, organizations) is not given. The social world is rather produced and reinforced by humans through their action and interaction. Organizations, groups, social systems do not exist apart from humans. I look upon the development process as a human construction, built upon experience from a practitioner's point of view, but as such constructions, they exist not only in our minds, but as real entities that can be observed and tested for fitness for their specific purposes.

The epistemological belief applied in this dissertation is that understanding a social process involves getting inside the world of those generating it, rather than capturing it through hypothetical deductions and measurements. The epistemological perspective is then extended to verification of those processes by determining whether or not the experiences are fit.

## 11.2 The research settings

My research traveled between four different settings, as described in figure 10. These settings are all on a general level, some more general than others.

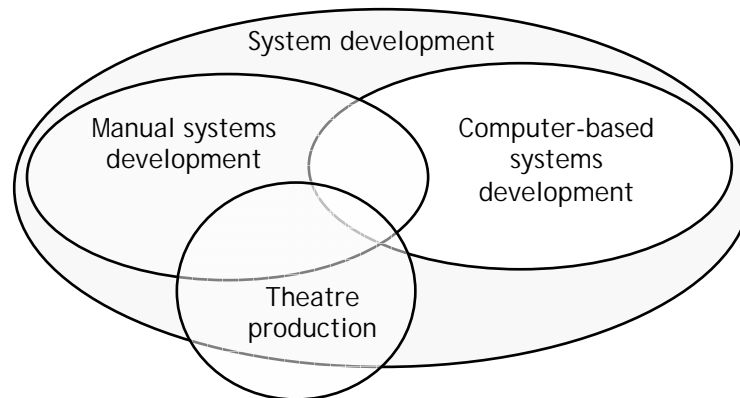


Figure 10. Relations between the settings of my research

The settings of my research are closely connected but are not identical. They are rather different specializations of a generic concept of system development which causes systems development for computer-based and manual systems to overlap to a certain extent. In the case of theatre production, there are elements that up to now have not been considered part of the system development at all. In my research I have studied theatre productions to recognize concepts, methods, techniques, etc, that are possibly lacking in other system development models, but could very well be generalized into the common base.

## 11.3 The collection of data

In the Prologue I argue that a theatre performance is an information system, although this is not really necessary for my research. The important task is not to argue for theatre production as a system development process, but to present a picture of the theatre production process and to determine how in that way, I can contribute to the theories of system development.

My research is focused on information systems based on human action and interaction. Interpretive research is the best choice as it can help information system researchers understand human thought and action in social and organizational contexts. It has the potential to produce deep insights into information systems phenomena including the management of information systems and information systems development. Interpretive research focuses on the complexity of human sense making as a situation emerges and it attempts to understand phenomena through the meaning that people assign to them. Interpretive methods of research in information systems are aimed at producing an understanding of the context of the information sys-

tem, and the process whereby the information system influences and is influenced by the context. (Klein & Myers, 1999)

I could make use of the theatre as metaphor to simplify the comparison between the settings, but that would be a road too easy to take, since I am interested in studying the theatre production process in practice to acquire new knowledge. Apart from that, the theatre as metaphor has already been used extensively (Laurel, 1993).

A purely deductive approach can only “map” the terms of ordinary system development onto the theatre production, to determine if it is possible and if doing so would provide benefits. I already know it to be possible and this approach would have narrowed my research to what was already known in the system development area, and therefore contribute little.

Since its purpose is not to contribute to the models of theatre directing or theatre production in themselves, my research must be more inductive than deductive, to determine which elements in the practice of theatre production I can translate or transform into useful knowledge for use in system development theories.

The key to this approach is to study the *differences* between the processes. To do this in a manner that can contribute to information system development theories, I need methods suitable for inductive research.

An inductive approach can in itself use several techniques for collecting data for this purpose. Of those I first used two:

- Interviews with practitioners in theatre production on different levels, such as playwrights, directors, play actors.
- Literature studies, descriptions of the processes of theatre production, including notebooks and other works from practitioners.

It can be argued that my research cannot be truly inductive as I have foreknowledge of the theatre, but I was required to transfer this knowledge from the discipline of the theatre to the discipline of information systems. In that sense, my research is still inductive from the point of view of information system research. Being already familiar with most of the concepts my own experience has been of benefit in the study and analysis of the material collected. Even though they were familiar to me, the concepts can still be considered new in the context of information systems research.

I had to compare the new concepts I recognized with what was already known and practiced in information systems development and research. As with all inductive research, there is always the possibility that I would find no really new knowledge. I could not rely on the inductive method alone, but had regularly to shift perspective and study the material from the view point of traditional system development and then made use of yet another source.

- Literature studies; previous research on information system development.



In part the latter has been a deductive approach as it broadened my basic theoretical framework from the information systems perspective, but it has also been part of the abductivity, as I explicitly searched for references to or similarities to the new concepts I found.

### 11.3.1 Interviews

The empirical study of theatre productions consists mainly of interviews of playwrights, directors, actors and other key figures in professional theatre, mainly institutional and publicly financed (appendix 1). To capture the *differences* between the processes of theatre production respectively information systems development without affecting the respondents too much with my own foreknowledge, I had to construct a method that went more into the respondent's "patterns of thought", rather than with a set of prepared questions.

My first interviews were inspired by the repertory grid method. Since the repertory grid method is constructed to compare similar elements (e.g. companies in the same business area), with the purpose of evolving the single element (e.g. the one company), it could not be used directly. What suggested the possibility in the repertory grid method was its being built on "personal constructs", that is the "patterns of thought" of individuals. To capture those in a research situation, as much of the researchers foreknowledge as possible must be eliminated in the interview situation. (Fransella & Bannister, 1977; Kelly, 1969; Stewart, Stewart, & Fonda, 1981)

One disadvantage of the repertory grid method is that it is primarily a quantitative method, although repertory grid analysis associated with personal construct theory has sometimes been treated as qualitative. Hunter (1998) is an example of this opinion and says that repertory grids generate a vast amount of richly qualitative data, grounded within the context of the current business environment in a relatively unbiased manner. He continues to argue that this technique can be used to investigate new ground or theory generation with the grounded theory approach.

The rationale for this conception is probably that it is focused on understanding the reasoning or cognitive organization of single individuals rather than working exclusively from population statistics. However, as it originally involved quantitative manipulation of elicited responses from participants I have not dealt with the pure repertory grid technique but have used it as an inspiration for the "objectiveness" in the interview situation and as a means to generate richly qualitative data.

Since the research object was the theatre production, I used the following as "elements in the grid", the respondents being asked to elaborate upon advantages and disadvantages in comparing their current situation with:

- Other theatres (as organizations)
- Other theatre productions and performances
- Other types of art forms, to convey a "sententia" or "information".

- Other forms of communication, to convey a “sententia” or “information”.

This preliminary “template” was sufficient to capture factors (from their personal constructs) without influencing the respondents too much in the introductory stage of the interviews. From these factors I then drew the specific concepts, in terms of specifications or specializations, of the elements of the generic model of system development processes.

It can be argued that this approach differs little from semi-structured interviews, but since the repertory grid was constructed to capture personal constructs instead of the respondents’ views on my own constructs, I found that I came closer to open-ended interviews suited to an inductive approach. The respondents told me what was important, without my guidance, but still focusing on the structures of the theatre as a development organization and the processes of the production.

I also prepared a second “template” for the interviews, using general concepts from system development models, as when using the first template, aimed at catching the constructs and concepts more explicitly if they did not emerge spontaneously. This template expanded as I added the concepts emerging from each interview but it was only used as a reserve at the end of each.

As the material was analyzed through constant comparison inspired by the grounded theory, this second template had, at “half-time”, become the first prototype of a development model for the theatre production. After the tenth interview, I concluded the interviews with a walk-through of the model to get the respondents impressions. I presented it with questions in terms of what was *wrong* with the model, or what they did *differently*, so the focus was still on *what was missing* in the model, rather than on its confirmation. During the last interviews, divergent opinions and comments from the respondents became more and more sparse.

The respondents were selected for convenience, persons at the theatres closest to home, but also persons at theatres at the locations of the many research courses in which I participated as one of the doctoral students within the Swedish national research school of management and information technology. If there was an institutional theatre at that location, I simply asked if any of the staff was available to be a respondent for my interviews. I made a total fourteen interviews, all recorded, with respondents from all the essential categories of theatre professionals. Most had experience from several different theatre occupations and therefore had the perspective of both the executive and various other theatrical functions.

### 11.3.2 Literature studies

One difficulty in researching the literature in this field is that theatre research lies on the border of what can be considered “scientific”. Research in the disciplines of performing arts is rather focused on a practitioner’s view than on scientific generalizations. The object of theatre studies is the theatrical *experience*, considered both from

the point of view of its producers (author, actor, director, art designer, etc.) and of its receptors (spectators, society, theoreticians). (Pavis, 2001)

"Theatre Research International", the journal published for the "International Federation for Theatre Research" is one example of this approach, the articles published dealing with "theatre practices in their social, cultural, and historical contexts, their relationship to other media of representation, and to other fields of inquiry". The journal seeks to "reflect the evolving diversity of critical idioms prevalent in the scholarship of differing world contexts". (Cambridge University Press, 2003)

Theatre research as an academic discipline of its own has never had any clear borders, and its relationship to other disciplines has been the focus of constant conflict and negotiation. In an attempt to compete with literature departments for the study of dramatic texts, theatre departments have put more emphasis upon the staging history and historical context of dramatic texts. More recently such emerging fields as performance studies and cultural studies have sought to go beyond such traditional disciplinary boundaries. The resistance from existing academic and publishing structures is a hindrance to the breaking down of these traditional boundaries. (Carlson, 2001)

This is another argument favoring the use of the inductive approach in my research. There is much written on the subject, but those texts must be considered as "data" in the same sense as the results of my interviews. In that sense, a study of the literature can be even more fruitful than ordinary research reviews, since I can utilize an inductive approach directly on the "research" on theatre productions, as well as in published notebooks and diaries from productions performed.

Production notebooks can illuminate the overall process as well as its subprocesses. It does not matter whether the resultant staging received critical approbation, as I am interested in the evolution of the project, particularly discussions about the obstacles encountered, temporary detours and choices made. (Bly, 1996)

The results from both interviews and the above mentioned literature studies must be scrutinized from the point of view of information system development, and I must therefore still perform traditional studies of that subject, to ensure that what I perceived as "new" concepts were really new in information systems research.

## 12 THE RESEARCH PROCESS

This chapter presents my search for a research model suitable for the discipline of Information Systems and explains how I finally made my own

### 12.1 Research models in information systems

Research in “informatics” or “information systems” has advanced from the pure engineering objects of the 50’s, when the focus was on the development of software for computers. Modern IS research is now a part of the social sciences with not only technological aspects. The “systems border”, including the users, the organization of the enterprise for which the systems were developed, and today even the “organization users” (customers and other businesses – B2B) has expanded further and further away from the technology itself. During this process several process models were developed, each to come to terms with deficiencies in the previous, from the original life cycle model, through the waterfall and the spiral model to the iterative models of today. (Benington, 1956; Boehm, 1988; Kruchten, 2000, 2002; Royce, 1970; Stapleton, 1997, 2003)

Among these models the focus has still been on finally developing software, but steps and activities have been added before and in parallel with the software development activities, such as “business modeling” and others, to be able to produce information systems more suitable for the specific enterprise. (Kruchten, 2000, 2002; Martin, 1991; Peters & Tripp, 1978)

The technologies that in some respect are the foundation of our field are subject to rapid and continuous change, which is one of the main reasons why new development models based on a “Rapid Development” approach have emerged. During the development of an information system the actual needs have changed from the initial requirements because the context of the organization and the technological environment have changed (Martin, 1991). If that is the case for our research object, the same problem develops for the researcher, with a continuously changing context and setting for our research, we must develop research methods that can cope with new and changing conditions.

Ackoff (1981) says that the more the rate of change increases, the faster the problems that face us change and the shorter is the life of the solutions we find to them. By the time we find solutions to many of the problems that face us, the problems have changed so that our solutions to them are no longer relevant or effective. On a similar note Martin (1991) defines quality of system development as “meeting the true business (or user) requirements as effectively as possible *at the time the system comes into operation*” [my italics]. Although his arguments concerned actual system development, we can transfer his arguments to the field of research. Instead of trying to find

a theory based on “a clear research focus” (Eisenhardt, 1991), we could try to find theory in the material we research. Humphrey (1990) even goes beyond Martin by saying that the customer generally does not know what is needed and neither does anyone else, and therefore the initial requirements are often wrong and will change.

Nor do we know what the outcome of our research process will be. If we knew the answers beforehand, there really would be no need for research. Novel and inspiring results can only come out of truly unbiased research. Hence, just as the practitioners baseline the requirements at a high level, the researcher can baseline the purpose of the research and the research questions at a high level.

One question that the researcher has to answer is if the results of the research should have immediate practical use (relevance) or be only for the academic community (rigor). This debate has been in progress for decades, and addresses the discussion of the boundaries of science and where science and practice meet in different arenas. (Engwall, 1992; Gieryn, 1999; Nowotny, Scott, & Gibbons, 2001; Whitley, 2000)

Some researchers argue that research can be performed with both rigor and relevance, with research models based on applied theory, evaluation research or policy research, while others suggest that researchers and practitioners simply approach each other in organized arenas. One problem of mixing theory and practice in our field is that it can blur the difference between what is “theory” and what is simply “method”. Since “applied theory” in itself is mostly normative and prescriptive, the borders between “theoretical models” and “methods for practitioners” are somewhat blurred in IS research. (Mathiassen, 2002; Robey & Markus, 1998; Senn, 1998; Walls, Widmeyer, & El Sawy, 1992)

System development process models have developed from sequential to many variants of iterative and incremental processes. It is somewhat contradictory that in the field of information systems we have created such a diversity of methods uniquely designed for information systems development, but have created few unique methods for actually performing the actual research.

Research in information systems has been forced to become more dynamic and flexible, but the flexibility has not, to any larger extent been required from within the field but rather has been borrowed from our sister disciplines in social sciences. In many cases it has come under the disguise of “interdisciplinary” or “multidisciplinary” studies (Knights & Wilmott, 1997).

The flexibility in modern system development models has emerged through an interaction between theoretical findings and the evaluation of practical implementations of those theories. Rules and guidelines such as “best practices” are produced as the result of these iterations (Lehman & Ramil, 2003).

As the rules and guidelines are produced as the result of the interaction between theoretical findings and the evaluation of practical implementations, they become both guidelines for practitioners and theoretical models for our research. Hence, their

testing should be possible on the research process itself. Some of these rules and guidelines are better known as “best practices” for system development. If these “best practices” have emerged to meet the needs of the constantly changing context for practitioners, they could very well be suited to the research process for the same area as well.

“Best practices” can be defined simply as the “best” way to perform some activity (O’Leary & Selfridge, 2000), while Morell and Stewart (1996) argued that “best practices” should have specific characteristics. They were arguing from a practitioner’s point of view, and only in the field of Software Development, but we can easily translate the concept of best practices to the field of scientific research; best practices should be seen in terms of a comprehensive well-managed process, with appropriate measures to ensure continuous progress. Within the process, specific tools and methodologies are needed; an array of “micro-level” best practices must be inserted to assure quality for specific activities. The fundamental purpose of the effort is to support the development of a result that has practical relevance.

A starting point for a “best practice” approach to the research process could be from experience from the field itself, such as the system development process, just as it has historically been one of the main focal points for information systems research. My own research process has been much influenced by the practitioners’ approach of iterative and incremental models, with many time-boxed activities. (Hull, Taylor, Hanna, & Millar, 2002; Kruchten, 2000, 2002; Rational Software Corporation, 2003)

## 12.2 An iterative and incremental approach

Some research methods are indeed of an iterative nature with a continuous change of perspective from holistic to atomistic; changing from inductive to deductive approaches. One example is the grounded theory that through an iterative approach creates a continuously growing package of concepts and constructs. Hermeneutics is another common research approach with an iterative element. One of the main themes of hermeneutics is that the meaning of a part can only be understood in connection with the whole and that the meaning of the whole only can be understood through the parts. This circular reasoning is dissolved by making it a spiral; one begins at some part and connects it tentatively to the whole, which sheds new light on the problem at hand, returns to the studied part, etc, at which a deeper understanding emerges. (Alvesson & Sköldberg, 2002; Glaser, 1992; Glaser & Strauss, 1967; Strauss & Corbin, 1990; Ödman, 1979)

In the Rational Unified Process, each iteration is a “complete lifecycle” of its own, each iteration resulting in some visible artifact (Kruchten, 2002; Rational Software Corporation, 2003). Translated to the research process, this would mean that each iteration would result in some visible part of the research artifact (e.g. a new theoretical model) for the overall process.

Many iterative process models stress the need for “time boxing” which guarantees that the process shows visible results after each iteration, and that an iteration can’t extend forever. The time boxing principle for iterative software development is that each iteration is performed in a time box of fixed duration, and the functionality to be built is adjusted to fit the time box. It also has the advantage that during the shorter time span, it is unlikely that the world would have changed sufficiently to make the requirements for the specific iteration irrelevant, a problem that has plagued traditional software development. (DSDM Consortium, 2002; Jalote, Palit, Kurien, & Peethamber, 2004; Rendell & Cowdale, 1999; Stapleton, 1997, 2003; Teasley, Covi, Krishnan, & Olson, 2000)

For system development there are several frameworks that can and should be explicitly configured for a specific development project such as RUP, DSDM and OPEN (DSDM Consortium, 2002; Firesmith & Henderson-Sellers, 2002; Kruchten, 2002; Rational Software Corporation, 2003; Stapleton, 2003). For the research process there are also frameworks that could function as an overall process model, e.g. Eisenhardt’s (1989) roadmap for building theories from case study research. Her framework can work to some extent, with methods other than just case studies. Lewis’ and Grimes’ (1999) maps over the theory-building process of traditional induction compared to meta-triangulation can be another starting point for a suitable framework for a specific process.

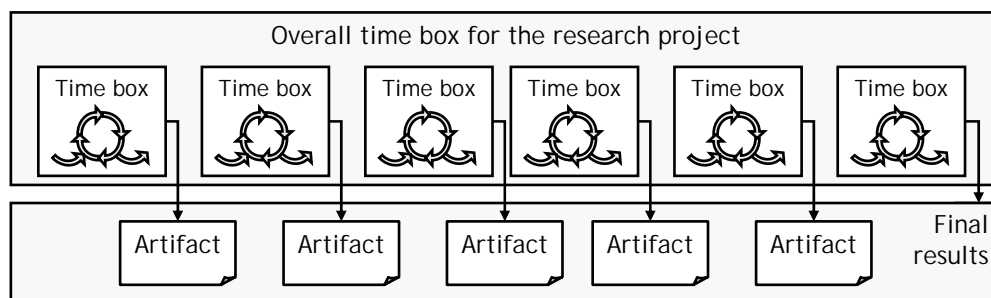


Figure 11. The overall time box for the research project consists of several time boxes for each distinguishable artifact

Research within information systems is mainly focused on applied theory and to a great extent on explicit models. Dubin (1983) sets forth some guidelines for the construction of such theoretical models. The features he outlines are:

- *units*: things or variables for the subject matter of intention
- *laws of interaction* among the units of the model
- *boundaries*: the limits of the setting or context for which the model is applied
- *system states*: in which the units interact differently
- *propositions*: conclusions that represent logical and true deductions of the model in operation

- *an empirical indicator*: each term in each proposition is converted to real world entities
- *hypothesis*: appropriate empirical indicators are substituted in the propositional statement, to make the theory testable.

Each of the features in Dubin's model can be the presumptive target for a single time box in the research, though in most cases more than one element of Dubin's model should be combined to make an adequate increment.

Defining a unit of analysis can be considered one of the most important choices in the development of a research design. The unit selected will be the main analytical level for the case or phenomenon being studied. At the same time, a single study may have more than one unit of analysis. A common design involves the "embedding" of units within one another. (Yin, 1989)

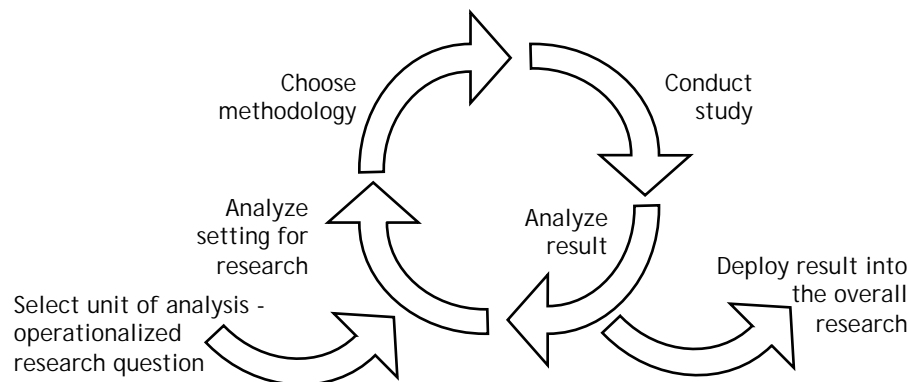


Figure 12. A single time box/iteration

One important aspect to consider is the role "theory" plays in the research process. The investigator should define carefully specific theoretical propositions related to the topic of study. The simplest ingredient of a theory might be a single statement, as will a single statement to represent a possible rival theory (Markus, 1983; Yin, 1989). As such, a theory itself can be one possible "unit of analysis".

Sutton and Staw (1995) argue that references, data, variables, diagrams and hypotheses are not theory, and try to explain how each of these five elements can be confused with theory and how to avoid such confusion. This could be seen as an argument for not "modularizing" the research efforts too much, but both Weick (1995) and DiMaggio (1995) claim that there is a value even in non-complete theories, since they can make a starting point for the researcher to go further on a tentative subject.

If we follow the principle that each iteration should be a full lifecycle in itself (figure 12), then each iteration should have its own complete research design, which is based on the unit of analysis for the iteration in question (Markus, 1989; Yin, 1989).



### 12.3 Analysis

From the specifications and specializations of the general concepts that emerged from the interviews I iteratively and incrementally created a model comparable to those for system development processes. From that I have extracted those factors/concepts that have no exact counterpart in existing models, and analyzed each of them to see if and how they can fit into “ordinary” system development models as possible “additions” to those. This has been an iterative process, in which the foundation of concepts grew larger after each performed interview. Each interview began as an open interview. Towards the end of the latter interviews I elaborated on the concepts from previous iterations, and finally made a walk-through with the respondents through the emerging models.

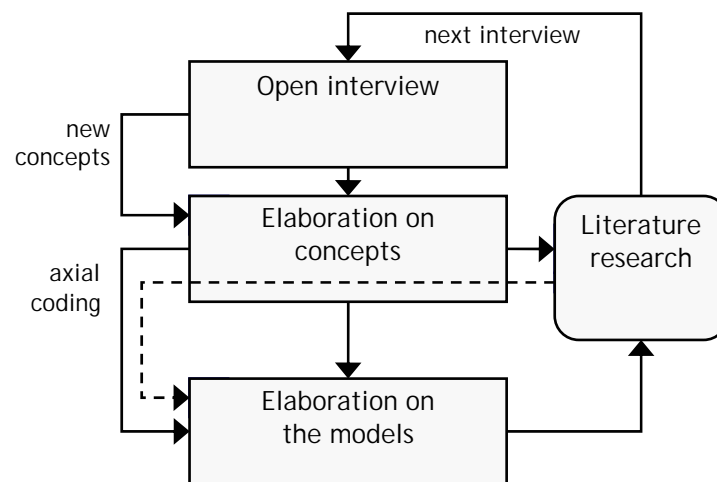


Figure 13. The iterations in the empirical study

Since there are few theories describing theatre production as the system development process it is, grounded theory is one approach that has influenced my research. The idea is that the first data collected is analyzed inductively, the results constituting the deductive base for the next selection and collection of data, which in turn is analyzed inductively, etc. Through the process the analysis consists of constant comparison, which builds on the idea of continuously comparing data from different sources, to determine what is important and essential in the material collected. The theory will then be generated or grow from data, being “grounded” in data at the same time. (Glaser & Strauss, 1967)

What can be considered as grounded theory is a matter of opinion, but in general it is considered to be a quantitative method. While Glaser (1992) argues that the researcher must begin his research from scratch, Strauss and Corbin (1990) acknowledge that the researcher cannot disregard his foreknowledge.

Though not quantitative, my approach to analysis is close to Strauss' version of grounded theory as it gives me the opportunity to use the general concepts of system development as well as my foreknowledge of theatre as a reference framework and "coding paradigm" in the analysis of gathered material. At the heart of grounded theory analysis is the coding process which consists of three types; open, axial, and selective coding. (Strauss & Corbin, 1990)

- open coding; the process of breaking down, examining, comparing, conceptualizing and categorizing data,
- axial coding; a set of procedures whereby data are reassembled in new ways after open coding, by making connections between categories,
- selective coding; the process of selecting the core categories, systematically relating each to other categories, validating those relationships, and filling in categories that need further refinements and development.

Similar approaches to the coding approach in grounded theory have been used in qualitative analyses, e.g. to categorize concepts with the intention to capture the "meaning" of the concepts based on the respondents "living experience". To that end, the pragmatic perspective has supplemented this coding approach as the coding paradigms have grown out of the perspective of the practitioners' experiences. (Miles & Huberman, 1994; Van Manen, 1990)

It is important to realize that I did not use a pure grounded theory technique, since I remain influenced by what I already know and my own personal constructs. Nor was the pure grounded theory technique fully appropriate in the part of my investigation in which I compared the models for differences. However, in the early stages, where my aim was to find and discover the elements of system development in the process of theatre production, the approach I used was basically borrowed from the grounded theory.

In my work, the "coding paradigm" was the generic system development structure, with its elements and their relations.

- In the "open coding" the purpose was to identify and classify concepts of theatre production and their relations to clarify and describe the conditions and context of the process.
- The "axial coding" focused on the relation of cause-consequence between the elements, to create models of the processes of theatre production.
- In the "selective coding" the emerged elements and relations were elaborated in relation to the general concepts of system development, as the latter in a sense was the coding paradigm given beforehand, to see to what extent the concepts and relations correspond to similar elements in existing system development models

Though it thus coincides with the pragmatic epistemology, I have not seen the grounded theory technique as conflicting with social constructivism. Even with a

pragmatic and social constructivist approach there is a definite need for interpretation of the material gathered, as the experiences and constructs can never be mediated fully from one person to another. Language as the intermediary of information and exchange of thought suffers from the disadvantage that words and expressions have different meanings in different contexts. This means that in every text there is important information to be read “between the lines”. This in turn, means that the interpretation of the text depends on associations that are not expressed. In that respect hopefully my own experiences have been useful in my making correct interpretations of the material gathered. (Egidius, 1986)

Logical analysis in qualitative research is often considered to be bound by context, but through the generalization of the setting in my research I consider these boundaries not to be confined to the context of theatre, but rather to the context of system development. In the logical analysis emphasis was on discovering concepts, behavior, events, etc, in the meaning of them for the respondents, which correspond to the social constructivist ontology. (Miles & Huberman, 1994)

From the analysis of the empirical material I have created a “type model” for theatre productions. The empirical material consisted of:

1. interviews of playwrights, directors, actors and other key figures from professional theatres;
2. production notebooks and similar publications from practitioners’ experiences, such as directors, dramaturges and producers.

The first interviews gave a first overview of the concepts used in theatre productions. These were further explored through the studies of the literature, and incorporated in the open coding phase. In the axial coding, concepts and relations from literature on system development were used and integrated into a prototype model, which in turn was discussed in further interviews, to see if it was consistent with the practitioners’ experiences, and if some concepts were missed.

This iterative approach continued into the selective coding phase, the interviews and further literature studies becoming more of a confirmation phase for the type model for the processes of theatre production. In the final analysis, the concepts were scrutinized from a system development point of view.

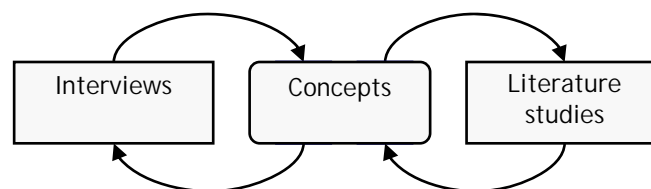


Figure 14. Iterative conceptualization

## 12.4 The second phase: studying a folk high school

To determine the degree to which the theatre concepts could be generalized, another study was made in a type of organization different from theatre productions; The Labor Movement's Folk High School in Gothenburg (AFiG – Arbetarrörelsens Folkhögskola i Göteborg).

As much of the concepts and models in theatre are built upon relations and interaction between several individuals, I wanted to study a context with considerable human to human interaction. The organization should be neither too small nor too large. An organization too small would result in too few possible relationships within the organization, which I considered a disadvantage from the perspective of possible analysis and generalizations. In an organization too large, my work could not be done expeditiously and the spectrum of relations would be too complex to overview, as I intended to investigate all types of relations.

As the area of research is relatively new and can be considered somewhat "specific", I needed contact with an organization with an "open mind" and hopefully an interest in this kind of research questions. It could be prejudicial on my part, but from that point of view, I eliminated all organizations producing goods, and narrowed my search to the service sector.

An aspect of my research was the relation between the concepts of data, information and knowledge, and from that perspective I found it interesting to focus my search for research objects among knowledge-intensive organizations, particularly schools. As also the relation between staff and students could be investigated, I further narrowed my search to schools with adult pupils.

Considering the size and type of enterprise in mind, I began to ask around in my vicinity among different possible objects, until I finally had a positive response from a folk high school in Gothenburg, with 25 employees and 200 students.

There are several intriguing similarities between theatre companies and educational institutions which made it especially interesting to select a folk high school; they both contain *temporary subsystems*; (theatre productions and courses), they both are based on frequent *human to human interaction* (collation, rehearsals, performances, lessons, meetings), and they are both *creative and social contexts*.

It could be argued that I had a similar institution closer at hand, the School of Business at Mälardalen University, but that would have been too close. Even though there's no such thing as perfect objectivity, I saw it as easier to hold myself independent with AFiG as the research object.

## 12.5 The research process at the folk high school

Though the study included all formal participants in the process, principals, executive board, headmaster, teachers, pupils and administrative staff, this study will only discuss two; the teacher and his interaction with pupils, and the teacher's interaction with colleagues. The study was made with ca 500 hours of observations followed by formal interviews with the teachers, some of the members of the executive board and a sample of the pupils (Abelli, 2006a, 2006b).

I spent most of my time for a semester in the premises of AFiG, and became almost considered a part of the school itself. After that I made occasional visits to make additional observations and interviews.

All of the staff of AFiG during my period of research have given input to my research in one way or another (appendix 2). In many cases they have only participated through informal conversations, e.g. in the staff office or on lunch breaks, but the formal interviews are listed in the table with dates. Most of the teachers have also participated by permitting me to make observations during their lectures, but most of all in staff and team meetings. Apart from the staff I also interviewed with some of the members of the executive board and a sample of the pupils.

### 12.5.1 Observations

I attended as many formal meetings and lectures as possible, but spent also much time in the staff room during coffee breaks. It was not possible to use a video recorder but have relied on my notes. As assistance in making notes, I had the models and concepts from the first study, during which I made notes directly. For this simplified test of a possible analysis I thought this was sufficient, even though a more complete recording of events, etc, could have revealed even more.

### 12.5.2 Interviews

I made the interviews at AFiG in much the same way as I made the interviews for the first study, using the concepts from the first study as mapping concepts and the theatre models as conceptual templates for the interviews as well as taking notes during the observations.

### 12.5.3 Conceptual analysis

The analysis of the folk high school was a straight-forward logical analysis, more like the use of a normative development model, comparing the various situations in the folk high school with the theatre concepts, in order to see if these could give a further explanation of what happened in those situations.

## 12.6 Putting it all together

In parallel with and after the study at the folk high school, I continued the analysis of the concepts from theatre productions. As the similarities between theatre and folk high schools became even more apparent, other patterns emerged than had before entering the second study, which made it necessary for me to recategorize the concepts, finally ending up with three key categories, that “made it all connect”. In table 6 the concepts that after the second study were moved or removed are struck through, while those that emerged are in italics.

Table 6. Categorization and recategorization.

| Key concepts   | Categorization before the second study            | Final categorization                 |
|--|---|--------------------------------------|
| Premise<br><del>Conflict</del><br><i>Conception</i>    | Premise and conflict                              | Contextual elements                  |
| <del>Context</del><br><i>Connection</i><br>Environment | Context and environment                           |                                      |
| Role<br>Identity<br>Character<br>Individual            | Characters, their functions and traits            | Interacting people                   |
| Collation<br>Rehearsals                                | Collation and rehearsals                          |                                      |
| Performances<br><i>Conception</i>                      | Performances and their conception                 |                                      |
| Manuscript<br>Deconstruction<br>Reconstruction         | The manuscript, deconstruction and reconstruction | Narrative and dramaturgical elements |
| Story<br>Plot<br>Dramaturgy                            | Story, plot and dramaturgy                        |                                      |

Some of the concepts were reconsidered in different ways, e.g. as *conflict* in theatre is a direct reflection of the premise, I have toned down that concept as a separate entity, and instead seen it as included in the concept of premise. *Context* turned out rather to be seen as a category as inherent in the two concepts of premise and environment, while the *connection* between and within those two emerged as a separate concept. Previously I connected *conception* to the performances, but later I regarded it as connected more closely to the premise, as it defines the intended conception of the play.

## 13 GENERALIZABILITY

This chapter gives an overview on how the results of the studies have been generalized.

It is crucial that the researcher identifies the critical evidence, e.g., interviews, documentation, and observations that will support the major hypotheses of the study including potentially contrary evidence that would support rival hypotheses. (Yin, 1989)

Dubin (1983) outlines some critical elements of theory-research linkage:

- A theoretical model is limited only by the imagination of the theorist in what he may use as elements in building the model, or the laws of interaction or boundaries he chooses to set.
- A theoretical model is not simply a statement of hypothesis; nor is it a catalogue of units employed and their definitions; nor is it a descriptive statement of a world of the scientific imagination
- The argument about the adequacy of the theoretical model is always and only an argument about the logic employed in constructing it
- The argument about the reality of a theoretical model, that is, whether or not it indeed models the empirical world, is a scientific issue that is resolved by research tests
- A theoretical model is a scientific model if, and only if, its creator is willing to subject it to an empirical test.

An appropriate developed theory not only facilitates the data-collection phase of the research, but also reflects the level at which generalization will occur. This latter role of theory may be characterized as “analytic generalization” which may be contrasted with another “statistical generalization” for generalizing e.g. case study results inappropriately (Yin, 1989). Not just any negative instance is sufficient to disprove a theory, if the instance doesn’t “fit” the theory well. In order to disprove a theory convincingly with a single critical case, the researcher must be able to assert persuasively that the case is more “like” other cases in which the theory could be tested than it is “unlike” them (Markus, 1989).

Table 7. Generalizability of a measurement or observation. (Lee & Baskerville, 2003)

|  | Generalizing to empirical statements               | Generalizing to theoretical statements                     |
|--|--|--|
| Generalizing from empirical statements   | Generalizability of a measurement or observation   | Generalizability of a theory within a setting              |
| Generalizing from theoretical statements | Generalizability of a theory to different settings | Generalizability of a variable, construct or other concept |

In the process of building a theory one important aspect is that of “generalizing”, that can be more or less problematic depending on which research method is chosen (Yin, 1989). Lee and Baskerville (2003) have made a significant contribution to the explanation of what could be generalized from what, in the context of which setting the research is conducted in (table 7).

**“Generalizability of a measurement or observation”** is the extent to which a measurement or observation can be transferred to, or said to describe, a phenomenon other than the one that was actually measured or observed. Perhaps the most well known form of this is the generalizability of a measurement, obtained through a random sample, to the population from which the sample was taken.

**“Generalizability of a variable, construct, or other concept”** is the extent to which a concept in a theory can remain the same when it is transferred to a different theory. It refers to the plausibility of making use of a theory in another setting than it was created for, hence creating a “new” theory. Examples of this category are Strauss and Corbin’s “theoretical sensitivity,” which is the grounded theory researcher’s familiarity with the theory in the existing literature and Eisenhardt’s “*a priori* constructs”. In both cases they refer to the generalizing of new theory from existing theoretical concepts. (Eisenhardt, 1989; Lee & Baskerville, 2003; Strauss & Corbin, 1990)

**“Generalizability of a theory within a setting”** refers to creating a theory from empirical material for the specific setting. This form of generalizability involves no statements about anything external to the setting examined in the study. (Klein & Myers, 1999; Lee & Baskerville, 2003)

**“Generalizability of a theory to different settings”** is the extent to which a theory can remain valid when transferred to a different setting. A theory that has been confirmed through deductive testing in one setting can be generalized to a new setting if one is willing to make three extra-logical assumptions (Lee & Baskerville, 2003):

- “uniformity of nature”; the closer two events are in time, space, and measured value on any or all dimensions, the more they tend to follow the same laws,
- “successful identification of relevant variables”; if all the variables that were present in the first setting and that were theorized as relevant to the shaping of the phenomena observed are also present and relevant in the second setting. This also includes the assumption that any variables not identified are indeed irrelevant,
- “Sufficient similarity in relevant conditions”; if a relevant condition is conceptualized as the particular value taken by a relevant variable, then this assumption would be that the value of this variable is sufficiently similar in both settings.

In addition to stating these assumptions, a researcher claiming the generalizability of his or her theory to a different setting should also clearly delineate, first, the values taken by the theory’s variables in the researched situation and, second, the difference in these values at the new setting to which the theory is being generalized. A reader



of the research could then take the responsibility for making his or her own decision as to whether the theory can be reasonably generalized to the new setting. (Lee & Baskerville, 2003)

In the first chapter of this section I believe that I have already shown that there exists “uniformity of nature” as well as “sufficient similarity in relevant conditions”. As some of the assumptions are made from my personal experience, it can also be said that a naturalistic generalization has been made, in which I, the researcher, to some extent have made my tacit knowledge into “explicit knowledge”. (Kvale, 1997; Stake, 1995)

I hope that it has been sufficiently evident that I also have made a “successful identification of relevant variables”, as another view in qualitative research is that the degree of generalization should be decided by the reader, not the author. This means that if I as reader can see the similarities and relevance, then the results can be generalized and applied to my organization, project or whatever the study concerns. (Kvale, 1997)

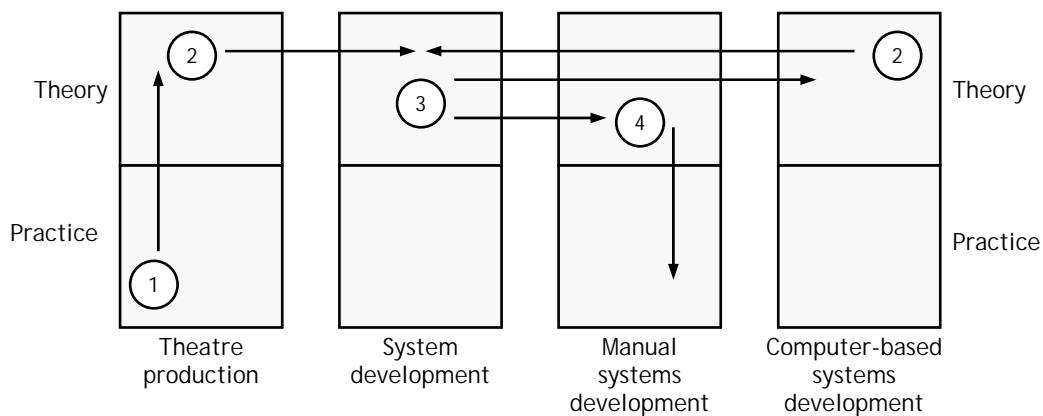


Figure 15. Generalizing in my research

Following the scheme of Lee and Baskerville (2003), I have drawn the following generalization paths for my research (figure 15):

1. Inductive research into the process of theatre production
2. Generalizing the concepts of system development from different settings
3. Elaboration of implications of the findings to different settings
4. Testing of the findings in different settings

The first step conforms to “generalizability within a setting”. The second and third steps conform to the “generalizability of a variable, construct, or other concept” as they are generalizations at the theoretical level only.

The third step can also be considered “generalizability between settings” as I have discussed the practical implications of implementing certain practices from one setting to another, which was successful in the fourth step, the study at a folk high school.

As I pointed out earlier, even if these settings are to some extent overlapping, they can be considered as different settings as some of them are more theoretical and abstract than others. From this perspective it can even be argued that the setting of “system development” in itself has no level of practice, as the practice only can be seen in the specific implementations in the other settings.

## 14 THE CRITIC'S REVIEW

As there have been many other possible research approaches to choose from, I present here advantages and disadvantages of those I've chosen.

### 14.1 The empirical material

Though I used a choice of convenience when selecting respondents for my interviews in the part concerning theatre productions, I believe that the picture outlined in this dissertation has captured the most significant concepts from theatre production.

The pragmatic approach required me to focus on capturing that which in the processes has worked in their practical experiences. As the theatre productions are to a very large degree dependent on individual efforts, their experiences are of course also their individual impressions or constructs of the situations in the productions. With the iterative approach, in which each new concept was supplemented with practitioners' references to them in the literature, and, in the next iteration were added to the concepts for the following interviews, I believe that a comprehensive picture of the process and how the concepts relate to each other has been obtained.

I have seen no need to present a complete picture of all possible process models, only of certain type models that can be further elaborated in future research. This dissertation is only a starting point in which the models outlined are only tentative in their nature.

### 14.2 The perspectives and methodologies

Methods which may seem obvious for my use are observations or in-depth case studies. I have not used these as I have used a pragmatic approach. I did have some initial possibilities to explore these at some theatres in my vicinity. The timing of the theatre productions, however, did not synchronize with my time-schedules and collided with other commitments such as doctoral courses and the scheduled work at my department. Nevertheless, I believe the interviews and literature studies have been quite sufficient to provide the necessary material for the preparation of this dissertation.

It can be argued that the pragmatic approach and grounded theory are incompatible but I make no claim to being either a pure pragmatist or a pure grounded theorist. A pure pragmatic approach would be insufficient to draw conclusions from other areas than the actual practitioner's field of work. A pure grounded theory approach can only to some degree capture the "true meaning" of the emerging concepts, their connection to the processes, and their usefulness. To that end a pragmatic perspective has complemented supplemented the grounded theory as parts of the coding paradigms have grown out of the perspective of the practitioners' experiences.

### 14.3 The researcher

It can be argued that my research has been excessively colored by my background as I could not possibly have disregarded my own knowledge or my own experiences in my research. In this case I rather argue that it has been more of an advantage than a disadvantage.

As my experiences from the world of theatre correlate with the experiences of my respondents, my performance of the analysis has benefited as there has been less risk of misinterpretations than if a researcher without my experiences had performed this study. The foremost advantage has been that I could use the terminology within the field directly, with less time consumed in familiarization with the basic concepts. The interviews began on a higher level and were more effective than if I had needed those explained.

Lee and Baskerville (2003) as well as Kvale (1997) place part of the responsibility for the validation of research in the hands of the reader, to decide as to whether the theory can be reasonably generalized and applied to an organization, project or whatever the study concerns. Even if this is consistent with the arguments in the previous chapters, that the final interpretation is in the head of the recipient, I have tried to make the conditions for my own interpretations as visible as possible.

A pragmatic validation of the models has been made through their reiteration with the later respondents, and as such my research for the dissertation is more than a mere description of the practice in theatre productions. I have, on the basis of these descriptions, made some further reflections on what this can mean for system development in other settings and in general.

I cannot claim honestly that “anyone” can take the models and concepts as described in this dissertation, and use them in the described way. I simply don’t know if my pre-knowledge and experience from real playwriting, directing and acting might have given me an unconscious advantage in the use of the material. If that should be the case, the dissertation rather points to another conclusion; that in order to analyze an enterprise with the “theatre” approach, the developer needs to have practical and theoretical experience from the theatre. Still, I won’t go that far, as I hope the presentation as such will give sufficient material to at least suggest further research in a similar manner, regardless of background and foreknowledge.

## ACT 2

### THEATRE PRODUCTIONS

*Art is the close scrutiny of reality and therefore I put on the stage only those things that I know happen in our society. I'm not interested in an imaginary world. I'm interested in the real world. And in fact, of course, all things that I put on the stage are understatements.*

Playwright Edward Bond in interview (Stoll, 1976)

*This act presents the study of theatre productions, which has mainly been inductive, inspired by grounded theory. The chapters hence correspond to the open and axial coding of concepts found foremost in the interviews, but also the literature on theatre has been viewed as empirical material.*

*The quotations interwoven in the text have been translated from Swedish to English, and are to be seen merely as examples of responses to enhance certain points made.*

FRIEND: Isn't it a bit farfetched to compare theatre productions with information system development?

ABELLI: Not at all, as theatre productions are organizations with the purpose of producing information systems, the theatre performances.

FRIEND: How can you say that theatre is information?  
I go to the theatre to be entertained...

ABELLI: ...as some use other information systems to be entertained. The usage of an information system isn't always limited to a single purpose.

FRIEND: But theatre is an art form...

ABELLI: ...and why not consider information system development an art form as well?

FRIEND: Huh?

ABELLI: You need creative skills to be a systems developer, just as any painter, actor, etc.

FRIEND: But system development has to be so structured, with phases, steps, activities...

ABELLI: And so does theatre productions. Let me show you...

## 15 THEATRE CONCEPTUALIZATION

|  |
|--|
| This chapter presents the most central concepts, as presented in the interviews. |
|--|

### 15.1 Creating categories

Most of the concepts from the literature were mentioned in the interviews at some point or other, along with synonyms and related concepts. As the interviews were based on the repertory grid technique, some concepts from the literature were never mentioned as I didn't force the respondents to discuss matters other than those that came to their own minds.

This final categorization of the concepts was not made until the end of the analysis, as part of the selective coding, but I have chosen to present the concepts in this format, as it makes an easier connection to the results when "returning" to information systems development.

**Contextual elements** – The theatre production deals with contexts at different levels, environments within the play as well as the external environment, the different time-space boundaries and all else that constitutes the setting of the play, such as different psychological, social, political settings. Most importantly, it also includes the most central concept of them all, the premise, which is the one thing that connects all things in the play, from the beginning to the end.

**The interacting people** – This category evolved from the realization that the individuals in a theatre production must be seen from several perspectives; the organizational individuals, as managers and staff; the artistic individuals as playwright, director, actor and spectator; and finally the theatrical constructions in their roles and characters. The explicit focus on "humans meeting in flesh and blood" in this category makes the theatre significantly different from other art forms and development processes.

**Narrative and dramaturgical elements** – This category includes the concepts related to the core of theatre; the staging of a play and the prerequisites for that artistic activity, all aesthetic elements, the use of signs and symbols and all parts otherwise connected with artistic creativity.

In the theatre, all three categories are closely connected to each other; the contextual elements make up the conditions for the play, which becomes a frame within which people act and interact, making use of all their artistic creativity to make the performance a memorable experience for the audience.

## 15.2 Contextual elements

The concept of context has a double meaning and can be considered as follows:

- As a preconditional setting, it includes the premise, and thereby guides the connection of events and artifacts to communicate the message,
- As an implementation it also refers to the time-space environment in which the play is set.

The perhaps most important concept in theatre and drama was said to be the “premise”, what the play is all about and what it is intended to communicate to the audience, beyond its pure entertainment value.

*The play must have a conscious message to build upon. Those who say that they don't have a specific message just don't know what message they will be telling. (from interview)*

*Yes, it's important, but we can't make it too obvious. We must let the audience think for themselves, or we just could hand out books or pamphlets. ... It's more of asking the questions than to give the answers. (from interview)*

The double notion of the premise as both the “message” and the “purpose” is shown clearly in this study, as “premise” has different meanings for different respondents. To some extent it can be connected to the question of what purpose the theatre itself should have; as only entertainment, or as something that will “change the world”, or at least “change the conceptions of the audience”. A common conception among the respondents is that theatre must have some meaning in the sense of the two latter, as the plays otherwise would be “uninteresting”.

*The premise should be so short and concise that it fits on the back of a matchbox. ... When we decide to stage a specific play, in most cases I don't decide on the premise beforehand, but let it grow during the rehearsals. In many cases it's better not to define a single premise, but to leave the room open for many interpretations. (from interview)*

The “conflict” is a reflection of the premise, but not all respondents agreed that it should be present. During the interviews, I began to suspect that even those who said that it wasn't necessary really meant another type of conflict.

*The tradition says that there must be a conflict in the play, but I don't think so. The play can be on psychological or social issues instead. (from interview)*

Even if playwrights build their scripts around a specific premise, they are also aware that when it leaves their hands, they lose control of what the play will communicate. In some cases they go so far as to simply leave that part completely to the director.



*I don't build the play around any premise. I'm only trying to write an interesting story, as the director anyway makes his own premise on the play. (from interview)*

There's an awareness of the differences in reception of the audience so that you never can be sure that the intended meaning is communicated.

*We can never know the actual outcome of the play, as each spectator has his own background and his own frames of reference. But we do the best we can to give the right conditions to guide their thoughts into the direction we want. (from interview)*

*There's a saying that the author writes one play, the director stages another and the actors perform a third. And then each spectator still creates his own image of what he has seen. (from interview)*

Although it contradicts the notion of mediating a specific message, some respondents have the opinion that the message is not really necessary as long as the audience gets something.

*The most important is that the audience get something out of the performance, whether it's what we intended or something else; they come to get an experience. ... When we stage something on a specific issue, we don't want them to be indifferent; we want to stir up emotions. It's better that they feel that it's a lousy play, with a lousy message, rather than being indifferent. (from interview)*

Just as the purpose and information of any system must be incorporated in the context of the organization concerned, the characters, their motivations and actions are incorporated in the context of the situation of the play – “the given circumstances”, the time and space of the story, in some specific environment in which the conflicts foreshadowed by the premise can be resolved?

*Some critics reacted strangely when we put up Macbeth as a fascist dictator, allegorizing on the neo-Nazism a couple of years ago. (from interview)*

Just as individuals can be seen at different levels from different perspectives, the context can be viewed differently. In the theatre, it is also a layered environment, as we have both the context within the play as well as the environment of the performance, both of which are significant for the audience's conception. Some productions even try to cross the borders between the two with different techniques.

*The closer we can get to an illusion of the real world, the more we can touch the emotions of the audience. (from interview)*

“The study of context” is an integrated part of the theatre productions development process, since the actions of the players are differently motivated depending on the time-space boundaries, characters and plot in the play.

*We have to be careful to not overuse special effects. It can be too much of the red light in the love scenes. ... One scene was supposed to be in the evening, and the director became furious when the thunder and lightning on that stormy evening began. He actually wanted a soft and clear summer night instead. (from interview)*

The spectator's conception of the performance of the play including the context and environment of the performance determines what message they take with them when they leave the theatre.

*You can't put up Hamlet the same way as in Shakespeare's time. The audience has other references today. (from interview)*

### 15.3 The interacting people

*That's what differentiates theatre from most other art forms; the meeting between humans in flesh and blood. (from interview)*

The collation is the first formalized meeting between the director and the cast, but in most cases all personnel involved in the staging are gathered. It usually begins with a presentation of the premise, by the director, to the ensemble, often followed by discussions and explanations of certain elements of the play, especially if the director has made significant changes from the original manuscript.

The collation can also include a presentation of the work from supporting processes, such as those working on scenography, costume and light, where the initial ideas for those visual elements are presented, including the overall staging idea from the director.

At the collation the director often gives each actor the identity of his character. The director builds an elaborated identity for each character, which he will use later in the directing phase to instruct the actors. I have chosen to use the term "identity" as the concept of "role" is closely associated with the *function* of the character, without including the traits of the character. The identity is also neither the character from the manuscript, as that is only the author's description of the character, nor the complete character, as that only can be constructed by the actor with the inner workings, to give "flesh and blood" to the character. By "identity" I mean the "image" of the complete character, as the director has constructed and envisaged it from the outside. The identities are the actors' keys to the relations of the characters to the premise and the other characters in the play. As the director must envisage these identities beforehand, the collation in most cases doesn't occur until the director has performed at least the first iterations of analysis and design.

*It's important to realize that the actors never can play the character I wrote, they can only play their image of what they think I meant, as they can't read my mind. (from interview)*

During the collation, questions emerge about the play, the staging and the premise, and are discussed to create a common starting point for further work. The collation usually ends with a first joint reading of the play which marks the starting point for the rehearsals.

During the rehearsals the actors receive their blocking instructions from the director. The rehearsals are the real implementation of the play. In these situations the director interacts directly with the actors, using speech and body language as the preferred means of communication.

*It's not about telling the actors what to do, but to motivate them to figure out for themselves what the characters should do. (from interview)*

In the first rehearsals the actors and director concentrate on one scene at a time, but toward the end of the rehearsal period, longer sections of the play are acted and at the conclusion of the period, the entire play is performed in general rehearsals.

Previously, the analysis and design of the characters were the sole responsibility of the actors, as they also included the learning of the dialogue, but in modern times, many professional theatres have extended the rehearsal period to include this. With this change, the exploration involved in the analysis and design phases has also become more of a collaborative effort.

*The actors of today have become lazy. In the old days they learned their lines before they came to the rehearsals, but nowadays they use the rehearsals to learn the lines. (from interview)*

In collaboration with the director, the actor analyzes the script to explore his own character in the play, to chisel out its visible characteristics and traits as described there. Some directors already have a clear idea on how they want each character to be played, others formulate questions at issue and use the rehearsals to explore the course of events to discover and set the actions. The former type of director “gives the answers”; the latter “asks the questions”. The director ensures that the actor doesn’t “fall out of character”, and guides the actors to enhance the communication of the premise.

*The directing is much a question of making the actors believe that they discovered the characters themselves, though I really have conned them into doing what I wanted them to do. (from interview)*

The actor studies the visible traits of his character as they are described in the text, deconstructing his part of the dialogue in the script, disassembling the character into biological, physiological and psychological traits, i.e. creating a background to the character to discover the motivations of the character’s actions and reactions in any situation that occurs. The actor then reconstructs the character into the play, mapping the actual actions and reactions of the script and the emotions and expressions the

character should show for each section and scene of the play on the basis of the character's motivations.

*During the first rehearsals, when I'm exploring the character, the lines trigger certain emotions, which in turn can trigger certain actions. If the play is well-written, these sequences follow naturally, and not much analysis has to be made. (from interview)*

One actor drew a "concept-line" to explain how these concepts follow sequentially when constructing a scene:

*Script line → Thought → Action*

He also drew another concept-line which he referred to as the "Finnish" approach, as he had the experience that it is more common in Finland than in Sweden:

*Action → Thought → Script line*

Each of the concept-lines describes different views of the dialectics of human nature, whether we do things consciously and deliberately or if we "act first, think later". Depending on which of these views of a specific scene is applied, the scene will be structured differently. In the "Finnish" variant the "action" can in itself be delivered by either the play actor himself or his co-actor.

Among the respondents, the most common approach to directing and acting is associated with "realism", most referring to "method acting" as presented by Stanislavskij and Strasberg, even if it is seen as very important to maintain the difference between being the character and the real life actor.

*I get upset if my actors can't see the difference between acting and real life. If the character is to get horny, it would be a catastrophe if the actor actually got horny. The key is to make the audience believe he gets horny without actually being it. (from interview)*

In the development of a theatre performance, nothing can be truly "routinized", since every movement and gesture must be motivated in the context of the "premise" and "plot" of the play. On the other hand, they *must* be routinized to some extent, for the actors to be able to play the same performance some hundred times or more. The technique described by many respondents is to enter into the character as far as possible during the rehearsals and analysis of the play, in order to find the right expressions, but then to "mechanize" them, finding the body language that gives an image of these emotions and expressions, without the need to actually experiencing.

*I have seen several actors who have been broken down to mental basket cases, when they have played a role too many times, and have not been able to distance themselves from their character. ... There's a classic dialog between Dustin Hoffman and Laurence Oliv-*

*ier, when Hoffman was supposed to play tired and worn, and hence didn't sleep for three days. Olivier then asked him "have you ever tried 'acting'?" (from interview)*

Even though the common paradigm among the respondents seems to be the "naturalistic" and "realistic" approaches, they also consider acting with "distance and irony" as important concepts, although not only always completely separated from the realistic framework.

*We strive to surprise the audience, and a comic affect comes from mixing characterizations and styles. Imagine an ordinary family sitting at the dinner table, and then there enters a character as cut directly from Commedia dell'arte, with hunger as the only driving force. (from interview)*

In the theatre productions all participants are "knowledgeable agents", but there is also an element of "emotions" and "feelings" that makes some actions not fully explainable. They just know that "it works" in the particular scene. In some cases, the "art" takes upper hand over the theatre production. Although every professional playwright, director or actor has developed techniques for their tasks, there is still the element of "imaginative creativity" crossing paradigm borders, which explores new and different ways of expression.

*You could think that it's extraordinary that we're always on schedule, but it's really a matter of a team effort. If we're running late in the rehearsals everybody gives that little extra that's needed to get us on track. As long as I have worked with this theatre, for the last ten years, we have only canceled one premiere. The leading actor had broken a leg the day before. (from interview)*

#### 15.4 Narrative and dramaturgical elements

Even if the theatre performance is foremost an enactment of human actions, it is based on a text, the manuscript, containing the dialogue and the didascalies, but especially revealing the structure of the events. A "cleaning" of the manuscript from didascalies makes the participants free to apply new meanings and possible interpretations.

*The first thing to cut out is the author's stage directions. They are only in the way when we interpret the play, and chisel out the premise. But every now and then I have stumbled upon very well-written plays. One example is when the author had written "pause" in the stage directions and however I tried; the pause actually had to be there. (from interview)*

In this process, the text is deconstructed; the director separates the manuscript into acts, scenes and action sections; as well as performing a deconstruction of the characters and dialogue, in order to reveal the possible interpretations and premises. I have used the term deconstruction instead of disassembling, as it is a means to get behind foregone interpretations of the elements. My use of the term deconstruction hence

includes more than Derrida's use of the concept. While it still signifies his notion of getting behind the "obvious" meanings of words and actions in the play, I also include the "physical" disassembling of the play into its smallest parts, in order to perform the deconstruction. (Fortier, 2002)

The disassembling of the manuscript into acts, scenes and action sections has several purposes, one being to simply structure the manuscript to get a better overview.

*Sometimes you wonder at the first reading of a manuscript what the author really means with some passages. After the division of the manuscript it suddenly becomes very clear what he meant, and gives a completely new light on what the author's message is. (from interview)*

From the basic material obtained, several possible interpretations have emerged and the director chooses one from these. When these decisions are made a reconstruction follows from the deconstruction; the director can e.g. decide to exclude scenes or sections, or reorder them, to emphasize the premise decided for the production.

*Especially when we're playing the classics, we have to cut out much of the manuscript. I don't know how long the performances were in Shakespeare's time, but if we put up Hamlet without any changes in the script it would take at least five hours. (from interview)*

From the division the director often creates a *fable*, a recollection of the totality of events that will occur in the play.

*At the collation it's important to give the ensemble a quick glance on what it's all about. The fable can be one approach to do this before the first reading. (from interview)*

Each section can then be further elaborated regarding tempi, emotions and motivations for each character.

*I actually have two collations in one, directly after the first reading together with the ensemble; I walk through the manuscript, telling the actors to number each section. Then it's so easy to say which sections we're working with during the rehearsals. (from interview)*

## 16 TYPE MODELS FOR THEATRE PRODUCTIONS

This chapter presents type models of the processes in theatre productions, describing a possible implementation of the theatre processes.

Modern theatre productions are performed in a sequence of phases in which some activities are performed iteratively. If we strip down modern theatre productions to the bare necessities to create a performance, we have extracted “the core processes of theatre production”. Input is the message or knowledge the producers of theatre want to pass over to the audience; output is the information and/or experience of emotions the performance in itself mediates to the audience.

The phases in a theatre production are closely connected to different developer roles, although these can overlap in practice. This is similar to computer-based systems development in which one and the same individual can be analyst, designer and programmer. The core processes of theatre productions maps to the roles defined as playwright, director, actor and audience. Figure 16 illustrates how these processes relate to each other.

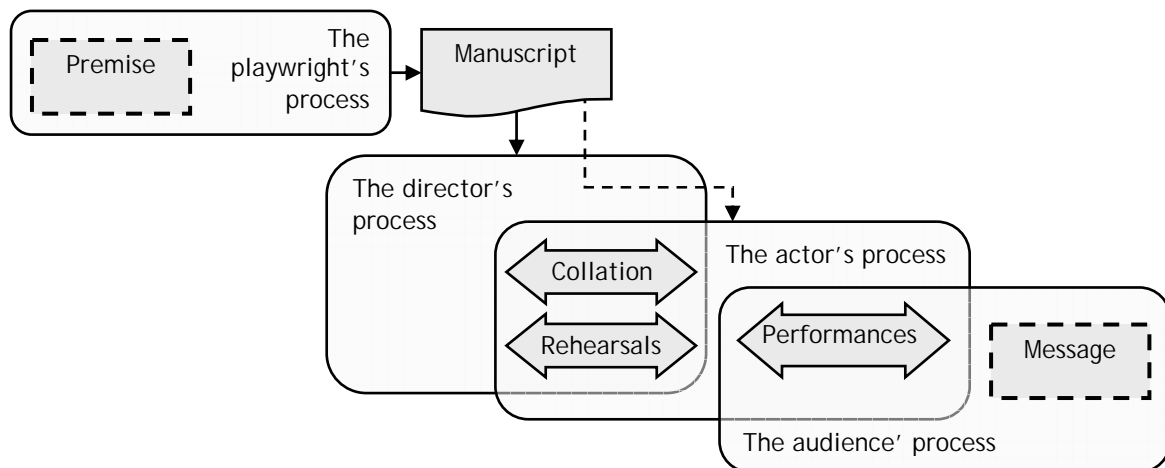


Figure 16. The transformation of the premise to a message for the audience.

The pure text in the manuscript is in most cases the bearer of one or several possible premises that can be modified through the process at several stages and levels of the production.

### 16.1 The playwright's process

Most theatre productions begin with a ready manuscript and develop a performance from the text with the addition of visual, audible and other elements. Some ensembles, however, prefer to create the script through improvisations over a specific theme.

Writing a manuscript for a stage play can not be described as one standardized process, as it is very different from writer to writer. It can still be described as a structured development process, since most successful plays contain some crucial elements that will be emphasized in this description (figure 17).

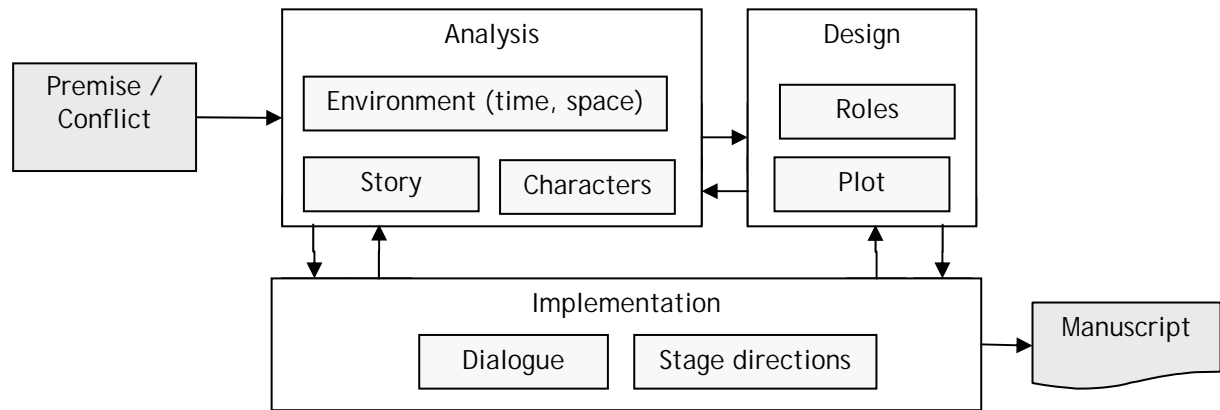


Figure 17. The playwright's process I.

Not all playwrights consider the premise to be as important as the story or plot.

*I have several possible starting points where to begin the story, often it's something I have heard on the news that upsets me, but it can be something simple as a conversation I overhear on the bus. (from interview)*

In the **analysis** phase the playwright makes use of his imaginative, creative and narrative ability in determining how the premise should be presented and how the information is to be coded into interpretative data as dialogue, emotions, expressions, actions and reactions in formalized scenes. The playwright creates tentative situations in a specific environment for which he invents characters for the play, these characters supporting or objecting to the issue in question.

*Sometimes the antagonist isn't a person, but the situation itself, something that the character can't do anything about, it just happens, falls upon him. (from interview)*

In working with the situations, the playwright creates a story; the chronological sequence of actions in the play, i.e. what actually happens. The story is often set in some specific environment in which the conflicts inherent in the premise can be developed.

*I often imagine an empty room, where I let the characters simply talk to me, telling me who they are and how they relate to each other. Most of it never makes it to the script, but lingers in their behavior. ... Then I try to put them into an awkward environment, something that could trigger unexpected responses from them. (from interview)*

In the **design** phase the playwright works on the plot, determining how the story, the characters and the conflict are to be presented on the basis of a chosen dramaturgy.



*It's a bit too easy to get stuck in my own image of the characters, but theatre must have action. There must be plenty of space in the script for them to move and act, not just sit and talk, not even when I write for radio theatre. (from interview)*

The **implementation** phase is the actual writing of dialogue and stage directions e.g. directions for emotions and expressions or placements on stage. In practice this is done in parallel with the analysis and design phases.

*If I'm writing a drama, something supposed to be realistic, I visit some environments that could be part of the play, and just sit and watch, taking notes and lines from what's actually happening (from interview)*

All phases are iterated several times as the plot constructed can reveal gaps or inconsistencies in the story or within characterizations which must be further worked on. This, in turn can lead to changes in the dialogue and stage directions. Note that there is no operations phase in the playwright's work, as the manuscript is not set in operation until the actual performances.

The playwright's work is one of the most individual processes in theatre production, and will differ significantly, depending on the playwright concerned. The model in figure 18 approaches closest to the "scholarly" view on the playwright's work (Egri, 1960), but other authors de-emphasize the character and focus more on the analysis of the functions, i.e. their roles in the premise. The definition of character then becomes a question of design rather than of analysis.

At the other end of the spectrum there are even playwrights who focus only on the story and characters "as the director anyway makes his own premise on the play" (figure 18).

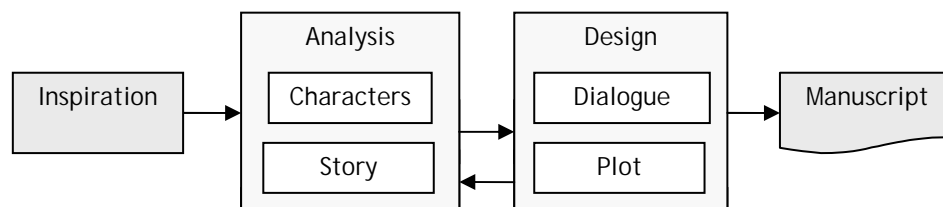


Figure 18. The playwright's process II.

## 16.2 The director's process

The pure text in the manuscript supports several possible premises that can be altered during the process at several stages and on different levels of the production. The director, often in collaboration with a dramaturge, works up the manuscript to emphasize certain aspects of the original premise, or to chisel out another premise for the actual production. The final goal for the director's process is to direct the actors in performing a play ready for presentation on the stage.

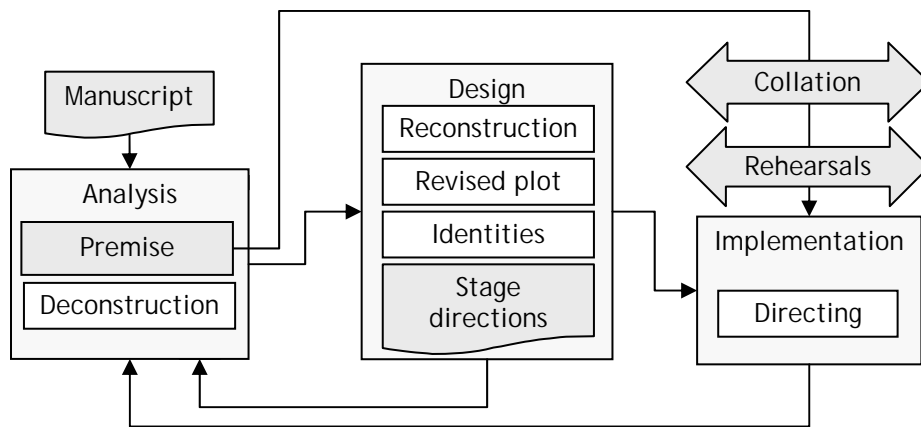


Figure 19. The director's process.

In the **analysis** phase the director reads the manuscript to get a broad picture of the play and a first feeling of what alternative interpretations there can be of the play. He then divides the manuscript into acts, scenes and action sections; as well as making a deconstruction of characters and dialogue, in order to determine more definitely the possible interpretations, and chooses one to be the tentative premise for the actual production.

In the **design** phase the director reconstructs the play, to see how the sections, scenes and acts work together e.g. regarding tempi and rhythm, entrances and exits. Although the reconstruction sometimes results in the original plot<sup>11</sup>, the director may change the sequence of sections and scenes to build a plot somewhat different from that in the original manuscript. From this work he has created a first draft of revised and more detailed stage directions.

The previous deconstruction may also have revealed possible alternative actions and reactions for certain characters to further enhance the communication of the premise. In this work the director builds a modified identity for the characters concerned, which he will use later in instructing the actors in the directing phase.

The **implementation** phase begins with the *collation*, the first formalized meeting between the director and the cast. It usually begins by the director presenting the premise to the ensemble and continues with discussions and explanations of certain elements of the play, especially if the director has made significant changes from the original manuscript. The collation can also include a presentation of the work from supporting processes, such as those working on scenography, costume and light, where the initial ideas for those visual elements are presented. The collation usually

<sup>11</sup> It is most common for revisions of the plot to be made, especially when playing the "classics". The plot remains unchanged mostly when a play is being performed for the first time and will have its world premiere.

concludes with a first joint reading of the play. The collation meeting is usually held after the director has performed at least the first iterations of analysis and design.

It then continues with *rehearsals*, the director interacting directly with the actors through the explicit *directing*.

*Though it's really a collaborative effort, as a director I'm responsible for the overall artistic performance. (from interview)*

If flaws in stage directions, characterizations or even the story or plot are revealed in this process, it will be necessary for the director to make another iteration in order to analyze and further rewrite the script.

*There are of course pure technical aspects of the directing as well, to make the actors come in and exit in the right directions, to put them in places on the stage where they're seen and heard, etc. (from interview)*

### 16.3 The actor's process

The **analysis** phase for the actor usually begins at the *collation*, where the director presents the *premise* for the production, and gives each actor the identities of their characters, the keys to their relations with the premise and the other characters in the play. The *manuscript* is collectively read and any revisions of the manuscript made by the director or the dramaturge are noted.

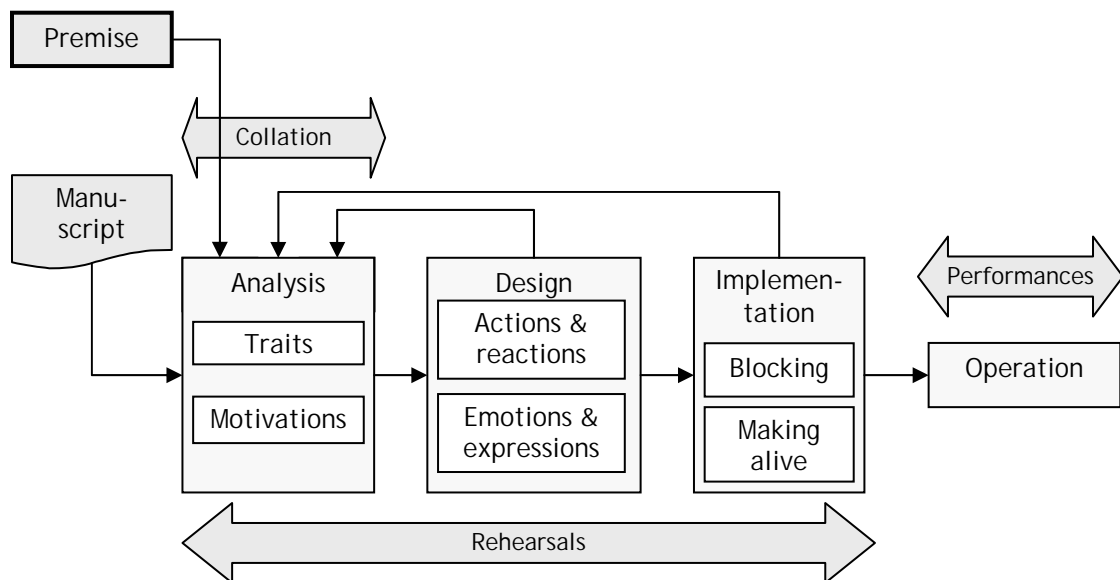


Figure 20. The actor's process.

Often, the actor does not see the manuscript before the collation. It has however, become more common in modern times for the actors to receive a copy beforehand, to

learn something about his character and hence be better prepared. He analyzes the script to explore his own character in the play, to chisel out the characteristics and traits as described in the script.

The actor further deconstructs the character into *biological, physiological and psychological traits*, thereby creating a background to the character to discover his *motivations*. This is part of what is called “giving the character flesh and blood”. Some central concepts in the actor’s work with his character are the so-called actor’s “W’s”.

*We really use more than the “five W’s” to build our characters. Sometimes you need to write a complete biography with a complete CV in order to understand his behavior. What happened in his childhood, what traumas made him become the human he became? (from interview)*

In the **design** phase the actor reconstructs the character into the play, to map out the actual actions and reactions, as well as what emotions and expressions the character should show in each section and scene of the play, based on the character’s motivations.

*One of the most creative parts of the rehearsals is when we sometime improvise on scenes that really aren’t in the script, like when Othello and Desdemona<sup>12</sup> first met. What was their meeting like? How did they fall in love? How did their love become so strong? These improvisations give a lot to the characters. (from interview)*

In the **implementation** phase the actor makes use of the traits, motivations, actions and reactions gathered from previous phases, making the character alive by merging the actions and dialogue with the blocking directions.

*To be an actor is about listening, to interact with the others, rather than to just play your own part. (from interview)*

Although many actors try to comply with the old traditions of “learning their lines before rehearsals”, some claim that they don’t really “set” until they come into the actual context of the play, when meeting the other actors.

*The hardest part for me is not to learn the lines, though I know several colleagues that have trouble with that, no, it’s to make the lines sound credible. Especially the older plays, like Shakespeare, Molière, etc. There is the challenge, to make the words my own. ... When I have come into the character, and the lines sit there, I can concentrate on the acting, and let the words flow. Like it’s really spontaneous, here and now, for the first time, every time. (from interview)*

During the *rehearsals* the actor is directed by the director; how to say the lines, suggesting motivations and actions, where to stand and walk on the stage, etc.

---

<sup>12</sup> The main characters in the play Othello by William Shakespeare.

## 16.4 The audience' process

I have had no direct input from audiences in this study, but several theatrical professionals have given me their thoughts on the subject, mostly confirming what the literature says or perhaps even quoting the literature. Several of the theatre companies have rehearsals open for the public, experiencing this differently.

*One problem with inviting the audience to open rehearsals is that our actors become so nervous; they try to play the performance instead of seeing it as just a rehearsal. Then they might be stuck in behaviors that should have been eliminated. (from interview)*

Even if we could express the audience' process in terms of a development process, it might be a most illusive one. When we discuss their processes with the other core roles, they tend not to use the term "development model" in their work, and therefore we can expect even less from the audience.

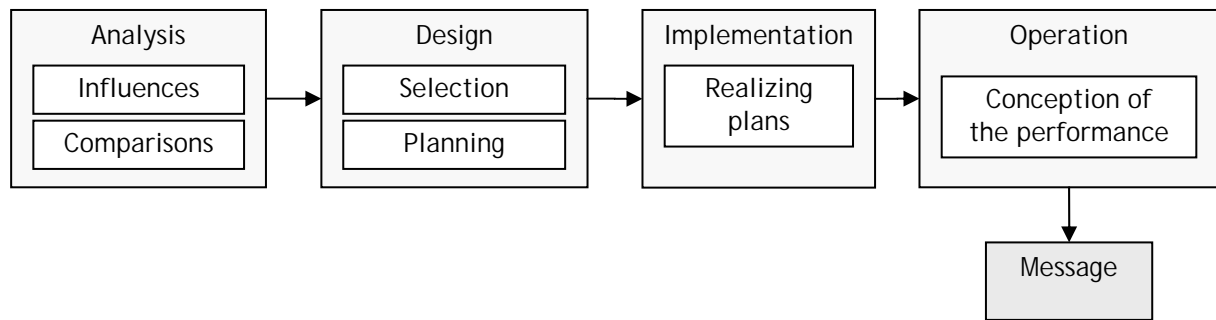


Figure 21. The audience' process.

Nevertheless, we could tentatively divide even the audience cognitive work into the phases of a development model:

- The **analysis** phase includes the influencing of the spectator by his reading and comparison of advertisements, reviews and comments from friends, leading to a decision to attend a specific theatre performance.
- In many cases the attendance at the theatre is not an isolated event, but is incorporated in social interaction with family and friends. We can then consider the planning of the evening out as the **design** phase.
- The **implementation** is then the realization of those plans, e.g. possible reservation of table at the restaurant, buying the tickets, and other active preparations, etc.
- Finally, the system is put into **operation** with the actual experience of the performance, with the spectator's reception of the play including the theatrical environment, which together determine the message taken with them when they leave the theatre.

Such a model could be of help in viewing the audience process as a structured process, in order to categorize the audience' elements of development activities, whether active, reactive, proactive or reflective. On the other hand, the audience' perception and conception of the theatre play is neither structured nor even a finished process, as it continues long after the actual performance. In this sense the audience' process could benefit more from being compared with the adventure-based learning model, as each performance is a new experience with an unpredictable outcome (figure 22).

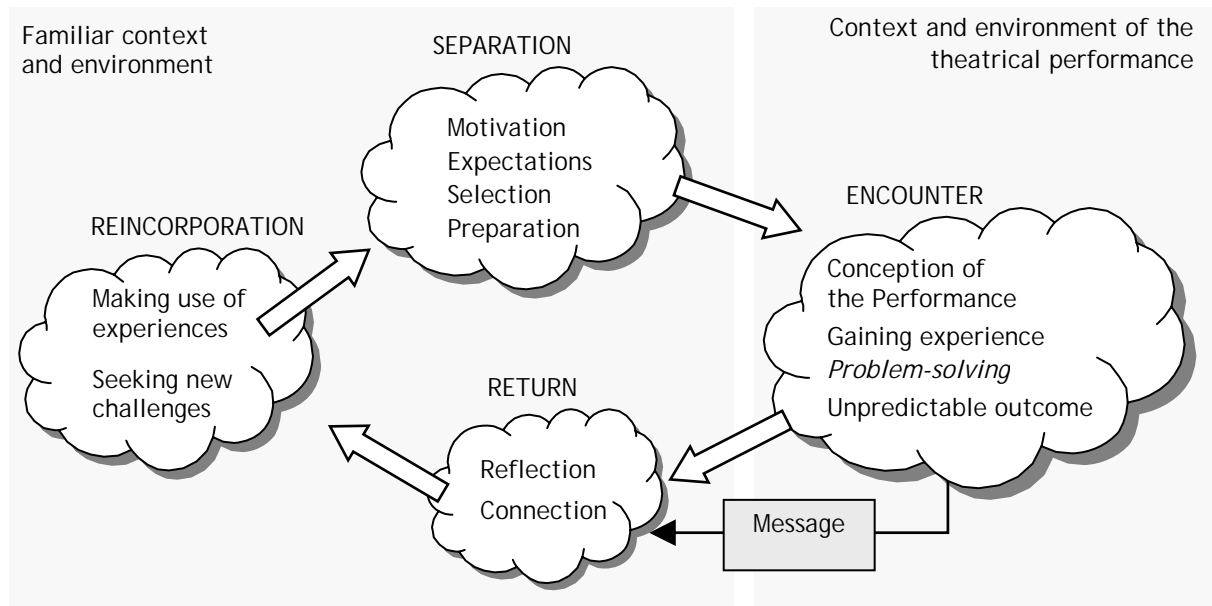


Figure 22. The audience' process.

## 16.5 Summary of the core processes

During the research process several alternative models of the core processes emerged. Those presented were chosen after the final analysis as the most typical recognized from the practice of theatre, but that still accords with the general description of the information system development process.

The type models show clearly the iterativeness within the core processes, but it must also be said that the concepts can appear in a different order depending on what type of play is produced e.g. some of the concepts relate in some productions to analysis, while in others, they rather relate to design.

Table 8. A tentative comparison of the stages in the processes

|                | The playwright's process   | The director's process   | The actor's process  | The audience' process  |                                    |
|----------------|--|--|--|--|------------------------------------|
| Analysis       | Selecting a premise to write from. Creating the characters and the story, for a specific environment | Deconstructing the manuscript, selecting a premise             | Reading the manuscript to deconstruct the traits and motivations of the character  | Being influenced by the environment, comparing plays, reviews, etc | Separation                         |
| Design         | Constructing the plot, defining roles for the characters   | Reconstructing of story and plot, elaborating stage directions | Reconstructing the character to design actions and reactions, emotions and expressions for each scene and action section | Selecting and deciding which play to attend                        |                                    |
| Implementation | Writing dialogue and stage directions  | Directing the actors   | Making the character alive   | Realizing plans  |                                    |
| Operations     |  |  | Execution of the performance   | Conception of the performance                                      | Encounter, return, reincorporation |

Each of these development phases is more at a conceptual than a practical level, i.e. they are not really phases in the same sense as in information system development. They are mostly not performed consciously as “phases”, not used as actual steps in theatre productions, although my respondents claim it would be possible.





## SECOND INTERMISSION

### REFLECTIONS FROM THE THEATRE STUDY

*Art consists of knowing the basic rules and realizing when it is time to deviate from them.*

Prof. Joseph Mashkan in "Old Wicked Songs". (Marans, 1996)

*The analysis of theatre productions is concluded in this part, as the reflections on categories and concepts are now being related to information systems development.*

*This intermission is then concluded with suggestions on how to use the model for analysis of organizations in other contexts than theatre.*

(FRIEND enters with two cups of coffee)

ABELLI: Thank you...

FRIEND: Thank you?

ABELLI: (pause) ...for the coffee...

FRIEND: It's not for you! I need two cups myself, so I won't fall asleep when you get started on epistles and undulations.

(ABELLI looks surprised, pause)

FRIEND: (laughs)

Just kidding.

(hands a cup to ABELLI)

Are you done yet?

ABELLI: No, I have just begun. I have to draw some tentative conclusions from this research to begin with...

FRIEND: To begin with?

ABELLI: I have shown how the theatre production can be formulated in terms of a system development process, but what are the consequences of that?

FRIEND: Consequences?

ABELLI: How can I use that knowledge? How can others use that knowledge?

FRIEND: Isn't that a task for you? To point out how it can be used?

ABELLI: (sigh) That's what I just said...

FRIEND: I'll shut up for a while...

ABELLI: Thank you.

## 17 BACK TO INFORMATION SYSTEMS DEVELOPMENT

This chapter concludes the analysis of the theatre concepts, by comparing them with concepts and practices from information system development

Thus far I have shown some similarities between the development processes for computer-based information systems and the development process in theatre productions. These include the information-based purpose “the premise”, the structured production process with clearly separated activities, and the core and support processes common to both.

### 17.1 Contextual elements

One of the most important notions from the core processes of theatre production is the importance of context. Context as a concept can be many things; on one hand the pure environmental aspect, which in a theatre has several layers; on the other hand it also connotes “that which connects”. Every single item in the performance is intended to have some meaning in the overall system, on the basis of the premise of the play. In this sense we can consider the processing of data as “the story to be told”, and the user interfaces, *including the time and space environment*, as parts of the plot, both having significant meaning in the purpose of the system.

In the theatre production the function of the playwright is mainly to give an outer setting to the play; the story, characters and the plot, based, in most cases, on a specific premise. In relation to information system development this premise is not as interesting as the premise the director decides to work upon, while remaining within the framework established by the manuscript.

The premise of a play has the double function of being both the purpose and being the information to be processed. The basis of the play is a conflict, which is to be resolved, between a situation and a desired outcome. As in traditional system development, we define a task to be performed by the system, but as the use of a premise is both purpose and the information to be processed, it can be further elaborated than a traditional task, as well as kept on a more general level.

One of the main differences between the theatre as an informing system and computer-based information systems, apart from the theatre not being computer-based, is that the theatre includes elements of information that are not easy to codify otherwise, but enhance the experience and can make it easier to interpret expressions of emotion and the articulate reasoning in dialogues between the characters.

The notion of the importance of context cannot be overemphasized as the actions and sentiments of the characters are based on the specific situation, determined by the

environmental factors of time and space, both before and after the curtain is raised, as well as the actions and events occurring in previous scenes.

No information system can be seen in isolation from the organization or context in which it is deployed. If it does not support the business processes of the organization, it is more counterproductive than productive. An information system can be of particular importance during changes in an organization and the need for bridging the communication gap between business people and systems people has become more important than ever. As the context for an information system emanates from the organization, the premise for an information system, i.e. its purpose, goals and available information and knowledge, is determined by the premise for the organization. In the theatre, it is important that the ensemble, particularly the director, remains in touch with reality. If the director is divorced from reality, the transmittable contextual conception is missing.

To make practical use of the duality of a “premise” in IS/IT, we must first identify the types of systems for which its use could be appropriate. The double use of the premise could indicate that the information system most appropriate for an approach of this kind could be one we need (purpose of the information), but has yet to be developed (the purpose for development), on the basis of the information available.

On the other hand, other signs indicate that it would be best suited for systems that are constructed “indefinitely”, i.e. are not to be deployed and set into production once and for all, but are to be reevaluated and reconstructed constantly as the organization changes constantly due to changes in requirements, its context and in the technological environment.

This context can be an issue in the case of manual systems which are under constant development, as they cannot be codified and programmed. Skyttner comments on soft systems, the boundaries of which are not easily defined and also on systems associated with social problems, which can never be solved, only resolved over and over again. (Skyttner, 2001)

In traditional system development one or more ways of performing a task are developed and the “the most suitable solution” is chosen. In the processes in theatre production there is also a tendency to develop several, different alternatives i.e. not to confine the process to a single way to perform a task. More contextual information then becomes available, that from the additional perspectives. This notion is also supported by research into cognitive processes that claim that the larger the part of the context that can be “transmitted” the more it facilitates a “correct interpretation” (a holistic view on context, e.g. “feature analysis” from cognitive psychology).

Lundberg (1994a) points out the difficulty in specifying information both desirable and obtainable in many decision-making situations. The specification of such information is often in broad terms, more of “something about” the topic concerned, rather than specific items of information.

It is important not to formalize or codify the information and knowledge with the individuals in systems of this type, as we then run the risk of disregarding knowledge important for solving problems arising.

In theatre production each character is deconstructed and reconstructed to give it the traits required for the role it is to have in relation to the premise. This gives a new perspective on the skills and competence required of developers and users of the system, especially if the system is such that it needs to transmit uncodifiable information. The context has a great influence on the individual, both as “character” and as “role” (function of the individual within the organization or system).

Contextual definitions can be captured through iterated “improvisations”, i.e. constant and repeated questioning of what is transmitted (purpose, information, meaning, knowledge). This is consistent with the objective of creating more “naturalistic” systems, rather than merely engineering “machine systems”.

Table 9. How the contextual elements correspond to IS/ISD

| Concept     | Correspondence  |
|-------------|---|
| Premise     | On the surface, the premise can be seen as the same as “scope”, “purpose”, “goal”, etc, but the premise is both simpler as concept and more complex. It signifies both the intent and purpose as well as incorporating the sententia of the play, thereby being both input and signifying output.<br>While the conflict in theatre is an expression of the premise, the conflicts in ISD are rather conflicts between different premises, between different stakeholders, user groups, etc. |
| Conception  | In the theatre, the developers are aware that the outcome will be different perceptions by the audience.  |
| Connection  | In IS/ISD the context is considered in certain static terms, such as how the system can be incorporated in the organization, but it is not included into the system to the same extent as in theatre.   |
| Environment | The hardware and software environments (platforms) are considered, but the environment as a social arena is seldom recognized.  |

## 17.2 The interacting people

As part of the information system, different aspects of the individuals must be considered. From this study we see that they can be viewed from least four perspectives:

- The *roles* as the function in the play,
- The *identities* as the image of the character,
- The *character* itself, an enacted individual.
- The *individual* himself, the physical and social being.

The distinction between role and character has long existed in the theatre but during my study of theatre production I recognized the need to introduce an intermediate

concept to describe what the director expects from the actor, but distinct from it, as the character only can be what the actor himself makes of it. The theatre production then gives us at least four levels of views of the individuals involved; as the *individual* performing as a *character*, making visible the given *identity* based on a given *role*.

Table 10. How the concepts of interacting people correspond to IS/ISD

| Concept      | Correspondence  |
|--------------|---|
| Role         | The concept of role has long existed in IS, ISD as well as in organizations, but the notion of the manifold application of role has not been expressed clearly; the explicit function as a developer or user in the development process, as a user of the process, and as a member of the organization. These three roles can in certain situations generate different perspectives, which make the development process more complex. |
| Identity     | The development management ascribes certain traits to each individual of the staff; e.g. specific technical as well as social competence.   |
| Character    | The enacted character is a social being who tries to “fit” into the structured and regulated context.   |
| Individual   | The actual individual is a social being who moves between different contexts; work-related as well as private. His actions and reactions relate to all of these contexts and are formed by his biological, physiological and psychological traits.  |
| Collation    | At most meetings in a development project, issues are presented for the first time, some with an allocation of resources (casting), but the collation should also include the director’s presentation of the underlying premises.   |
| Rehearsal    | A direct correspondence is the test phase of the system, in part or as a whole. Education of the users on the system can also be regarded as rehearsals, but there is seldom a notion of testing the manual routines in the existing models.  |
| Performances | The concept of performance can be compared with the actual use of the system, but computer-based systems mostly do not recognize the need for meetings face-to-face. When dealing with computer-based systems, most models do not have routines for creating the manual scripts.  |

This could be further extended to a meta-level, as the theatre production has this division into roles, identities and characters of the participants, not only the actors, but also the staff and coworkers engaged in the production. We could then see the actor as a role in the theatre production, taken to suit an identity at the casting, with the necessary traits as an individual, etc.

With further elaboration of this in the concept of manual information systems, we can see that the distinctions can coincide as the “developers” and “users” also perform “functions”; they *are* the system. The traits and competences to be considered more important than others becomes a subject for the specific information system to develop.

When we discuss characters we must consider the relations between them. Every relation between any two individuals includes a social relation which means that all

messages in formal communication are accompanied by some kind of “subtext”, depending on the informal communication that occurs at the same time. Information can be transmitted through several types of media, but the actual content of the “message” is transformed by the context.

Although theatre production is focused on strong leadership (the director), collaborative work and the determination of all involved to succeed is the norm (IS development depends in most cases on individual work, with tools for collaboration between the individuals, configuration management, CVS and others)

Time-plans almost never fail for a theatre production! Premieres are held at the planned date and time. This can be explained to some extent by Thompson’s (1967) notion of the synthetic organization, in which there is a consensus on what must be done throughout the organization when a crisis develops (e.g. when the time plans are in jeopardy). However, it does not depend on this consensus alone, as the staff must also have some authority and the means to act in the event of difficulties. One of the artistic managers referred to this as *individual leadership*.

This requires certain traits of the individuals as they would become developers, users and functions in the system simultaneously. It could even be said that the developers would, in effect, have to be playwrights, directors, actors and even the audience at the same time, as this kind of system demands all traits from each of the roles.

In the analysis of characters, the existing, visible traits must be compared with the traits necessary for the enhancement of the premise. One important factor to consider is whether the existing traits are sufficient for creating the right motivation for the individual agent in the specific environment. Any discrepancy in this matter must be further analyzed and becomes a subject for the further design of the agents/characters.

All information systems include some kind of interaction between human beings and although this is less obvious in computer-based systems than in manual systems, someone must provide some input to the system for someone to utilize. In manual systems it is more likely that this interaction occurs face to face, and a good starting point would then be to consider the characters in a theatre play and what is needed for their interaction.

At some points in the theatre productions the activities of the different roles are overlapping, where the “developers” meet in collaboration, though from different perspectives. These activities are:

- The collation: the director meets the actors to describe the premise for the play as it will be produced.
- The rehearsals: the director guides the actors into character, their movements on the stage and the diction of the dialogue. In this part of the process, the actors often continue the analysis and design of their characters.

- The performances: the audience experiences the production, the totality of expressions from the actors and the environment.

We have in traditional system development made use of different types of collations and rehearsals; e.g. facilitated workshops, prototyping, etc. With the double notion of the development process as the system, we can turn the table to make use of those concepts not only during the development process, but also as part of the information system itself.

The theatre production is an *ongoing* process. Even if other information system development models demonstrate something similar in the operations phase, it is not quite the same. The operations phase is performed to meet new and changed requirements for the system, but from the play actors' point of view, the deployment of the system is performed from start to finish at *every* performance.

Each developer in the core processes has his own "end-product":

- The playwright: the manuscript,
- The director; the staged play, as it is presented at the premiere,
- The actor; the performance,
- The audience; the conception of the performance.

Unlike the finished and deployed computer-based system, each theatre performance is different. Here I find one significant factor that distinguishes non-computer-based from computer-based information systems. Since manual routines are performed by humans, and humans cannot replicate a routine exactly each time, there is a possible difference in perception of the information, depending on "which performance" the user consumes. Actually, in the case of theatre, not only the information is consumed, in some respects, the complete information system is consumed, as it will not be the same performance the next time! The information system is rebuilt again the next night of performance.

As the final elaborations of the results are made through the cognitive processes of the spectators, they cannot be considered as only the "users", but must also be considered as developers and functions in the system. As such, we possibly need to extend our modeling of the information systems to even model the users.

The divisions in levels of human to human interaction are dissolved in real life. We don't "act" in the same sense as the actors on stage, in front of a paying audience, but rather perform a "rehearsal" with fellow actors.

### 17.3 Narrative and dramaturgical Elements

The "data" in the finished performance is more or less fixed at the premiere, but it is also important to understand that it will be performed with some variation, as it is created at the instant the audience experience it, and no performance is like another. The dialogue on stage is strictly bound to the manuscript, but can in exceptional



situations be changed, such as when an actor doesn't remember the exact wording, or when something happens outside the stage, to which the actor must refer. We have a similar notion with the user interfaces in a computer-based information system, but without the possibility of the interface to act differently in exceptional situations. It is also worth noting that the "data" is created "after" the decision to use a particular premise has been made. The data and the processing of data (dialogue, signs, movements, actions, etc) then become the means to communicate the premise.

The stage directions are similar to the dialogue in this sense, but rather than consisting of words and sentences to be spoken, they state what actions are to be performed. In the simplest sense they can be compared to user manuals, but can obviously be more elaborated as in theatre it is always in connection with the overall system, and the information (dialogue).

We recognize some of the deconstruction in the "stepwise refinement" in system and program development, where we break down the "problem" into smaller and smaller parts, until we finally reach the solution of the problem.

The characters and the context are given from the structure and processes of the organization, but the plot is a concept worth looking further into. As the story is the chronological sequence of actions, the plot can be something quite different. It can add to the perception and conception from all involved parties within the organization, as well as external parties, customers, suppliers, etc.

The story is more the *processing* of information while the plot is more the *presentation* of the information and the context, since in the play it is constructed to enhance the premise. As the presentation of the information is possibly even more important in a manual system than in one computer-based, it is perhaps more correct to begin to refer to "informing" systems rather than information systems.

Apart from the story of the system, there is also the story of the development process to consider. Here we find another striking similarity to theatre, as there are some significant phases to be executed, e.g. analysis, design, implementation and operation, but different development models have different approaches to their execution. Older models were in favor of the chronological, sequential way of working, while later models use iterative, incremental workflows, which make up a different "plot", the order in which the phases are executed.

In terms of system development, the dramaturgy selected can have several consequences. The choices of which milestones to have in the development project, the choices of what specific activities to use, and how they will be arranged, will affect not only the project as such, but can also affect the outcome. Traditional system development often follows the classical type of dramaturgy (Aristotle, Freytag), in which a linear order of events is followed, though later models (e.g. RUP, DSDM) follow a combination of classical dramaturgy and epical dramaturgy, in which each part is a play in its own (iterative and incremental). The dramaturgy can also be

compared to the business process that is the object of the system. Each business process has a beginning, a middle and an end, which can be expressed in different ways, depending on which outcome is intended.

There is a difference between the methods used when creating stories and plots. In the theatre production the main methodology is based on a narrative and dramaturgical approach, which in traditional system development is only used for parts of the development, not for the whole process. In theatre productions there is an element of individual artistic creativity, that may or may not exist in computer-based development, but is essential in theatre productions. The focus in computer-based development is on the engineering perspective, rather than on imaginative creativity.

Table 11. How the narrative and dramaturgical elements correspond to IS/ISD

| Concept        | Correspondence   |
|----------------|--|
| Manuscript     | System documentation and user manuals, etc. are abundant, but the notion of instantaneously made scripts; improvisations; does not exist.  |
| Deconstruction | Some models acknowledge the PDCA-cycle, in which each artifact is scrutinized in respect to the need for it, the purpose it really fills, etc, but the individuals' cognitive processes can give even further meanings to parts of the system.   |
| Reconstruction | To some degree, the assembly of components can be rearranged in order to create new functions in a component-based development.  |
| Story          | In the IS the story can be seen as the processing of information, while in ISD the story can be seen as the required activities. The story that seems to be forgotten is the one of the organization. How does the IS and ISD fit into the premises for the organization? This could be further discussed.   |
| Plot           | In the information system the plot can be seen as the presentation of information, while in ISD it is the order of development activities.<br>The plot follows from the story, and should hence follow the dramaturgy of the organization even closer.   |
| Dramaturgy     | Older IS and ISD mostly follows a sequential dramaturgy, while modern ISD can have an iterative, incremental dramaturgy, and modern IS are more interactive and event-driven.<br>The awareness itself of dramaturgical issues could be greater. Even if there is a conscious making of plots (though not with that term), there could be even more focus on the dramaturgical concepts, e.g. anagnorisis, catharsis, etc. The use of dramaturgical concepts could enhance both IS, ISD and the organization. |

## 18 USING THE CONCEPTS FOR ANALYSIS

|  |
|--|
| This chapter presents a tentative template for use in organization analysis. |
|--|

Just as the playwright, director and actor use the concepts in order to analyze, design and implement the play as a whole and in parts; it should be possible to use the same approach with any type of organization.

One possible approach is to simply map an existing organization into the concepts of theatre, and by doing so, see whether the premise of the organization remains valid all the way from the premise of the organization to the actual outcome and results.

Every organization has by definition at least one purpose and by using the glasses of theatre it should be possible to analyze the activities of the organization in scenes and action sections, it should be possible to compare the persons involved as different in both roles, identities and characters, as well as in their roles as actors, and hence it should be possible to see whether those elements work together to enhance the premise of the organization, both in detail and as a whole.

In this analysis it should be important to see how the participants relate to the premise of the organization, as well as premises for specific situations, and their relations and interaction with other participants.

The development model from theatre production is not a modeling technique, but rather a process model, and as such, a model for conceptual thinking about issues not addressed by traditional models. To test the degree to which the model can be generalized, we must consider other types of organizations as if they were theatre productions.

One way to use the concepts is to tentatively map probing questions to each of them. Table 12 presents examples of tentative questions to use as a starting point, but there should also be a need for specific follow-up questions, suited to the specific organization.

Apart from posing these questions, a study of another type of organization should attempt to detect other correspondences between the concepts and the elements, resources, participants and processes of the specific organization.

Table 12. The concepts used for analysis (tentative)

| Concept                                     | Analysis  |
|---|---|
| <i>Contextual Elements</i>                  |   |
| Premise                                     | What are the premises in the organization?<br>On what level are they decided?<br>Who formulates the premise?<br>Are the premises explicit or implicit?<br>Are there conflicts within the premise (inconsequences)?<br>Are there conflicting premises? |
| Conception                                  | How does the organization follow-up the fulfillment of the premises?  |
| Connection                                  | Does the context correspond with the premise?   |
| Environment                                 | Is the environment adapted to the premise?<br>Are other environments considered?  |
| <i>The interacting people</i>               |   |
| Role  | What are the formal and informal functions of each individual?  |
| Identity                                    | How is each individual perceived by his manager, co-workers, and staff?   |
| Character                                   | What personal traits correspond or do not correspond with his roles and identities?   |
| Individual                                  | How does the individual interact with others outside his role and identity?   |
| Collation                                   | Are all participants given the necessary information on the premises?   |
| Rehearsals                                  | Does the organization support human resource development, in order to enhance the participants' knowledge of the premises, and the participants' possibilities to adhere to the premise?  |
| Performances                                | Are staff-customer relations in accordance with the premise?  |
| <i>Narrative and Dramaturgical Elements</i> |   |
| Manuscript                                  | What documents exist, regulating the premise?<br>Are there other formal or informal rules in the organization?  |
| Deconstruction                              | Do rules, regulations, events and activities support the premises?<br>What premises do they otherwise support?  |
| Reconstruction                              | Which rules, regulations, events and activities are missing in order to fulfill the premises?   |
| Story                                       | Which event is the most crucial in order to fulfill the premises?<br>What information is the most crucial in order to fulfill the premises?   |
| Plot  | How are the events executed and presented?<br>How is the information presented and used?  |
| Dramaturgy                                  | Does the organization have alternative ways of doing things?<br>Why is this way chosen?   |

# ACT 3

## THE FOLK HIGH SCHOOL

*Good teaching is one-fourth preparation and three-fourths theater.*

Gail Godwin: "The Odd Woman" (Godwin, 1974)

*This act presents a study of a folk high school, similar to a pre-study in a system development process, in which the concepts from the theatre are tested. By using models and concepts from the theatre, the organization appears in a different light than when other ISD analysis methods are used.*

FRIEND: Aren't you going too far now?

ABELLI: What do you mean?

FRIEND: First you claimed that theatre productions are information system development processes, or whatever.

Now you claim that a folk high school is an information system?

ABELLI: I can understand that it seems far-fetched, but it's just a way for me to emphasize one of the main theses in my dissertation.

FRIEND: Which is...?

ABELLI: ...that information systems can take many forms, almost any form. I believe I already have shown that when we include the people in the information system, as we must do when considering manual systems, we must consider the organization as such as more or less equal to an information system per se.

FRIEND: Huh?

ABELLI: Not just organization as a concept, but really any organization should be considered as an information system.

FRIEND: So why a folk high school?

ABELLI: Because like theatre, the school is another manual information system.

FRIEND: So what if you had done it the other way around?

ABELLI: What do you mean?

FRIEND: Couldn't you have extracted a model from the school, and tried to apply it on theatre?

ABELLI: (pause)

I have to think about that for a while...

## 19 THE FOLK HIGH SCHOOL IN BRIEF

This chapter is a summary of the theory and practice of the folk high school.

### 19.1 The concept of folk high schools

The folk high school is a unique Nordic creation which has never been replicated with any success outside Scandinavia. The concept was created by Nicolai Frederik Severin Grundtvig, a priest who founded the first folk high school (1844) in Rød-dinge in Denmark, with the idea of spreading “general enlightenment” on the basis of a “spiritual revival”. The concept attracted great interest in Sweden and several folk high schools were founded (the first in 1868), with a focus different from that of the schools in Denmark. In Sweden, the farmers had increased their political influence through the legislation of 1862, and sought a means of increasing the “civic enlightenment” of the adult country population. (Gustavsson, 1991; Nordin, 1996; Sandström, 1997)

The original pedagogical concept of the folk high school was the “lecture”, as inspired by Grundtvig’s ideas about the “living word”, the teacher being an articulate idealist, who could tell “captivating stories”. In other words, it was not the traditional lecture, intended only to communicate a certain amount of knowledge, but an address intended to inspire and “promote passion” for further reading. The lectures were originally followed by “dialogue lessons”, with the character of “examinations” but the pupils presently found that the “living word” was not enough, feeling a need to be active in cooperation with their teachers. (Höghielm, 1992; Johansson, 1985)

Oscar Olsson (father of “study circles”) criticized the pure “lecture”, questioning the perception that the “living word” was the only method suitable for the education of adults. He meant that every good teacher must develop his own method based on his own capabilities and personality. Eventually, the dialogue lessons developed into class discussion. At the end of the thirties, the pedagogical practices of the folk high schools had stabilized, and the method of discussion and emphasis on the pupils own activities, including group activities, had been accepted. (Höghielm, 1992; Johansson, 1985)

To this day the folk high schools have no central curricula, which makes it possible for each pupil to be viewed as an individual pedagogical resource. Important in this perspective are the meetings in the folk high schools of people from different social backgrounds and the tradition of close collaboration with the local community. This makes the folk high school seen more as a unique pedagogical environment, rather than a number of applied pedagogical methods. Historically, role playing has been a central method, the school functioning as a community with all units represented. (Nordin, 1996)

One of the central concepts of folk high schools is the term *folkbildning*, which is difficult to translate into English. It could be translated directly as *people enlightenment*, but more commonly as *liberal* or *popular adult education*. The specific conceptual foundation of *folkbildning* extends, however, far beyond the term “adult education”. (Folkbildningsrådet, 2005)

Nordin (1996) defines it as a general concept relating to people’s insights and orientation in areas outside their own special interests and work-related knowledge, providing them with a clear and structured overview of today’s chaotic information flow, thereby enhancing the quality of the life of the individual and increasing tolerance of the unknown within the collective and society.

Berndtsson (2000) uses the concept of “self-enlightenment”, which means not only the individual’s own search for knowledge, but also implies a focus on the contents of the education rather than formal merits. Berndtsson means that pupils choose folk high school education more for the self-enlightenment it provides than as a means of making themselves eligible for higher education.

There are approximately 150 folk high schools with different profiles, distributed over Sweden, their characteristics depending on the nature of their sponsoring organization, approximately one third being driven by county councils; the remainder by different popular movements and organizations such as the Labor, Temperance or Free Church movements. (Nitzler, 1997)

## 19.2 Pedagogy

Larsson (1995) describes a difference in “grammar” between traditional education and liberal adult education. This depends on the choice of contents, the disassembling of knowledge in small pieces, homework, the division of time in between lessons, tests and examinations, the unequal relation between pupils and teachers, which characterizes a great deal of traditional education, regardless whether it is performed in Europe, North America or Africa. Liberal adult education on the other hand has established other habits in the use of time, the constitution of its contents, without tests, examinations and grades, and to a degree, a more equal relation between pupils and teachers. Overall, the folk high school has a looser framework and less definite borders between sections of knowledge. (Larsson, 1995)

Previous legislation regulating governmental grants to liberal adult education required it to differ significantly in form, pedagogy and working methods from public education. Even if these requirements are now discarded, the common opinion is still that they differ significantly. The pedagogy of folk high schools has been described as a combination of activity and dialogue pedagogy, together with the integration of subjects. The pupils should be active and have a considerable influence on their own studies. The dialogue between pupils and that between pupils and teachers are especially important. This in contrast with what is perceived as traditional pedagogy in



public education in which lectures are based on the technical and instrumental view of learning, the teacher communicating knowledge and the pupils in turn reproducing it in examinations. (Kulturutskottet, 1997; Nitzler, 1997; Nordin, 1996)

Studies of folk high schools emphasize the open relation between the teachers and pupils, the open conversations and free discussions. The education provided depends on the pupils own needs and interests, and requires their active participation. A result of the pedagogy applied by the folk high schools is an awareness gained by pupils of the social aspects of the competence they have acquired during their studies. Personal development is seen as a important element in folk high school education, engendering greater self-confidence and raising self esteem (Garefelt, 1997; Nitzler, 1997; Sundgren, 1996)

**Integration of subjects** means the use of knowledge from two or more disciplines in the study of a certain phenomenon. Education based on the integration of subjects aims at replacing the fragmentation of knowledge with a holistic perspective. Experience has shown that projects crossing the borders of disciplines will give as much knowledge as traditional courses, perhaps even more of the practical foundations of each subject, even if not as much curricula-specified knowledge as subject-specific courses. (Gustavsson, 1996; Lundgren, 1996; Mallow, 2001; Vargas, 2000)

By **activity pedagogy** is meant all types of pedagogy that assume that learning through activity is more effective than learning through passive reception. It contrasts with traditional lecturing in which it is assumed that the teacher conveys knowledge, experiences and values to a passively receptive pupil. By encouraging pupils to define problems and solve them actively, the knowledge gained is more easily integrated. The pupils are given more power over their own intellectual processes, focusing on their own needs and interests. At most folk high schools, activity pedagogy extends beyond the scheduled education, as the pupils are organized in activity groups engaged in school magazines, café enterprises, culture groups, etc. This is seen as an important integrative part of the folk high schools, which increase the perception of the folk high school form as essentially different from public education. (Berndtsson, 2000; Lundgren, 1996; Stensmo, 1994; Sundgren, 1996)

**Dialogue pedagogy** is a term signifying knowledge acquisition through a continuous dialogue between teacher and pupil, otherwise equal, but with differences in experience and knowledge, the pupil's experience and knowledge being seen as equally important as the teacher's or those expressed in curricula. This is contrasted with traditional lecturing in the same way as activity pedagogy. It is also seen as a more democratic form of education, often associated with the folk high school organization, in which the pupils tend to have more influence than in public education. (Berndtsson, 2000; Lundgren, 1996; Stensmo, 1994)

## 20 THE LABOR MOVEMENT'S FOLK HIGH SCHOOL

This chapter presents the research object for this part of the study.

### 20.1 The organization of the school

The Labor Movement's Folk High School in Gothenburg (AFiG – Arbetarrörelsens Folkhögskola i Göteborg) is sponsored by member organizations of the Labor Movement in Western Sweden. These organizations and a few individual members constitute an umbrella organization; The Folk High School Organization of Workers in Western Sweden (VSAF – Västra Sveriges Arbetares Folkhögskoleförening). Two folk high schools, AFiG and Viskadalen Folk High School, function under the aegis of VSAF.

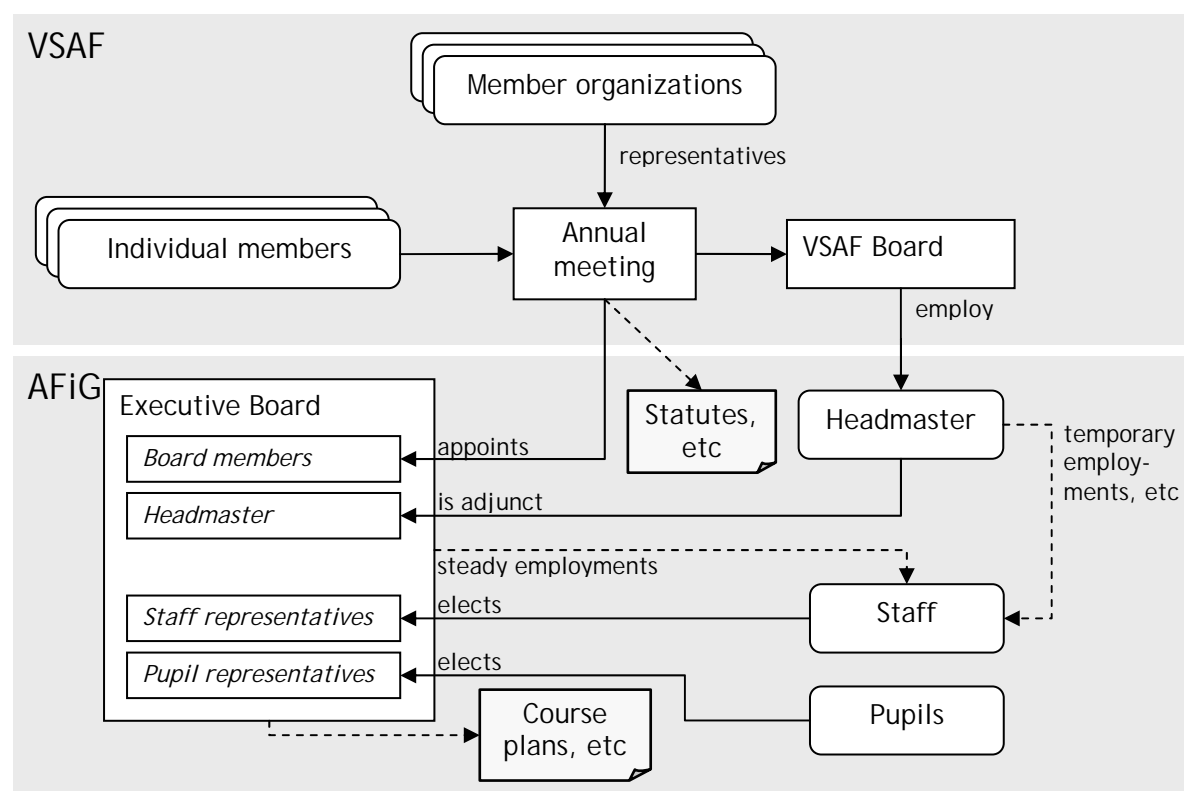


Figure 23. The organizational structure of AFiG.

VSAF convenes an annual meeting at which it selects a board of directors for the umbrella organization, and two executive boards, one for each of the folk high schools. The board of the principal organization is responsible for the employment of the headmasters, but delegates all daily concerns to the executive boards. The executive board includes representatives of the staff and the pupils (figure 23).

## 20.2 The courses and the teams

The **full time general course** is in part regulated by the government. Each folk high school must present this course to be eligible for governmental grants. It is primarily intended for those without a complete education on the compulsory or the upper secondary level. The general course often has a broad spectrum of common subjects, but can also have specific profiles, which means that the pupils can choose studies in a special direction, e.g. aesthetics, media, computers, environment, international issues, sports, etc. The **part time general course** is similar to the full time course with respect to the common subjects, but does not have the profiles, as the pupils have lectures on only two days per week. The **half time general course** is somewhat similar to the part time course with respect to the common subjects and is also without the profiles, but here, it is combined primarily with Swedish for immigrants.

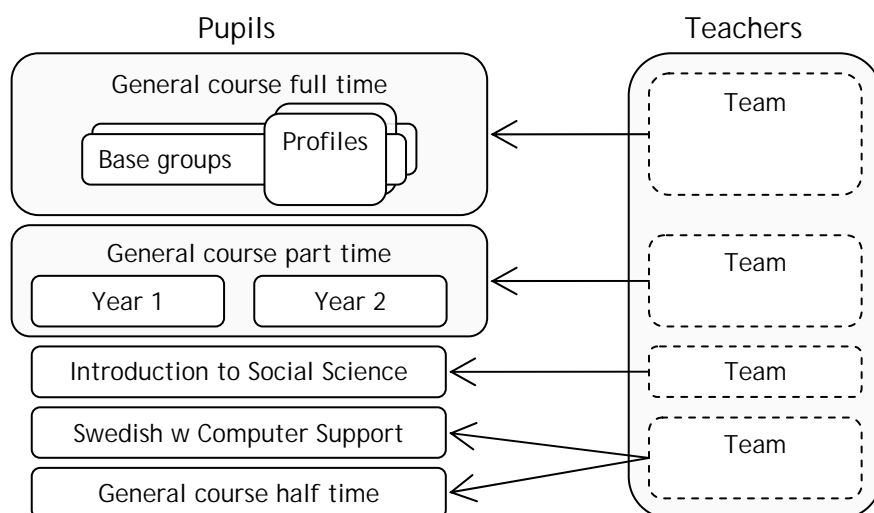


Figure 24. The teachers assigned to courses and teams.

The goal of the **introduction to social science** is to impart such knowledge, skills and experiences as will increase the pupil's possibilities of beginning a university education. The content of the course is focused on perspectives in social sciences and research methodologies. A premise for the course is its contribution to a change in the skewed social recruitment to Swedish universities. **Swedish with computer support** is primarily intended for pupils with reading and writing disabilities (dyslexia), providing the pupils with tools, methods and techniques for improving their possibilities in the labor market or of obtaining further education.

Beside these longer courses, AFiG also presents a number of short courses, mainly in collaboration with the member organizations of VSAF.

The teachers at AFiG are organized in teams according to the courses to which they are assigned (figure 24). In practice the teams overlap, as the teachers can be assigned to more than one course at the time.

## 21 THE THEATRE CONCEPTS IN THE SCHOOL CONTEXT

In this chapter I discuss the concepts from theatre productions in relation to the folk high school.

### 21.1 Contextual elements

The premises of the school are formulated on several levels, overall premises for the school, as well as premises for each course and for specific subjects.

*The overall goal of The Labor Movement's Folk High School in Gothenburg (AFiG) is to promote general civic knowledge and culture. Its activities are conducted in accordance with the goals stipulated by parliament and according to current regulations for government grants. The school will be pervaded by a humanistic and democratic maxim.*

*The school will make it possible for people to affect their position in life and encourage people to participate in the positive development of society through political, trade union or cultural work.*

*The Labor Movement's Folk High School shall constitute a pedagogical resource for the labor movement and further contribute to educational activities in the unions. Its activities aim at reducing educational differences in, and at raising the educational level of society. The education provided is to be permeated by the fundamental values of the labor movement. Tutoring in democracy is a central goal for all course activities. It is also important, in the general courses, to develop knowledge of how to work in associations and the ability to cooperate, and to develop knowledge and understanding of different cultures. AFiG will, through its condemnation and active opposition to the use of illegal drugs, promote a social and rich life. (translated from statutes)*

The statutes refer to some governmental constraints and other somewhat intangible concepts such the “values of the labor movement”.

The explicit overall premise of the school is hence to provide education in long and short courses, but the premise also includes some directions on how this is to be done, through the concepts of “humanistic and democratic maxim”, “values of the labor movement”, etc.

The significance of the premises is discussed with every new class in the school, e.g. on what the “values of the labor movement” really are, but surprisingly, the staff, themselves, seem not to have discussed the effects of that and other similar statements on the education itself and other work in the school. It is rather experienced as something “in the walls”, hence not regarded as necessary to analyze.

Although the boundaries of the organization might seem clear, the integrated involvement of all participants in all topics struck me as evidence of the converging borders of “the organization” and the “information system”. As so much of this in-

volvement related to strategic and operational issues, it also became the development process at the same time.

As a part of fulfilling the overall premise, several courses with their own specified goals are created thereby generating new premises. The “general course” is a requisite for eligibility for government grants, but apart from that, the school can start almost any course for specific educational needs or which is in the category of “general knowledge and culture”.

*A folk high school is a school without central curricula. The education shall have its starting point in the pupils needs, prior knowledge and experiences, and give them eligibility for university studies. (translated from the brochure presenting the general course)*

The subjects that will give the pupils eligibility for further studies have specific curricula, stipulated by The Swedish National Agency for Education, with explicit content and goals. This inserts a conflict in the premise, as the possibility of satisfying those curricula constrains the possibility of adapting the courses to the “pupils’ needs, prior knowledge and experiences”, as well as conforming to the “humanistic and democratic maxim” and “values of the labor movement”.

In any organization, there are “organizational premises” more or less explicit, such as how the organization is to be managed, how the workforce is to be organized, etc, which are in parallel with the premises for the specific organization or activities. These are also very much present in AFIG but are influenced by the overall premise. As the statutes enjoin the “humanistic and democratic maxim”, and the “values of the labor movement”, the organizational premises include these maxims as well, as evidenced by e.g. the frequent staff meetings, distributed information, etc, but also in how they are conducted.

*The discussion flows freely, but without real structure. Only YY is raising her hand in order to take the word, the rest just take it, speaking out their opinion. (notes from observation at staff meeting)*

Each activity in the school has its own premise, mostly emanating from some of the overall premises for the school, courses or subjects (lectures, team meetings, etc), or from one of the organizational premises (staff meetings, union negotiations, etc)

The premise to be communicated can vary even within an explicit situation, this requiring the teacher to become the playwright instantaneously, in addition to playing any other role during a specific situation. This makes the premises for explicit situations more implicit and in many cases intangible for an outsider.

The context of the folk high school is one of values stemming from the labor movement, some of the consequences being the use of dialogue- and activity-based pedagogy with much participation from the pupils. Through the dialogue and activities, the audience’ (pupils’) conception can give more instantaneous feedback, than is ob-

tained when dealing with computer-based systems, although it became clear that not all teachers actually use those pedagogies with all their potential.

The pupils are processing information constantly during the whole period of their study.

*Sometimes you don't get it the first time, not the second time either. But then you sit in the coffee room, talking about something completely different, or you think it's completely different, and there you get it. Everything is about the society, the whole picture. (from interview)*

The diverse cultural backgrounds of the pupils pose a problem in the possibilities to give all pupils the same or similar experience of the education.

*At one time we had the lesson practically in four languages. What I said was translated by a pupil into Farsi to another pupil that neither understood Swedish or English very well, but I had no control of whether the translation was accurate or not. (from interview)*

Although many students begin with the personal goal of obtaining an education that will give them eligibility for higher education, the most valued result of their time at the folk high school, is their increased self-esteem.

*They give more attention to the pupils, I think. They encourage you incredibly much, giving me a better self-confidence. They really see you here, which they didn't there [referring to the public school]. (from interview)*

Just as with real theatre productions, the environment is incorporated into the context and plays a significant part in how the performances are received, but there was very little conscious thought from the teachers of how the surroundings were constructed. The scenography and the surroundings of the performances were only considered on special occasions, such as when taking field trips to cultural landmarks, or in outdoor activities.

One of the main issues perceived by the pupils, especially at the beginning of each semester, was on the localities; from time to time the lecture rooms were shifted. The class rooms were constructed for "general purposes", and hence didn't emphasize the audience's likely conception of "the play", but still a common remark made occasionally was that "the spirit of the folk high school is in the walls".

The context of the team meetings was given by the agendas, or other forms of formulation of the purposes of the meetings. Still, there were many occasions when reality departed from the agendas. During many meetings, the dialogue was "stalled" when the computer system on pupil documentation (grades etc) failed to function as intended. Much of the discussion then consisted of how to make that system work, instead of the important issues at hand.

## 21.2 The interacting people

The “playwrights” in the school context have no need to create characters as they already exist in flesh and blood, as teachers, pupils, principal, etc, but in the school environment, there is no one-to-one mapping of the roles in the school to the core roles in a theatre production. The processes are rather mixes of and shifts between the core processes in theatre productions. Each of the school roles vary between perspectives or rather functions in explicit situations. In the one and same situation, a teacher can change from being the director and an actor in the play, to become an audience for the pupil’s or colleague’s performances.

Some of their functions and traits are associated with their formal roles, but much of the traits of the characters do not appear until they perform in their informal contexts. The teachers relate to a traditional view of the actual role of a teacher, which seems to simplify matters as they then have some common basic ideas regarding how to perform their roles as teachers. This also includes the preparation of material for lectures, tutoring and other teaching activities. In this work, the teachers, as directors, look for alternative ways to communicate the premise for the actual subject.

As actors, the teachers in this study did tend to forget to explore their own characters in the play; to chisel out the characteristics and traits explicitly needed to communicate the premise, although they also tended to make use of the more stereotypical teacher roles. They could possibly make more of the performances if they also took into consideration the significance of their own traits in specific situation. There were also some differences between the amounts of preparations (rehearsals) the teachers made for their lessons.

In the educational situation the pupil can be considered as the protagonist, but who is then the antagonist? On the one hand the teacher is the one trying to develop, evolve or change the pupil’s perception of the world; on the other, the teachers in this context are using problems in society as images for a need to change. Considering further the concepts of performance and conception the pupil could also be seen as his own antagonist, struggling with his background and pre-conceptions.

The teachers in this study try to acknowledge the different traits of the pupils, in order to make the material even more appropriate for and comprehensible to the pupils. Each lesson or meeting can be seen as a continuous rehearsal for generating feedback to the teacher that it “works” (the information has been passed) or not. If not, the teacher once again takes on the role as director to analyze and redesign the script further.

I will focus on two human to human relations; teacher and pupils (e.g. pure lectures, task assignments, tutoring and other types of lessons), and teacher and teacher (e.g. the staff or team meetings).

### 21.2.1 The interaction between teacher and pupils

Collation-like situations occur frequently, e.g. at the beginning of a new study, theme, subject or specific assignment. In this situation, the teacher assigned responsibility for the study presents not only the goals and purposes of the task at hand, but also tries to give a further meaning and context to it, in order to better motivate the pupils. They try to give the pupils as many practical tasks as possible, in order to put the knowledge into a broader context. Even though mostly goals are presented, it's not always the case for the premise.

*I can read in the documents we were given what we are expected to accomplish, and they tell us in class, but for some things, I still don't know why. (from interview)*

Pure performances are scarce, in benefit of an iterative approach, giving and receiving information during the lessons, all of the participants having considerable influence on the script used. The situations start in a collation, giving the frames for the subject or items at hand, moving onto a rehearsal, with the teachers and pupils "improvising" on the theme, refining their motivations for themselves, this in turn giving a more detailed script, in which the overall context has been narrowed to several sub-contexts, each subject to new iterations and recursions.

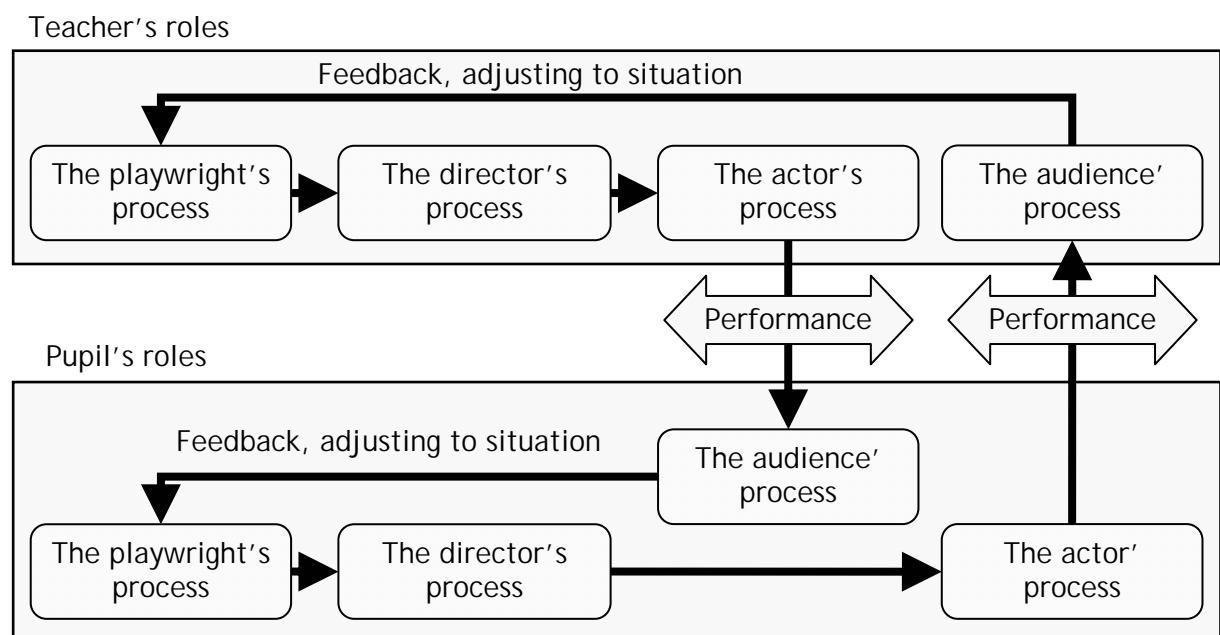


Figure 25. The interaction between the teacher and the pupils during lectures.

We will study more closely, two typical scenarios, much simplified, for the meeting between teacher and pupils. The first scenario shows the division of roles when the performances consist of pure lectures. With the use of e.g. curriculum and course literature (which in this school he has decided upon himself), the teacher prepares a



script for the lecture (playwriting), which he plans (directing) and performs (acting) with the pupils as a mere audience (figure 25). In this scenario the teacher makes use of all the traits of the playwright, the director and the actor, more in a sequential fashion, when the lecture is completely structured and planned in detail. The focus on the traits is on their use in acting, as the meeting between the pupils and the teacher is in a performance setting.

*The most important thing to get the pupils' attention is to be committed. If they don't see that you're engaged in the subject; how can you expect it from them? (from interview)*

In this scenario, the pupil adapts to the situation, incorporating his new-found information and experience in a new script. This, in turn, will be used to return feedback to the teacher in some way, e.g. in a written or oral exam, but also instantaneously as a request for an explanations. Even small details such as the pupil's body language give the teacher feedback, indicating that the pupils have or have not received the intended information. In turn, the teacher reacts with a new script for the same premise, providing the pupils with a new route to an understanding of the material.

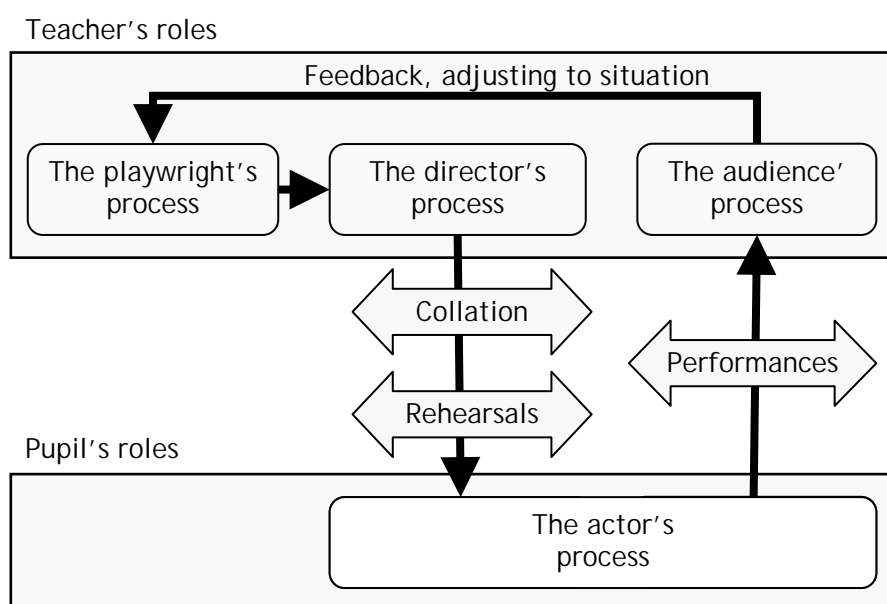


Figure 26. The interaction between the teacher and the pupils in e.g. tutoring.

The second scenario shows the division of roles when the performance is in the form of tutoring or exercises. With the use of e.g. curriculum and course literature, the teacher prepares a script for the tutoring (playwriting), which he uses to give the pupils certain knowledge or skills (directing), allowing the pupils to perform what they learn (acting) in different ways, in order to see if they have received the intended information (figure 26). In this scenario the teacher makes use of traits of the play-

wright and the director in order to make the pupils “skillful” and “knowledgeable” through practice, more in an iterative fashion. The focus of the traits is on their use in directing, as the meeting between the pupils and the teacher is in a rehearsal setting.

*The pupils have a lot to say in the classes. We're bound by the curriculum criteria, but apart from those, I try to plan the lectures as much as possible with the pupils. (from interview)*

For the pupils, the second scenario appears to be a shortcut, compared with the first scenario. The pupils in the study experienced that they learnt more in the “tutoring” scenarios, where they were able to make use of the information directly, than when the obtained information from pure lecturing.

*We have a lot of “field visits”, especially at the beginning of the term. They serve double purposes, to learn something about society, and maybe more important, to learn how to interact with their class mates. (from interview)*

In both scenarios the teacher is keen to adapt himself to the situation, and change his teaching method immediately if he senses that the first has not succeeded. Generalized to a higher level this could be seen as a double-loop learning approach (Argyris & Schön, 1978).

*I don't prepare too much of the lectures, as I believe that the most important in my meeting with the pupils is where I listen and they speak. How can I know if they have learnt anything if they are silent? (from interview)*

With this feedback loop we see that the “plain” sequentiality in the first scenario is only superficial. When studying this scenario in more detail, we discover that the roles really shift during the performance. Almost none of the teachers in this study uses pure uni-directional lectures, but rather emphasize dialogue- and activity-based pedagogy (Lundgren, 1996), which changes much of the teacher's performance into instant playwriting and directing rehearsals, as in the second scenario.

The directing and acting part performed by the teachers in this study were more of an unconscious process; how they talk, write on the whiteboard, move and other uses of body language merges with the playwriting of dialogue and stage directions. In this sense the three roles; playwright, director and actor; are really merged into one, where, as playwright, he has one overall premise, as director searches for alternative interpretations and reconstructs the play, and as actor, performs the chosen parts in order to give the pupils as many angles as possible on the subject at hand.

Most of the teacher's playwriting occurred in the direct situation, where he needs to create a new script based on the instant feedback from the pupils. The premise can then be the same as before, but more often in more detail, or an extracted part of the premise with which he began. The characters of the new script are often based on the pupils themselves, the script being a story to which they can more easily relate. The dialogue and stage directions mostly come spontaneously from, and in parallel with, the teacher's cognitive processes, i.e. instantaneously.

As an audience to the pupils' performances, it was obvious during my observations, that the surroundings of the performance influenced the teacher's conception of what the pupils had to say, which in turn determined what the teacher experienced as instant feedback, and consequently also influenced his further playwriting, directing and acting.

The pupils in this school do not just sit and listen, but react and act on the subject at hand, making their own scripts to perform. Hence the lessons become sequences of continuously directed, enacted and performed small scenes. The individual traits of both teachers and pupils played a significant part in how the information was perceived. If the pupil had personal problems at home, or generally a "bad day", those issues could be used as input to the process, in order to supplement the script with further elements of the context.

### 21.2.2 The interaction between teachers

Collation-like situations occur frequently during the team meetings, e.g. when planning for a new module or before a new class begins. In these situations the teachers with assigned responsibility present not only the goals and purposes of the task at hand, but also try to add further meaning and context to it, in order to better motivate their colleagues.

The team meetings are the teachers' formalized occasions for planning and evaluating the education in the course which they are teaching. The contents of these meetings differ considerably between the teams; the meetings for courses consisting of single classes are more apt to discuss pedagogic issues and the overall purposes of the course, whereas the meetings for courses with several classes tend to discuss only logistics – which pupil to be in which base group, profile, etc.

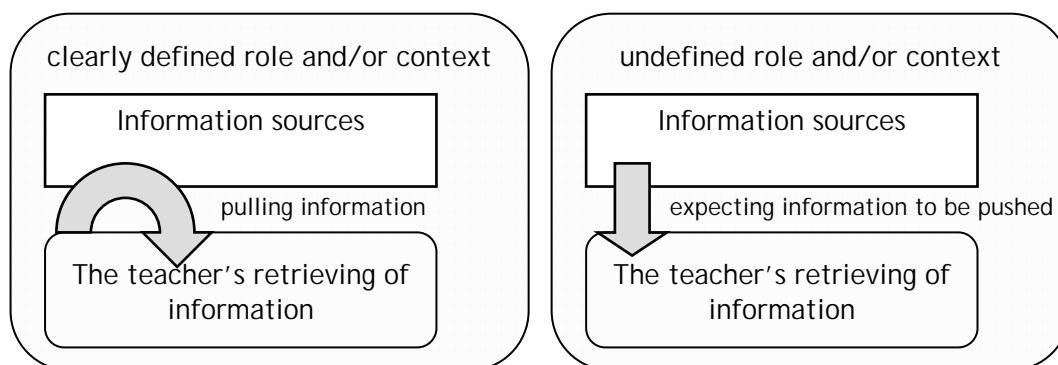


Figure 27. The teacher's inclination to use pull techniques or depend on push.

There is a significant difference in how the teachers expect to retrieve information in different situations. In the individual role as director and actor when planning explicit lessons in the course, the teacher is more apt to act autonomously in retrieving

the information necessary to perform the lessons, e.g. retrieving material on a specific subject (left diagram in figure 27), but when dealing with information that is not clearly defined as his/her responsibility, he/she is more likely to expect the information to be “given” to him/her (right diagram in figure 27). This can be seen as a characteristic of the “teaching profession”, which in large is considered a clearly defined role. It is well known how to “act as a teacher”, while the other situations go beyond this role.

This also reflects the teacher’s situation in the meetings. In those teams in which pedagogic issues concerning the course as a whole are discussed, all of the teachers tend to take on the roles of playwrights and directors, using a pull technique to retrieve information. They appear more comfortable in these situations than in the situations in which issues not directly connected to their teaching role are concerned. In this scenario they iterate between rehearsal and performing states, similar to the situation described earlier for lessons with focus on tutoring (figure 26). The roles as playwrights, directors, actors and audience shift between the teachers during not only the meeting depending upon the item at hand, but also during the items on the agenda. These shifts are not only connected with the responsibilities assigned to the teachers (such as responsibility for a base group, a profile or a subject), but even more so connected to their personal traits (extrovert, introvert, informal leaders, etc).

There are also situations in which the teachers direct themselves, which makes their colleagues a mere audience, but in this process the colleagues can also respond with their own scripts, much like the previously described lessons with focus on pure lecturing (figure 25). The described sequence of shifts between the roles is more significant the closer the item at hand is connected to a specific responsibility to which the teacher has been assigned.

Just as in the scenarios with the pupils, the teachers will adapt to the situation in both scenarios here as well, incorporating their new-found information and experiences in a new script, which in turn will be used to return feedback in many ways; in suggestions of actions, requests for explanations, even through body-language. If the teacher, through the feedback, senses that he has not been able to communicate the intended information, he reacts with a new script for the same premise, giving an alternative route to understand the material. In these situations the teachers tend to increase their use of rhetorical techniques.

Teachers tend to be readier to adapt themselves to the situation in the first scenario than in the second, but as in the scenarios with the pupils, we see that the “plain” sequentiality in the second scenario is only superficial, as the roles of playwrights, directors and actors merge even more in the human-to-human interaction between colleagues.

### 21.3 Narrative and dramaturgical elements

Many texts are available at the folk high school, associated with both the actual education (course books, curricula, schedules, etc) and administration of the school (statutes, rules and regulations, minutes from meetings, etc). These should be considered as “data” to be used in performances, such as lectures and other lessons, staff and team meetings, etc, with addition of visual, audial and other elements.

The premise for the paper-based information is mostly clear, but actions connected to the information are fuzzy. The information is not always synchronized in time and space with situations connecting to the information. This causes much of the information to “pile up”, and is soon forgotten by most of the staff and pupils other than those most concerned, but on the other hand, those most concerned usually have also received the information through other channels.

*It [the documents] is only piling up in the locker. We don't have enough time to read it. Why can't we simply put it all out on the web? (from interview)*

These texts do however not correspond to an actual manuscript, as a theatre manuscript is based on what can be “enacted”, not only on what should be “informed”. Most of those “scripts” are simply not written beforehand, but are created instantaneously at the point of need.

*Everything is put into context; you get a new perspective and it makes the picture complete; you can read something in the newspaper at breakfast, later in the afternoon a teacher refers to that in class. (from interview)*

As there is no fixed manuscript, the “ensemble” tends to create the script through improvisations over the subject at hand, with specific information in mind, depending on the specific situation, whether it's a lesson or a meeting. The story, plot, dialogue and stage directions are “written” instantaneously in the situation they occur, more in a recursive than iterative manner. Each situation, which has a given premise, is divided into sub-contexts and sub-systems to develop, which has a new premise derived from the previous.

In these situations, the teachers try to deconstruct the pupils' scripts in order to use the pupils' conception of the context, and then make new manuscripts trying to convey the meaning of the premise, but using other data and information.

*Sometimes you need to be more than creative. In some cases, when I have tried hundreds of ways to explain some matter, I simply ask the rest of the class to help me out, to explain it to those that still haven't got it. (from interview)*

Just as there are premises on many levels, each premise has several stories, sometimes intertwined with each other, in order to “rationalize” the events and activities in the school. The organizational stories have agendas for meetings, protocols, written reports, etc, but the actual stories during the meetings only have those as a starting point for further writing of scripts. Here the individuals' perception of their roles

plays a significant part. In the educational stories the teachers' manuscripts differ considerably. Some have prepared their lessons more or less in detail, while others simply "play by ear", relying on their knowledge of the subject. In both cases they are mostly open for insertions of the pupils' own scripts, making use of dialogue and activity pedagogy.

On the surface the plot of the school seem to use an epic dramaturgy, with loosely coupled events, but when looking at the whole picture, they mostly fall into a more classic Aristotelian dramaturgy, in which the events build upon each other, though not always connected to the same story.

In a decentralized organization the plot is mostly created on the lower levels, as the executive level is not concerned with "how" things are done.

## 22 REFLECTIONS ON THE FOLK HIGH SCHOOL

|   |
|---|
| In this chapter I present my reflections on the study; what the “theatre perspective” gave. |
|---|

### 22.1 Logistical issues (contextual elements)

In this area I made three reflections; one on the boundaries of the organization, one on the working areas, and one on the context of the meetings.

The first reflection was on the boundaries of the organization. Though they might seem clear, the integrated involvement of all participants in all topics appeared to me to be evidence of the converging borders of the organization and the “information system”. As so much of this involvement related to strategic and operational issues, it also became the development process at the same time.

The second reflection was that both theatre and organizational aesthetics have dealt much with the workspace environment; the scenography; but this is not the case with respect to the school premises. This could be one area to study further, using the perspectives of organizational aesthetics as well as some technological devices to facilitate the logistics of lessons and lecture rooms.

The third reflection was on the contextual issues when the agendas did not agree with reality e.g., when the dialogue ceased and the meeting deviated from the intended premise when the computer system failed to function as intended.

Many of the logistical issues experienced in team meetings could be solved by using a structured development model for developing/refactoring their computer-based system for pupil documentation (degrees, attendance, etc). That system became an actor, in a sense, as important as any of the teachers. The system has been developed rather ad hoc, with requests and functions added along the way, e.g. the underlying database appears to be inadequately designed or normalized, as it crashed on several occasions when “conflicting” records were fetched.

Other logistical issues should perhaps remain unsolved, e.g. the perceived difficulties in the beginning of the semester could rather be seen as a part of the learning process. It makes the pupils realize that not everything is given beforehand, and gives them a sense of connection to the context.

## 22.2 Educational issues (the interacting people)

In some cases it seems to be a lack of correspondence between the pupils' perception on how a folk high school teacher should educate, and the teachers' educational premises. It is interesting that the general praxis of activity- and dialogue-based pedagogy in folk high schools is practiced by some teachers more than by others, and those teachers who are claimed by the pupils to be "the best educators" are mainly those practicing those principles.

Even though there is a clearly stated purpose for the folk high school, there are conflicts with some of the premises of the courses. As some of the subjects are regulated by national curricula, the freedom to follow the concepts of "humanistic and democratic maxim" and "values of the labor movement" are constrained. In the practical teaching, some of the dialogue and activity pedagogy has therefore been replaced by more traditional "pure lecturing".

The "jumps and overlaps" of roles and processes were most significant the closer to pupil influence the teacher was, using activity and dialogue pedagogy, while those teachers using traditional lecturing, were not equally inclined to perform these jumps and overlaps.

Many of the educational issues can be solved with human resource development with focus on the pedagogical areas; competence development in pedagogical methodologies, especially those that have been the corner stones in folk high schools; activity and dialogue pedagogy.

## 22.3 Enlightenment issues (narrative and dramaturgical elements)

With only a few exceptions, all of the pupils claimed that they "grew as humans", getting more confidence and self-esteem. This is one of the central premises of the folk high school. There are several reasons that this happens, the foremost may be that all elements collaborate to this end; the teachers' democratic performances, inviting to a learning dialogue, seeking enlightenment instead of "facts", the creative environment, etc.

The only recommendation I can give to the folk high school in this respect, is to ensure that these values are maintained, despite difficulties. It is almost impossible to structure such things as they are dependent on non-formalizable entities without entering into each individual's cognitive processes. The only way to do this is to be careful when recruiting new personnel; selecting teachers preferably educated in the special types of pedagogy that are compatible with the folk high school, adaptable to the organization and sharing the values of the folk high school.



# EPILOGUE

## THE CONCLUSIONS

*Not every end is the goal.  
The end of a melody is not its goal,  
and yet if a melody has not reached its end,  
it has not reached its goal.  
A parable.*

Friedrich Nietzsche: "The Wanderer and His Shadow" (Nietzsche, 1996)

*The purpose (and premise) of my research has been to apply the perspectives of theatre and drama to the process of system development, to introduce concepts from the theatre into system development and cast light on the underlying premises of system development. I trust that my dissertation has achieved this and before the final curtain falls, I present here the conclusions of my research.*

ABELLI: Can you wait a minute, I'm just done...

FRIEND: At last. You've been a pain in the butt while you have been doing this...

ABELLI: It hasn't been that bad, has it?

FRIEND: Sure, I haven't seen you around for months, and then you claim that theatre is information systems, that schools are information systems. What were you thinking? And why did you have to be so introvert all the time.

ABELLI: I didn't mean to be...

FRIEND: But you're finished now?

ABELLI: Almost, I just need to write some more conclusions...

FRIEND: Come on, what have you come up with? After five years you should have come up with something revolutionary...

ABELLI: Well, from the beginning...

FRIEND: No, don't you start again! Just the most important things, so I'll understand it...

ABELLI: (pause) Alright, three examples here and now, you and me.

First, we are an information system, you and me together, as I'm informing you and you're being informed. As I make the information up here and now, it's also a development process, and you and I "could" be considered an organization as well...

Well, that's perhaps stretching it a bit too far, but apply that thought to any manual system, which includes all temporary organizations with a creative and social context.

Second, in our conversation you have forced me to jump between different roles, as the playwright, deciding on what message to bring, as the director, deciding on how to enact it, as the actor, actually saying it, and not least as an audience to your questions, giving me feedback to change the script again...

Third, I entered a journey of creative adventure, just like any of the roles in a theatre production, and a system developer is in many senses a creative artist...

FRIEND: Was that all? After five years!

(pause)

Can we go out for that beer now?

ABELLI: Soon, I need to write down these conclusions, then I have to send in all the paperwork, and then I have to...

FRIEND: Yes, yes, yes, just tell me when you're done.

## 23 THE TRAITS OF THEATRE PRODUCTION

|   |
|---|
| In this chapter the central findings are presented. |
|---|

### 23.1 Similarities of contextual elements

#### 23.1.1 The premise and the unknown outcome

One of the most intriguing concepts in theatre is “the premise”, which is both simpler and more complex than the more traditional concepts of “purpose”, “goal”, etc. Even if the individual subjects in a folk high school curriculum can have clearly specified goals, the notion of “enlightenment” gives the same feeling as a premise. In both cases, in the theatre and the school, the actual outcome is individual and unknown, as it’s based on the experiences and cognitive processes of each spectator and pupil.

This implicitly agrees with Humphrey’s (1990) notion that customers do not really know what they want, which can be extrapolated to the opinion that what should be developed is not necessarily what is “ordered” but what is “needed” at the end of the development process. Using a “premise” instead of “specified requirements” could be one way, to keep the goal of the development process at a general level. This also agrees with the notion of an “adventure” with an unknown outcome.

#### 23.1.2 Integrated internal and external contexts

The similarity of *integrated internal and external contexts* emerged, when the different levels of environment were investigated. While being *within* a significant context (the localities of the theatre and theatre performance, the school building and the education), the issues at hand mostly dealt with the context *outside* (the society, the external environment).

The theatre performance is even more context-sensitive, and as an experiment, some of the context itself, the totality of the space, i.e. foyer, auditorium, etc. can be incorporated in the system.

#### 23.1.3 Ongoing process and continuously deployed system

From the play actors’ point of view, the performance is a *continuously deployed system*, being newly constructed from curtain rise to curtain fall at each performance. This also makes it an *ongoing process*. Unlike the results from a finished and deployed computer-based system, each theatre performance is different. Manual routines are performed by human beings and humans cannot replicate a routines exactly each time. There is therefore a possible difference in the perception of the information, depending on “which performance” the members of the audience attend. This can

also be said about the school situation, each lesson becomes a new deployment, and is continuously changed and adapted, depending on which students attend the class and their moods.

The lessons in the folk high school use an iterative model, varying between presentations, the performances, and directing; each iteration getting into a more detailed sub-context. In the school context, there are many situations in which the system is adapted and re-deployed over and over again, depending each time on the specific situation at hand.

#### 23.1.4 Temporary systems

Another similarity observed was in relation to *temporary subsystems*. Each theatre production is a separate project. Each new school class can also be considered a separate project, or even many, as each class in turn studies several independent subjects. The recurring courses are also revised every year, and may even be changed during the progress of the course.

In a sense, these development processes need to be “right the first time”, as their limited duration restricts the possibilities of changing or restructuring the organization and its processes. On the other hand, the processes, as such, are “self-adapting” information systems, which converge to requirements that are “good enough”.

#### 23.1.5 Triplicity

This leads to the perhaps most significant finding in this category; *the triplicity* of both theatre production and education in being simultaneously a development process, an information system and an organization. The need for continuous adaptations makes it both an information system and its development at the same time, in much the same sense as a learning organization. It still has its own scope with its own resources which makes it an organization.

### 23.2 Similarities of interacting people

#### 23.2.1 Human to human interaction

One of the reasons for choosing a folk high school as a research object for the test phase was its similarity to a theatre with respect to the frequency of *human to human interaction*. That which distinguishes the theatre from most other art forms is the meeting of humans in flesh and blood. This is also characteristic of school situations during lessons and team meetings with teachers meeting pupils and teachers meeting colleagues.

#### 23.2.2 Complexity of the human element

The *complexity of the human element* is recognized in the theatre; as individuals in their roles (functions), identities (necessary competences and traits, the “image” of the

character), as characters (enacted “knowledge”) and as actors (social beings). In contexts outside the theatre these concepts are not consciously differentiated to the same degree. Even if a difference can be said to exist between the four concepts, with respect to their scope and purposes, there is no physical difference, as physically, it is the same human resource. The triplicity mentioned above adds a further meta-level aspect to this complexity, as all participants are assigned different roles in the different contexts of organization, information system and information system development.

Human resource development then becomes as important to the system development as traditional analysis, design and implementation.

### 23.2.3 Overlaps of processes and jumps between roles

The *overlaps of processes* in collations, rehearsals and performances were also observed in the school context, although these concepts tended to merge into all situations at once. These overlaps occur with diverging perspectives in specific situations, even if they have the same goal.

The situations of collation and rehearsal develop whenever a person in a managerial position informs or instructs his/hers subordinates. The same situations should also be considered as performances, as the director is acting out the “information” and instructions in one way or another. The difference between these concepts is only in the purpose of the situation, as in the former, something to be further evolved is communicated while the latter should result in the final message to be received and processed. But in a dynamic system, the individuals are not constrained by fixed processes, and they can jump from one process to another, as a part of the information processing (figure 28).

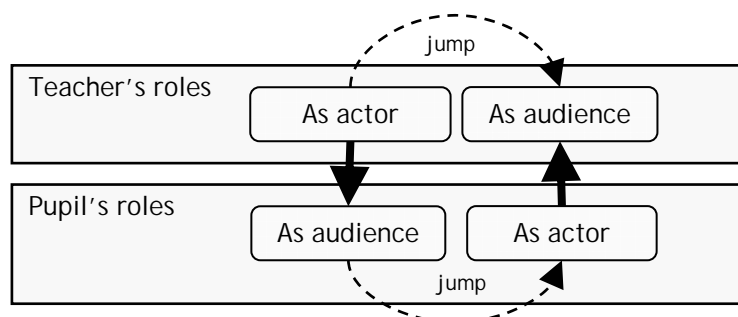


Figure 28. Shifts between roles.

The diverging perspectives and diverging conceptions of the issue at hand in different meetings between humans trigger *jumps between roles*. Accordingly, the director (teacher) is required to become the audience and then the playwright in order to instantaneously change the manuscript and his performance to meet the needs of the pupils.

With more exchange of information and inter-organizational communication, the roles of the actors in the organization /system become even more dynamic. Not only do the central processes overlap in situations in which interaction between the different roles is essential, but the actors also shift between the core roles in the development process, depending on the context-dependent situations.

As a side note reflection, if the character is the developer, he must also investigate his own traits, motivations and actions! This circular reasoning applies especially in manual systems in which the developer/user/function is a part of the social context.

#### 23.2.4 The use of rhetorical elements

Both the theatre and education at the folk high school make extensive use of all the *rhetorical elements* available as means of persuading the audience, pupils and colleagues to interpret the premise in the intended way. In the school context, the teachers rely on argumentative communication, emphasized by the teacher's commitment to the specific issues. Computer-based development tends to rely superficially on rhetorical logos and although ethos and pathos is definitely present in meetings between stakeholders, users and developers, it is not as consciously used there.

A theatre production, in the same way as any other manual information system, includes elements of information that are otherwise not easy to codify, but the theatre production enhances the experience of the system and can make it easier to interpret; e.g. expressions of emotions and the articulation of the reasoning in dialogues between the characters.

In the school situation expressions of emotions and the articulated reasoning in dialogues between the participants are frequently used both as performance enhancements and as feedback responses in specific situations in order to indicate whether or not the information has reached the recipients as intended. In these situations all traits of the "performing characters" must be taken into consideration, moods, the social situations of the individual, their background knowledge, etc. As each individual has a unique set of traits, each situation must be handled differently, i.e. playwritten, directed and enacted instantaneously.

### 23.3 Similarities of narrative and dramaturgical elements

#### 23.3.1 Creative and social contexts - narrative and dramaturgical approaches

Another reason for choosing the folk high school as a research object for the test phase, was the similarity of its *creative and social context*, which to a large degree related to another similarity, the use of humanly communicating methodologies; in the theatre we can call it a *narrative and dramaturgical* approach, while in the school context it is referred to as *pedagogy*. They can be seen as more or less overlapping, as they are both primarily communicating "text-based knowledge" with different models for its presentation.

### 23.3.2 From artistic creativity to artistic engineering

*Artistic creativity* is essential in theatre productions but is not of such importance in the school. It is there, but is not seen as any primary factor. The teacher is not emphasized as a *performer*, although those skills are necessary. Professionals from the theatre or the folk high school may not agree, but as the theatre production as well as education can be seen as structured processes, they can be considered to be *artistic engineering*.

The notion of the “developer as a creative artist” is fertile ground from which a more creative environment for the developer may emerge as well as a discussion relating to system development aesthetics, not only within the realms of user interface design or information systems as a design science, but to the development process as such creating “beautiful” methods.

How the necessary creativity in theatre productions is created can be explained by the artistic creativity process (chapter 9). Looking at the overall process using the phases from ISD the processes can superficially resemble each other (figure 29). However, studying the creativity process more closely, it is evident that it is a process *within* several steps of the development process as such and is hence not quite comparable with ISD, as it refers to the individual artist rather than to the development process as a whole. Neither the adventure-based learning model is comparable to ISD, as it alike the creativity process is an individual process, though it is similar to ISD in that it can be seen as a more structured process with an end-to-be-achieved (even though the outcome is unknown). As each step in each of the processes includes a creative element, the creativity process can be seen everywhere in the development processes. Some of the “creativity” has been subjected to “engineering”, e.g. manufacturing logical reasons behind the character’s motivation in the theatre production. The notion of the “developer as a creative artist” can be an area of further research.

The role of the audience is neglected and the aspect of a visit to the theatre as a social event and as an adventure should be given more consideration in developing social and socio-technical systems.

Adventure-based learning:

|            |           |        |                 |
|------------|-----------|--------|-----------------|
| Separation | Encounter | Return | Reincorporation |
|------------|-----------|--------|-----------------|

Artistic creativity:

|             |            |              |              |
|-------------|------------|--------------|--------------|
| Preparation | Incubation | Illumination | Verification |
|-------------|------------|--------------|--------------|

Information system development:

|          |        |                |           |
|----------|--------|----------------|-----------|
| Analysis | Design | Implementation | Operation |
|----------|--------|----------------|-----------|

Figure 29. Comparison between adventure-based learning, the creativity process and ISD.

## 24 A NEW LOOK AT THE DEVELOPMENT PROCESS

This chapter suggests a new perspective in the study of the development of systems and organizations.

### 24.1 Four core processes

In the first study I identified the core concepts of theatre production, its processes, roles, etc, in the development of a process mainly intended for the development of manual information systems. The four core processes in theatre production relates to each other in this way:

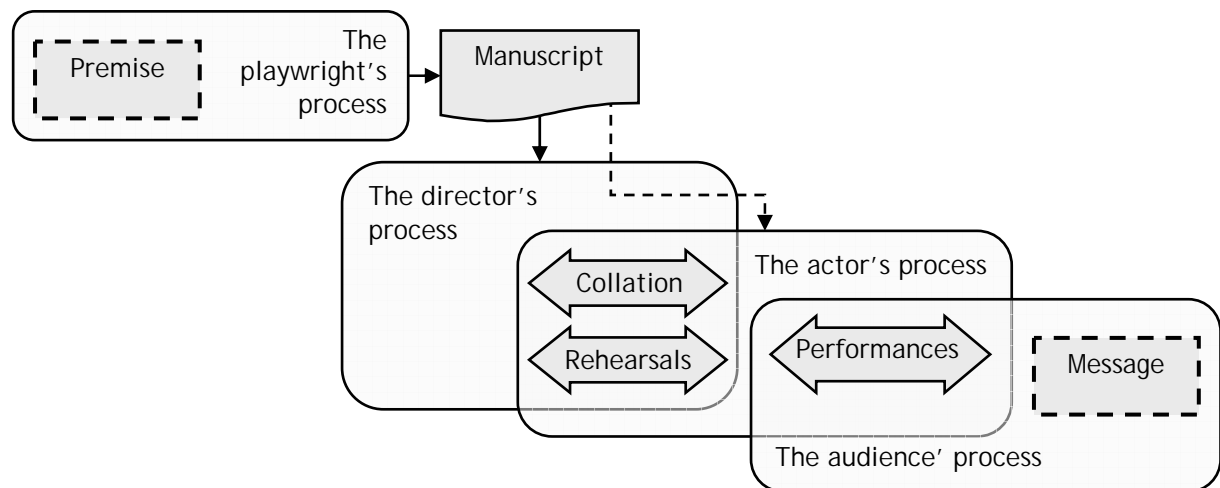


Figure 30. The four core processes of Theatre productions

In every type of organization, these core processes exist, more or less explicitly:

- Someone must express a premise to begin with, and through this premise define the purpose of the organization (the playwright).
- Someone must manage the organization and lead the cast to the stated goal (the director).
- Someone must perform the actions and activities needed to achieve the stated goal (the actor).
- Someone must receive the result of those actions and activities (the audience).

In enterprises other than theatre productions, these roles are not always clearly defined and delimited. Different individuals can in different situations within an organization play one or more roles from the core processes (as the playwright, the di-



rector, the actor and the audience) and of course from the many other mostly supporting processes.

## 24.2 Redefining the development process

A common view of the development process for information systems has been as a sequential order of events, from the perception of the need for a new information system, via the development process (which in itself need not be sequential), until the information system is operational. When implemented and deployed the product of the information system is obtained through interaction between the system and its users. Those concepts have been seen as separate entities, individuals influenced by the organization and the external environment taking part in the separate processes of developing and using information systems (figure 31).

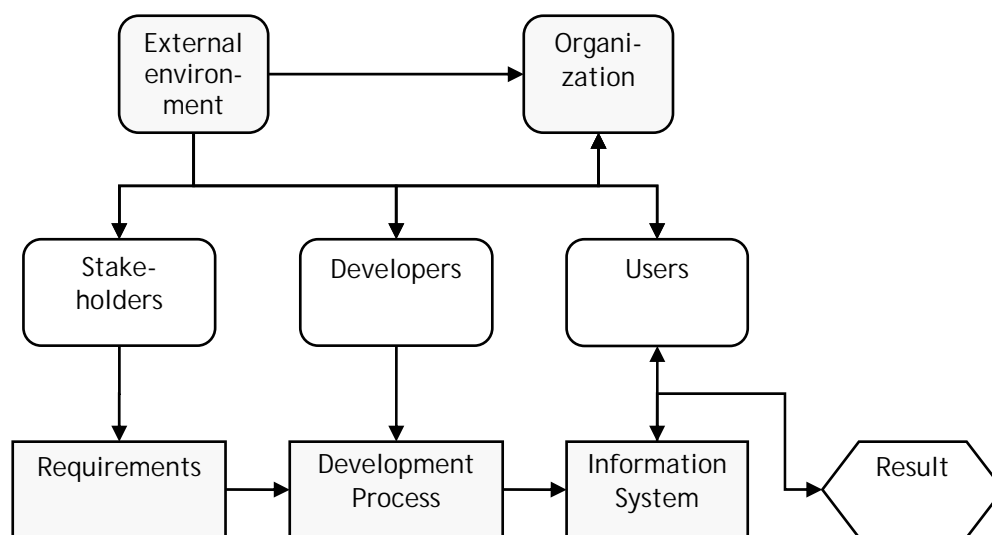


Figure 31. A common view of information system development

## 24.3 Information systems are development processes

The “premise” as both purpose and information is a promising concept for further study as it may well be suited for use in situations for which standardized solutions are not available. A system which can satisfy a need in an organization regardless of previous systems or situations is more suited for an evolving and changing organization in which new factors may emerge. The notion of theatre production as both a development process and an information system gives a new perspective on the use of static procedures within the organization.

From the acknowledgement of theatre production as a development process, in which the actual knowledge or other results from the system is created only in the minds of the individuals, another model emerges, better suited to the notion of development processes as also being an information system in their own right (figure

32). This model also takes into consideration that each individual using this system is part of the development process itself as well as part of the information system. The study of a folk high school emphasized that in a specific situation, each individual can assume any of these core roles. Therefore we cannot divide the individuals in this model into the separate roles, as they, the separate roles, should be seen as processes *within and between* the individuals, rather than as separated processes as such.

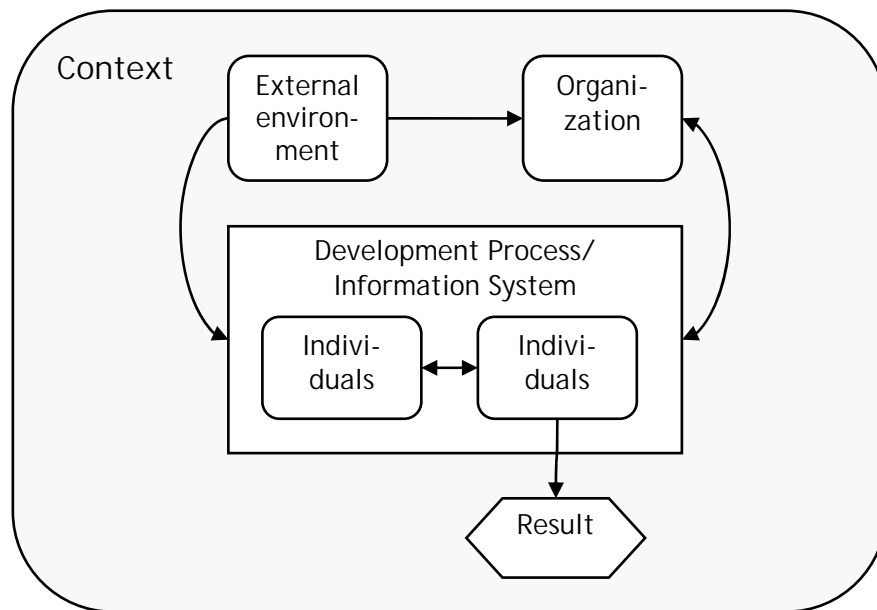


Figure 32. Another view of information system development.

The creation of such a manual system must involve a readiness in the organization to constantly question existing routines, as well as the existing purposes, goals, structures, etc. of the organization, to be able to determine the need for enhancement of the knowledge, skills and competence existing within the organization. Repeated “rehearsals” in which those concerned “improvise” on a relevant subject could be used for this determination.

The organization must have knowledge of the real resources of the organization and which “knowledgeable agents” are available within the organization, to put these resources to work in a specific manual system. The organization must know where the knowledge is available within the organization and be able to reallocate it for the particular purpose at hand as well as being aware of other changes to and in the organization. We can see a resemblance between this approach and object-oriented system development, despite a significant difference:

Instead of simulating the real world with computer-programmed objects and classes, we can seek the responsibility for a specific task in the actual real, physical world. If the organization lacks suitable agents for performing a specific task, we must obtain

them in some way, either through acquiring them from outside the organization (buying, hiring, etc) or through developing the agents within the organization (training, education, etc)

## 24.4 Organizations are information systems

An organization as a concept in modern research is mostly considered as a social construction. As such, it only exists because a group of people agree upon its purposes. No organization exists “in the wild”, but must stem from a purpose that the parties in agreement can benefit from in some way.

There is no practical difference between the simple definition of “organization” as “a group of persons formally joined together for some common interest” (Merriam-Webster, 1998), and the definition of an “information system” as a system to process information, since the organization must process information to be able to function.

It could be said that an information system is “used” by the organization, as a tool, but in that case it’s rather a question of where the information system ends is then of interest. What part of an organization does not process information when we include the humans as parts of the information system?

The information system cannot be seen in isolation from the organization as the organization states the purpose and constitutes the context for the information system. Computer-based systems can be suitable for many situations in which there is no need for contextual knowledge, but it is probably in situations where they are unsuitable that pure manual systems can be preferable, as more of the context can be built into manual systems. An approach based on perspectives from theatre production can be an effective means of communicating topical issues and increasing the user’s knowledge and skills in a variety of contexts.

The notion of the theatre production as an “open” system places the system and the process in a cultural context, not only within the organization, but also in relation to current topics of interest to society outside the organization.

The significance of the impact of these topics on the individuals within the system is appreciable and makes it necessary to expand the limits of the system.

As the development process could also be seen as the information system itself, even the deconstruction and reconstruction of the plot and the characters have a significant role in the solution of the problem to be solved, as it can reveal underlying factors, which in turn can explain the appearance of the perceived problem. In the analysis of agents/characters, their existing, visible traits must be compared with the traits found suitable for the fulfillment of the premise. The agents/characters can subsequently be given new and supplementary traits to enable their resolution of any new situation which may arise. Some kind of “rehearsals” should be considered, especially for manual systems, as manual systems build upon the premise that not everything can be codified.

When dealing with manual systems, the three concepts of organization, information system and development process must be seen as one entity because in this context the same social contracts apply for the individuals, both as members of an organization, developers of the system, and as elements of the system.

The purpose of an organization is to work toward the “common interest”, whether it is a business or some other enterprise. If then the explicit purpose of the information system is to support that purpose, the implicit purpose is the same as for the organization. The purpose of the development process in turn is to “develop” that information system, which in turn makes the implicit purpose the same as for the organization.

Taking this reasoning one step further, when the development is continuous, with no explicit end, or when dealing with temporary organizations, the organization of which is liquidated at the same time as the development process ends, the process is as much part of the information system as other resources and elements.

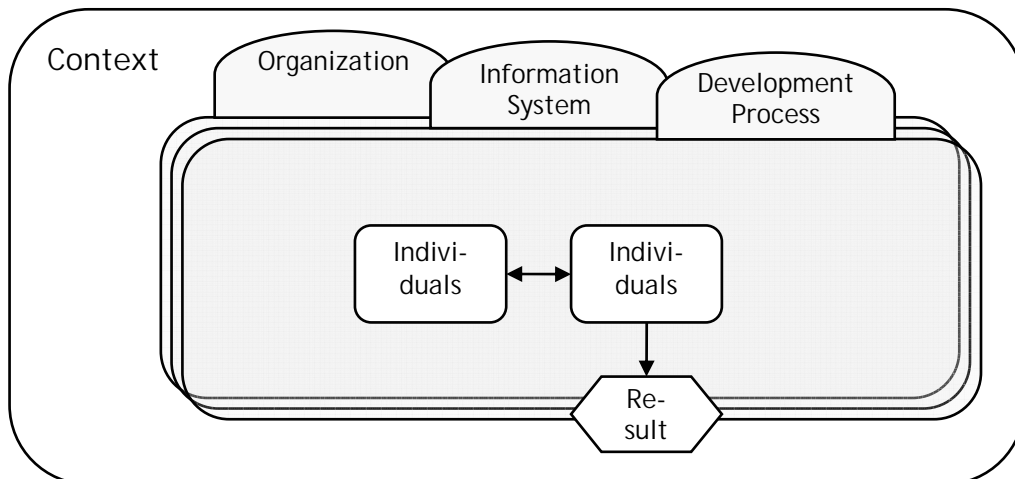


Figure 33. Another view on information system development

As humans can never replicate a specific performance exactly the next time a similar situation occurs, all manual systems based on human to human interaction, must to some degree be considered as “temporary” systems, as the interaction is not the same the next time. In the development of manual information systems there is greater overlap toward business process, organizational and human resource development than in the development of computer-based systems

## 25 THE FINAL SENTENTIAE

This chapter contains my final reflections on this study, what I think can be learned from my research.

The characteristics of theatre productions can be summarized in three main points;

- the triplicity of a theatre production as a development process, an information system and an organization at the same time;
- the integrated relations of context, developers and users, which in the folk high school case leads to spontaneous changes and overlaps of development roles;
- the narrative and dramaturgical approach in the practical use of methods and techniques.

These characteristics were confirmed to exist in the folk high school as well, which implies that the theatre concepts can be used in many types of organizations with a creative and social context, e.g. service organizations with great focus on interaction with the customers, primarily the kind of purpose *seeking* systems I mentioned in chapter 8.

A consequence of the triplicity of manual systems is that methods of developing and improving such systems become equally much a question of system development, organizational development, business process development and human resource development. The scope of a development in these areas must be based on the premise of the organization/business, as that will be the guide to formulate premises for the information systems and development processes.

Just as there are no pure open or closed systems, there are no pure hard or soft systems. Regardless of the purposes and activities of any information system, they contain elements of both. Although Checkland claims that human activity systems cannot be engineered, theatre shows that the *image* of humans can be engineered at least to some degree, and that enacting that image gives more than just structure to the information, as it still is humans enacting that image.

One issue emerging from this research is if the outcome of a system development process can be predicted, or if it's even desirable for an outcome to be predictable, as the context constantly changes. If the information system supports or enhances some part of the organizational premise when it is deployed, it could be considered "good enough", but the context will always change; the external environment change, the market change, technology change and people change.

The development process of an information systems never ends, it only changes from the conscious processes of analysis, design and implementation, to an operations phase where analysis, design and implementation occurs more spontaneous, affected by the contexts as perceived by the individuals. Information system development

should hence consider the human to human interaction as functional parts of the development, recognizing not only users as users, but as characters enacted by complex individuals, having roles and identities.

All participants in a manual information system become, at one point or another, the playwright, director, actor and audience. We can then consider each specific informing situation as a creative adventure, with an unknown outcome as we will never know the exact conception of the information at the receivers end. The information system will also constantly change, at least in the perception of the users, as people constantly change.

As the basic characteristic of manual information systems is human to human interaction, they are more closely associated with the concept of “informing systems” than computer-based system, and then the need to relay “meaning” is more important than the need to process data or information. In order to do this, semiotic and psychological concerns override pure technical aspects.

For manual information systems, the goal of the development process should hence be to create dynamic, flexible and reflective activities intended to convey the “premise” of the system rather than perform the processing of data and information. In order to do so, the methods for forming these activities and events must have an “artistic and creative” ingredient.

Most of the elements representing the mentioned concepts are present in some way or other in all information system development, although not always consciously used. The premise and other contextual elements guide how the participants in the system interact, and can also suggest specific implementations of narrative and dramaturgical elements to enhance the information, as they affect the perception of the issues at hand (figure 34).

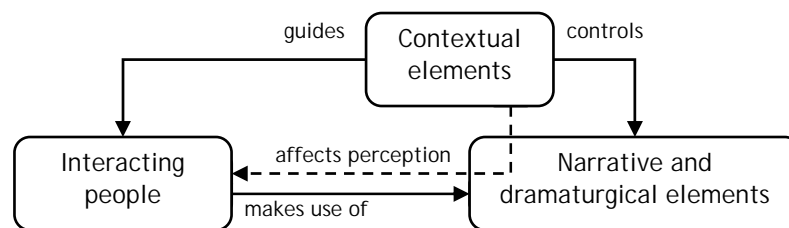


Figure 34. Relations between the categories

Even if most of the concepts from the theatre have on the surface some counterparts in traditional system development, the concepts from theatre production tend to go deeper, as they are used not only as technical terms, but also having associated social and psychological aspects, which must be considered further when information system development in the future will be dealing with *artistic engineering*.

# APPENDICES

*Words, words, words.*

William Shakespeare: *Hamlet*, Act II, Scene 2 (Shakespeare, 1980)

## 1. RESPONDENTS IN THE THEATRE STUDY

Most of the respondents in the first empirical study – on Theatre Productions – had experience from most areas of theatre work. The functions listed in table 13 are those they had at the time of the interviews.

Table 13. Interviews made in the study of theatre productions

| Respondent          | Date                     | Function  | Theatre                                   |
|---------------------|--------------------------|---|---|
| Andrén, Sven        | 2003-08-01               | Director  | Folkteatern besöker, Göteborg             |
| Bergqvist, Magnus   | 2004-03-30<br>2004-04-20 | Administrative manager,<br>artistic manager, director           | Teater Västmanland, Västerås              |
| Billström, Christer | 2003-01-17               | Lighting manager, lighting<br>designer                          | Teater Västmanland, Västerås              |
| Ekström, Nilla      | 2002-11-04               | Producer  | Teater Västmanland, Västerås              |
| Eriksson, Mats      | 2003-08-01               | Administrative manager,<br>Production manager, pro-<br>ducer    | Backa Teater, Göteborg                    |
| Fredman, Eva        | 2004-04-14               | Director, playwright  | 4:e Teatern, Västerås                     |
| Hintze, Sören       | 2003-01-24               | 1:st lighting technician  | Stockholms Stadsteater                    |
| Lange, Jesper       | 2004-04-05               | Playwright  | (freelance)                               |
| Larsson, Einar      | 2004-04-07               | Playwright, scenographer  | 4:e Teatern, Västerås                     |
| Lindqvist, Bernt    | 2003-06-02<br>2004-02-18 | Administrative manager,<br>artistic manager, director,<br>actor | Smålands Musik och Teater, Jön-<br>köping |
| Lengstrand, Björn   | 2003-03-24               | Production manager  | Göteborgs Stadsteater                     |
| Söderberg, Sten     | 2003-01-22               | Head of the lighting de-<br>partment                            | Upsala Stadsteater                        |



## 2. RESPONDENTS AT THE FOLK HIGH SCHOOL

All of the staff of AFiG during my period of research has given input to my research in one way or another. In some cases they have only participated through informal conversations, e.g. in the staff office or on lunch breaks, but the formal interviews is listed in table 14 with dates. Most of the teachers have also participated by letting me make observations during their lectures.

Apart from the staff I also made interviews with some of the members of the executive board and a sample of pupils. I have chosen not to put them into the list, as they otherwise could be singled out in the presentation of the empirical material.

Table 14. Staff of AFiG

| Staff                  | Date       | Function                     |
|------------------------|------------|------------------------------|
| Andergårdén, Jane      | 2006-02-23 | Teacher                      |
| Andersson, Anette      |            | Administrative staff         |
| Axelsson, Jill         | 2006-01-17 | Teacher                      |
| Bjursell, Theodor      | 2006-01-11 | Teacher                      |
| Boqvist, Marja         | 2006-01-12 | Teacher                      |
| Cannefors, Holger      | 2006-03-03 | Teacher                      |
| Fingal, Kenet          | 2006-01-17 | Teacher                      |
| Gobert, Margareta      | 2006-01-23 | Teacher, counselor           |
| Haglund, Carl-Gunnar   | 2006-01-13 | Teacher                      |
| Hansson, Stellan       | 2005-05-03 | Headmaster                   |
| Hedmark, Kristina      | 2006-02-21 | Teacher, study counselor     |
| Hermiz, Ishak          |            | Janitor                      |
| Johansson, Anna        | 2006-01-12 | Teacher, librarian           |
| Larsson, Bengt         |            | Janitor, IT maintenance      |
| Lejhall, Jens          | 2006-02-23 | Teacher, trainee             |
| Linder, Magnus         |            | Teacher                      |
| Merimo Torres, Natalia |            | Teacher                      |
| Moberg, Eva            | 2006-02-02 | Teacher                      |
| Nyberg, Hans           | 2006-01-16 | Teacher, IT responsibilities |
| Rashan, Saied          | 2006-02-10 | Teacher, IT responsibilities |
| Säfström, Britt        |            | Janitor                      |
| Samuelsson, Nils-Erik  | 2006-02-02 | Teacher                      |
| Smith, Kristina        |            | Administrative staff         |
| Tollnäs, Claes         | 2006-01-16 | Teacher, study counselor     |

### 3. LIST OF MY PUBLICATIONS

Parts of this work have been published as separate articles and in other works of the author. According to specific copyrights transferred to some of the organizations I have to acknowledge them in works where the material occurs. In order to make the list complete I also list below those publications where such copyright transfers haven't occurred.

Abelli, B., & Révay, P. (2004). To be or not to be Computer based. *Proceedings of microCad International Conference 2004*, Miskolc Hungary. pp. 1-8.

Abelli, B. (2004). *Theatre Productions: A System Development Process*. [licentiate thesis no 30] Mälardalen University Press.

Abelli, B. (2006). Enacting the e-Society. *Proceedings of IADIS International Conference on e-Society 2006*. Dublin, Ireland.

Abelli, B. (2006). Directing and Enacting the Information System. *Paper presented at the 15<sup>th</sup> International Conference on Information System Development 2006*. Budapest, Hungary.

#### 4. LIST OF TABLES

|   |     |
|---|-----|
| Table 1. Mapping of traditional dissertation elements to this presentation.....                 | 5   |
| Table 2. The results of the purpose and research steps .....                                    | 16  |
| Table 3. Four modes of knowledge conversion (Nonaka & Takeuchi, 1995) .....                     | 21  |
| Table 4. The phases of artistic creativity. (Bergström, 1988) .....                             | 50  |
| Table 5. Ontological and epistemological views on<br>social constructivism and pragmatism. .... | 64  |
| Table 6. Categorization and recategorization.....   | 80  |
| Table 7. Generalizability of a measurement or<br>observation. (Lee & Baskerville, 2003) .....   | 81  |
| Table 8. A tentative comparison of the stages in the processes.....                             | 105 |
| Table 9. How the contextual elements correspond to IS/ISD.....                                  | 111 |
| Table 10. How the concepts of interacting people correspond to IS/ISD.....                      | 112 |
| Table 11. How the narrative and dramaturgical elements correspond to IS/ISD.....                | 116 |
| Table 12. The concepts used for analysis (tentative) .....                                      | 118 |
| Table 13. Interviews made in the study of theatre productions .....                             | 154 |
| Table 14. Staff of AFiG .....   | 155 |

## 5. LIST OF FIGURES

|            |  |     |
|------------|--|-----|
| Figure 1.  | The lack of contents in steps for manual systems development .....   | 11  |
| Figure 2.  | A preceding analysis phase for selecting a development model .....   | 12  |
| Figure 3.  | The DIKW-hierarchy.<br>(Awad & Ghaziri, 2004; Chaffey & Wood, 2005; Rowley, 2006).....                                 | 19  |
| Figure 4.  | DIKW as a linear process.....  | 20  |
| Figure 5.  | Levels of communication in informing systems (Lundberg, 1994a).....  | 22  |
| Figure 6.  | Formalized and non formalized processing and<br>information in a system (Wigander et al., 1979) .....                  | 31  |
| Figure 7.  | The organization as an open system. (Cummings & Worley, 2005) .....  | 37  |
| Figure 8.  | Freytag's pyramid. (Heed, 2002) .....  | 45  |
| Figure 9.  | The levels of interpretation. ....   | 56  |
| Figure 10. | Relations between the settings of my research .....  | 65  |
| Figure 11. | The overall time box for the research project consists of<br>several time boxes for each distinguishable artifact..... | 73  |
| Figure 12. | A single time box/iteration.....   | 74  |
| Figure 13. | The iterations in the empirical study .....  | 75  |
| Figure 14. | Iterative conceptualization.....   | 77  |
| Figure 15. | Generalizing in my research .....  | 83  |
| Figure 16. | The transformation of the premise to a message for the audience. ....  | 97  |
| Figure 17. | The playwright's process I. ....   | 98  |
| Figure 18. | The playwright's process II.....   | 99  |
| Figure 19. | The director's process. ....   | 100 |
| Figure 20. | The actor's process. ....  | 101 |
| Figure 21. | The audience' process.....   | 103 |
| Figure 22. | The audience' process.....   | 104 |
| Figure 23. | The organizational structure of AFiG.....  | 124 |
| Figure 24. | The teachers assigned to courses and teams. ....   | 125 |
| Figure 25. | The interaction between the teacher and the pupils during lectures. ....   | 130 |
| Figure 26. | The interaction between the teacher and the pupils in e.g. tutoring. ....  | 131 |
| Figure 27. | The teacher's inclination to use pull techniques or depend on push. ....   | 133 |
| Figure 28. | Shifts between roles.....  | 143 |
| Figure 29. | Comparison between adventure-based learning, the creativity<br>process and ISD. ....                                   | 145 |
| Figure 30. | The four core processes of Theatre productions .....   | 146 |
| Figure 31. | A common view of information system development .....  | 147 |
| Figure 32. | Another view of information system development. ....   | 148 |
| Figure 33. | Another view on information system development .....   | 150 |
| Figure 34. | Relations between the categories .....   | 152 |

## 6. LIST OF REFERENCES

- Abelli, B. (2004). *Theatre Production - A System Development Process*. [Licentiate thesis], Mälardalen University Press, Västerås.
- Abelli, B. (2006a). Directing and Enacting the Information System. *Paper presented at the 15th International Conference on Information System Development, Budapest, Hungary*.
- Abelli, B. (2006b). Enacting the e-Society. *Paper presented at the IADIS International Conference e-Society 2006, Dublin, Ireland*.
- Ackoff, R. (1981). *Creating the Corporate Future*. New York: John Wiley.
- Ackoff, R. (1989). From data to wisdom. *Journal of Applied Systems Analysis*, 16, 3-9.
- Alter, S. (1998). *Information systems: a management perspective* (3 ed.): Addison Wesley.
- Alvesson, M., & Sköldberg, K. (2002). *Tolkning och reflektion, vetenskapsfilosofi och kvalitativ metod*. Lund: Studentlitteratur.
- Argyris, C., & Schön, D. (1978). *Organizational Learning: A Theory of Action Perspective*. Reading, Mass: Addison-Wesley.
- Aristotle. (1961). *Poetics* (S. H. Butcher, Trans.). New York: Hill & Wang.
- Aristotle. (2007). *On rhetoric: a theory of civic discourse* (G. A. Kennedy, Trans.). New York: Oxford university press.
- Ashenhurst, R. L. (1972). Curriculum Recommendations for Graduate Professional Programs in Information Systems, A Report of the ACM Curriculum Committee on Computer Education for Management. *Communications of the ACM*, 15(5), 363-398.
- Awad, E. M., & Ghaziri, H. M. (2004). *Knowledge Management*. Upper Saddle River, NJ: Pearson Education International.
- Avgerou, C. (2000). Information systems: what sort of science is it? *Omega*, 28, 567-579.
- Avgerou, C., Siemer, J., & Bjørn-Andersen, N. (1999). The academic field of information systems in Europe. *European Journal of Information Systems*, 8, 136-153.
- Avison, D. E., & Fitzgerald, G. (1995). *Information Systems Development: Methodologies, Techniques and Tools* (2nd ed.). London: McGraw-Hill.
- Banathy, B. H. (1988). Matching Design Methods to System Type. *Systems Research*, 5(1), 27-34.
- Barnard, C. I. (1938). *The Functions of the Executive*. Cambridge, Massachusetts and London, England: Harvard University Press.

- Barrow, P. D., & Mayhew, P. J. (2000). Investigating principles of stakeholder evaluation in a modern IS development approach. *The Journal of Systems and Software*, 52, 95-103.
- Beeson, I., Green, S., Sa, J., & Sully, A. (2002). Linking Business Processes and Information Systems Provision in a Dynamic Environment. *Information Systems Frontiers*, 4(3), 317-329.
- Benington, B. (1956, June). Production of Large Computer Programs. *Paper presented at the ONR Symposium. Advanced Programming Methods for Digital Computers*.
- Bennett, S. (1997). *Theatre Audiences: A Theory of Production and Reception*. London: Routledge.
- Bentley, C. (1996). *Introducing Ssadm4+ (Systems Development Library)*. Oxford: Blackwell Publishers.
- Bergström, G. (1988). *Skådespelaren och det skapande ögonblicket*. Göteborg: Esselte Studium, Akademiförlaget.
- Berndtsson, R. (2000). *Om folkhögskolans dynamik. Möten mellan olika bildningsprojekt* (Linköping studies in education and psychology No. 75). Linköping: Linköpings universitet.
- Berry, D., Hungate, C., & Temple, T. (2003). Delivering expected value to users and stakeholders with User Engineering. *IBM Systems Journal*, 42(4), 542-567.
- Blau, P. M., & Scott, R. (1962). *Formal Organizations*. San Francisco: Scott, Foreman.
- Blume, P. (1999). Changes in the Sources of Law in Information Society. *International Review of Law Computers & Technology*, 13(3), 325-335.
- Bly, M. (Ed.). (1996). *The Production Notebooks: Theatre in Process* (Vol. 1). New York: Theatre Communications Group.
- Boehm, B. (1979). Software Engineering - as it is. *Paper presented at the Fourth International Conference of Software Engineering, USA*.
- Boehm, B. (1988). A spiral model for software development and enhancement. *IEEE Computer*, May 1988, 61-72.
- Boenisch, P. M. (2003). coMEDIA electrONica: Performing Intermediality in Contemporary Theatre. *Theatre Research International*, 28(1), 34-45.
- Boole, G. (1854). *An Investigation of the Laws of Thought*. New York: Dover Publications.
- Boylan, T. A., & O'Gorman, P. F. (2003). Pragmatism in Economic Methodology: The Duheim-Quine Thesis revisited. *Foundations of Science*, 8, 3-21.
- Brecht, B. (1964). *Brecht on Theatre* (J. Willett, Trans.). London: Methuen.
- Brocket, O. G. (1987). *History of the Theatre* (5th ed.). Boston: Allyn and Bacon.

- Brooks, F. P. (1987). No Silver Bullet: Essence and Accidents of Software Engineering. *Computer*, 20(4), 10-19.
- Brumberger, E. R. (2005). Visual Rhetoric in the Curriculum: Pedagogy for a Multimodal Workplace. *Business Communication Quarterly*, 68, 318-333.
- Brunsson, N., & Olsen, J. P. (1998). Organization theory: Thirty Years of Dismantling, and then...? In N. Brunsson & J. P. Olsen (Eds.), *Organizing Organizations* (pp. 13-46.): Fagbokforlaget.
- Burell, G. (1996). Normal Science, Paradigms, Metaphors, Discourses and Genealogies of Analysis. In S. R. Clegg, C. Hardy & W. R. Nord (Eds.), *Handbook of Organization Studies* (pp. 642-658): Sage.
- Burry, M., Coulson, J., Preston, J., & Rutherford, E. (2001). Computer-aided design decision support: interfacing knowledge and information. *Automation in Construction*, 10, 203-215.
- Cambridge University Press. (2003). *Theatre Research International*. Retrieved 2003-04-22, from [http://titles.cambridge.org/journals/journal\\_catalogue.asp?mnemonic=TRI](http://titles.cambridge.org/journals/journal_catalogue.asp?mnemonic=TRI)
- Carlson, M. (1990). *Theatre Semiotics: Signs of Life*. Bloomington and Indianapolis: Indiana University Press.
- Carlson, M. (2001). Theatre and Performance at a Time of Shifting Disciplines. *Theatre Research International*, 26(2), 137-144.
- Casey, A. (2005). Enhancing Individual and Organizational Learning: A Sociological Model. *Management Learning*, 36(2), 131-147.
- Chaffey, D., & Wood, S. (2005). *Business Information Management: Improving Performance Using Information Systems*. Harlow: Prentice Hall.
- Checkland, P. (1999). *Systems Thinking, Systems Practice*. Chichester, England: John Wiley & Sons, Ltd.
- Conway, T., & Whitelock, J. (2007). Relationship marketing in the subsidised arts: the key to a strategic marketing focus? *European Journal of Marketing*, 41(1/2), 199-222.
- Creath, R. (1998). Quine and the Limit Assumption i Peirce's Theory of truth. *Philosophical Studies*, 90, 109-112.
- Cugola, G., & Ghezzi, C. (1998). Software processes: a retrospective and a path to the future. *Software Process: Improvement and Practice*, 4(3), 101-123.
- Cummings, T. G., & Worley, C. G. (2005). *Organization Development and Change* (8th ed.). Mason, Ohio: Thomson/South-Western.
- Dahlbom, B., & Mathiassen, L. (1996). *Computers in Context*. Oxford: Blackwell Publishers.

- Davenport, T. H., & Prusak, L. (2000). *Working Knowledge - How Organizations Manage What They Know*. Boston, MA: Harvard Business School Press.
- De Kerckhove, D. (1982). Theatre as Information-Processing in Western Cultures. *Modern Drama*, 25(1), 143-153.
- DeMarco, T., & Lister, T. (1999). *Peopleware: Productive Projects and Teams* (2nd ed.). New York: Dorset House.
- Deming, E. (1986). *Out of the crisis*. Cambridge, MA: MIT Center for Advanced Engineering.
- Diesing, P. (1997). A note on the performing arts. *Journal of Economic Issues*, 31(4), 1059-1060.
- DiMaggio, P. J. (1995). Comments on "What theory is not". *Administrative Science Quarterly*, 40, 391-397.
- DSDM Consortium. (2002). Dynamic Systems Development Method, Version 4.1. [CD-ROM]. Ashford, Kent, UK: eWay Limited.
- Dubin, R. (1983). Theory building in applied areas. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (pp. 17-39). New York: John Wiley & Sons.
- Dyfverman, H. (1949). *Dramats Teknik*. Stockholm: Natur och Kultur.
- Egidius, H. (1986). *Positivism - fenomenologi - hermeneutik, konsekvenser för didaktik och vårdvetenskap*. Lund: Studentlitteratur.
- Egri, L. (1960). *The Art of Dramatic Writing. Its Basis in the Creative Interpretation of Human Motives*. New York: Simon and Schuster.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.
- Eisenhardt, K. M. (1991). Better stories and better constructs: the case for rigor and comparative logic. *Academy of Management Review*, 16(3), 620-627.
- Engwall, L. (1992). *Mercury Meets Minerva*. Oxford: Pergamon Press.
- Eriksson, I. V., Dickson, G. W., & El Sawy, O. A. (2000). Reflections on designing field research for emerging IS topics: the case of knowledge management. *Communications of the AIS*, 3(March 2000), Article 6.
- Ferre, F. (1988). *Philosophy of Technology*. Englewood Cliffs, NJ: Prentice Hall.
- Field, T. (1997). When BAD Things Happen to GOOD Projects. *CIO Magazine*, 15 October 1997, 55-62.
- Firesmith, D. G., & Henderson-Sellers, B. (2002). *The OPEN Process Framework: An Introduction*. Harlow: Addison-Wesley.



- Folkbildningsrådet. (2005). *Folkbildningens Framsyn: Folkbildning of the future, its role and objectives*. Stockholm: Folkbildningsrådet / Swedish National Council of Adult Education.
- Fortier, M. (2002). *Theory/theatre: an introduction* (2 ed.). London: Routledge.
- Fransella, F., & Bannister, D. (1977). *A Manual for Repertory Grid Technique*. London: Academic Press.
- Funke, L., & Booth, J. (Eds.). (1961). *Actors Talk About Acting*. New York: Avon.
- Gagliardi, P. (2007). The Collective Repression of 'Pathos' in Organization Studies. *Organization*, 14(3), 331-338.
- Garefelt, B. (1997). Om behovet av folkhögskolepedagogik. In *Vuxenpedagogik i teori och praktik. Kunskapslyftet i fokus* (Vol. SOU 1997:158, pp. 343-360). Antologi från Kommittén om ett nationellt kunskapslyft för vuxna. Stockholm: Fritzes.
- Gieryn, T. F. (1999). *Cultural Boundaries of Science. Credibility on the Line*. Chicago, IL: University of Chicago Press.
- Glaser, B. G. (1992). *Basics of grounded theory analysis*. Mill Valley, CA: Sociology Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Godwin, G. (1974). *The Odd Woman*. New York: Warner Books.
- Golden, L. (2004). Aristotle. In M. Groden & M. Kreiswirth (Eds.), *Johns Hopkins Guide to Literary Theory & Criticism*. Baltimore: Johns Hopkins University Press.
- Graham, L. L. (2002). The theatre as a factory. *Buildings*, 96(9), 16.
- Griffiths, T. R. (Ed.). (1982). *Stagecraft - The Complete Guide to Theatrical Practice*. Oxford: Quarto.
- Gustavsson, B. (1991). *Bildningens väg. Tre bildningsideal i svensk arbetarrörelse 1880-1930*. Stockholm: Wahlström & Widstrand.
- Gustavsson, B. (1996). Att leva och lära livet ut: Livslångt lärande ur ett integrativt perspektiv. In P.-E. Ellström, B. Gustavsson & S. Larsson (Eds.), *Livslångt lärande* (pp. 48-72). Lund: Studentlitteratur.
- Göranzon, B. (2006). The Practice of the Use of Computers: A Paradoxical Encounter between Different Traditions of Knowledge. In B. Göranzon, M. Hammarén & R. Ennals (Eds.), *Dialogue, Skill and Tacit Knowledge*. Hoboken, NJ: John Wiley & Sons.
- Hancock, P. (2005). Uncovering the Semiotic in Organizational Aesthetics. *Organization*, 12(1), 29-50.
- Harrison, M. I. (2005). *Diagnosing organizations: methods, models and processes*. Thousand Oaks, CA: Sage Publications.

- Heed, S.-Å. (2002). *Teaterns tecken*. Lund: Studentlitteratur.
- Hildebrand, C. (1999). Intellectual Capitalism: Does KM=IT? Interview of Yogesh Malhotra. *CIO Magazine*(September 15).
- Hirschheim, R., Klein, H. K., & Lyytinen, K. (1995). *Information Systems Development and Data Modeling: Conceptual and Philosophical Foundations*. Cambridge: Cambridge University Press.
- Holwell, S. (2000). Soft Systems Methodology: Other Voices. *Systemic Practice and Action Research*, 13(6), 773-797.
- Huemann, M., Keegan, A., & Turner, J. R. (2007). Human resource management in the project-oriented company: A review. *International Journal of Project Management*, 25, 315-323.
- Hugoson, M.-Å., Hesselmark, O., & Grubbström, A. (1983). *MBI-metoden - En metod för verksamhetsanalys*. Lund: Studentlitteratur.
- Hull, M. E. C., Taylor, P. S., Hanna, J. R. P., & Millar, R. J. (2002). Software development processes - an assessment. *Information and Software Technology*, 44(1), 1-12.
- Humphrey, W. S. (1990). *Managing the Software Process*. Reading, Massachusetts: Addison-Wesley.
- Hunter, M. G. (1998). Managing Information Systems Professionals: implementing a Skill Assessment Process. *Paper presented at the 1998 conference on Computer personnel research*.
- Höghi, R. (1992). *Folkhögskolans pedagogiska praxis. En studie av pedagogiska arbetsformer på långa kurser* (Forskningsgruppen för vuxenpedagogik, Rapport No. 1992:1). Stockholm: Högskolan för Lärarutbildning i Stockholm, Institutionen för pedagogik.
- Iivari, J., & Maansaari, J. (1998). The usage of systems development methods: are we stuck to old practices? *Information and Software Technology*, 40(9), 501-510.
- Jalote, P., Palit, A., Kurien, P., & Peethamber, V. T. (2004). Timeboxing: a process model for iterative software development. *Journal of Systems and Software*, 70(1-2), 117-127.
- Janik, A. (2005). *Theater and Knowledge. Towards a Dramatic Epistemology and an Epistemology of Drama*. Stockholm: Kungliga Dramatiska teatern.
- Johansson, I. (1985). *För folket och genom folket. Om idéer och utvecklingslinjer i studieförbundens verksamhet*. Stockholm: Liber.: Liber.
- Kallendorf, C., & Kallendorf, C. (1989). Aristotle and the Ethics of Business Communication. *Journal of Business and Technical Communication*, 3, 54-69.

- Keil, M., Cule, P. E., Lyytinen, K., & Schmidt, R. C. (1998). A framework for identifying software project risks. *Communications of the ACM*, 41, 76-83.
- Kelly, G. A. (1969). The role of classification in personality theory. In B. Maher (Ed.), *Clinical Psychology and Personality: The Selected Papers of George Kelly*. New York: Wiley.
- Kemecsi, F. (1998). *Skådespelarens skapande process enligt Stanislavskij-metoden*. Stockholm: Liber.
- Kincaid, D. L. (2002). Drama, Emotion, and Cultural Convergence. *Communication Theory*, 12(2), 136-152.
- Klein, H. K., & Myers, M. D. (1999). A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems. *MIS Quarterly*, 23(1), 67-95.
- Knights, D., & Wilmott, H. (1997). The hype and hope of interdisciplinary management studies. *British Journal of Management*, 8, 9-22.
- Kraut, R. E., & Streeter, L. A. (1995). Coordination in software development. *Communications of the ACM*, 38(3), 69-82.
- Kruchten, P. (2000). *The Rational Unified Process: An introduction, Second edition*. Upper Saddle River, NJ, USA: Addison-Wesley.
- Kruchten, P. (2002). *The Rational Unified Process: en Introduktion*. Svenska Utgåvan. London: Addison-Wesley.
- Kull, G. (1997). *Teaterproduktion*. Stockholm: Liber.
- Kulturutskottet. (1997). *Betänkande 1997/98:KrU17*. Retrieved 2007-06-07, from <http://www.riksdagen.se/webbnav/index.aspx?nid=3322&rm=1997/98&bet=KrU17>
- Kvale, S. (1997). *Den kvalitativa forskningsintervjun*. Lund: Studentlitteratur.
- Lan, Y. L. (2003). Shakespeare as Virtual Event. *Theatre Research International*, 28(1), 46-60.
- Langefors, B. (1995). *Essays on Infology: Summing up and Planning for the Future*. Lund: Studentlitteratur.
- Larsson, S. (1995). Folkbildningen och vuxenpedagogik. In B. Bergstedt & S. Larsson (Eds.), *Om folkbildningens innebörder. Nio försök att fånga en företeelse* (pp. 35-57). Linköping: Mimer.
- Laudon, K. C., & Laudon, J. P. (1994). *Management information systems: a contemporary perspective* (3 ed.). New York: MacMillan.
- Laurel, B. (1993). *Computers as Theatre*. Upper Saddle River: Addison-Wesley.

- Lee, A. S. (1989). A Scientific Methodology for MIS Case Studies. *MIS Quarterly*, 13(1), 33-52.
- Lee, A. S., & Baskerville, R. L. (2003). Generalizing generalizability in information systems research. *Information Systems Research*, 14(3), 221-243.
- Lehman, M. M., & Ramil, J. F. (2003). Software evolution – Background, theory, practice. *Information Processing Letters*, 88, 33-44.
- Lewis, C. T. (1993). *A Latin dictionary, founded on Andrews' edition of Freund's Latin dictionary*. Oxford: Clarendon.
- Lewis, M. W., & Grimes, A. J. (1999). Metatriangulation: building theory from multiple paradigms. *Academy of Management Review*, 24(4), 672-690.
- Lindkvist, L. (2005). Knowledge Communities and Knowledge Collectivities: A Typology of Knowledge Work in Groups. *Journal of Management Studies*, 42(6), 1189-1210.
- Lundberg, B. G. (1994a). *Design of Informing Systems* (Report series No. 94-025). Stockholm: Department of Computer and Systems Sciences, Stockholm University/Royal Institute of Technology.
- Lundberg, B. G. (1994b). *On organizational informing systems* (Report series No. 94-026). Stockholm: Department of Computer and Systems Sciences, Stockholm University/Royal Institute of Technology.
- Lundeberg, M., Goldkuhl, G., & Nilsson, A. (1978). *Systemering*. Lund: Studentlitteratur.
- Lundgren, U. P. (Ed.). (1996). *Pedagogisk uppslagsbok. Från A till Ö utan pekpin-nar*. Stockholm: Lärarförbundet/Informationsförlaget.
- Lyytinen, K. (1987). Different Perspectives on Information Systems: Problems and Solutions. *ACM Computing Surveys*, 19(1), 5-46.
- MacGilvray, E. A. (1999). Experience as Experiment: Some Consequences of Pragmatism for Democratic Theory. *American Journal of Political Science*, 43(2), 542-565.
- Malhotra, Y. (1998). TOOLS@WORK: Deciphering the Knowledge Management Hype. *Journal for Quality & Participation*, 21(4), 58-60.
- Malhotra, Y. (2000). Knowledge Management for [E-]Business Performance. *Information Strategy: The Executives Journal*, 16(4), 5-16.
- Mallow, J. V. (2001). Student Group Project Work: A Pioneering Experiment in Interactive Engagement. *Journal of Science Education and Technology*, 10(2).
- Marans, J. (1996). *Old Wicked Songs*. New York: Dramatists Play Service Inc.
- March, J. G., & Simon, H. A. (1958). *Organizations*. New York: Wiley.

- March, S. T., & Smith, G. F. (1995). Design and natural science research on information technology. *Decision Support Systems*, 15, 251-266.
- Markus, M. L. (1983). Power, politics, and MIS implementation. *Communications of the ACM*, 26(6), 430-444.
- Markus, M. L. (1989). Case selection in a disconfirmatory case study. In J. I. Cash & P. R. Lawrence (Eds.), *The information systems research challenge: qualitative research methods*. (pp. 20-26). Boston, MA.: Harvard Business School Research Colloquium, Harvard Business School.
- Martin, J. (1991). *Rapid Applications Development*. New York: Macmillan.
- Mathiassen, L. (2002). Collaborative practice research. *Information Technology & People*, 15(4), 321-345.
- McCarthy, C. L., & Sears, E. (2000). Deweyan Pragmatism and the Quest for True Belief. *Educational Theory*, 50(2), 213-228.
- McKelvey, B. (1980). *Organizational systematics*. Berkeley: University of California Press.
- Merriam-Webster (Ed.). (1998). *Merriam-Webster's Collegiate® Dictionary* (10th ed.). Springfield, Mass.: Merriam-Webster.
- Middleton, P. (1997). Managing Software Quality by Standardization. *Software Process - Improvement and Practice*, 3, 210-212.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Newbury Park, Cal: Sage.
- Mills, P. (1996). *Writing in Action*. London: Routledge.
- Mintzberg, H. (1983). *Structure in Fives - Designing Effective Organizations*: Prentice Hall.
- Molina, A. D., & Spicer, M. W. (2004). Aristotelian Rhetoric, Pluralism, and Public Administration. *Administration & Society*, 36, 282-305.
- Morell, J. A., & Stewart, S. (1996). Standards Development for Information Technology: Best Practices for the United States. *StandardView*, 4(1), 42-51.
- Myers, M. D. (1997). Qualitative Research in Information Systems. *MIS Quarterly*, 21(2), 241-242.
- Nietzsche, F. (1996). *Human, all too human* (R. J. Hollingdale, Trans.). Cambridge: Cambridge University Press.
- Nilsson, A. G., Tolis, C., & Nellborn, C. (Eds.). (1999). *Perspectives on Business Modeling: Understanding and Changing Organisations*. Berlin: Springer.
- Nitzler, R. (1997). Folkhögskolans särart och pedagogiska utgångspunkter. In *Vuxenpedagogik i teori och praktik. Kunskapslyftet i fokus* (Vol. SOU 1997:158, pp. 361-

- 373): Antologi från Kommittén om ett nationellt kunskapslyft för vuxna. Stockholm: Fritzes.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating Company - How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.
- Nordin, B. (1996). *Om folkhögskolan. Historia, fakta, verklighet, vision*. Stockholm: Folkbildningsrådet/Folkhögskolornas informationstjänst (FIN).
- Nowotny, H., Scott, P., & Gibbons, M. (2001). *Rethinking Science. Knowledge and the Public in an Age of Uncertainty*. Cambridge: Polity Press.
- O'Leary, D. E., & Selfridge, P. (2000). Knowledge Management For Best Practices. *Communications of the ACM*, 43(11), 281-192.
- Orlikowski, W. J., & Baroudi, J. J. (1991). Studying Information Technology in Organizations: Research Approaches and Assumptions. *Information Systems Research*, 2, 1-28.
- Orlikowski, W. J., & Iacono, C. S. (2001). Research commentary: desperately seeking the "IT" in IT research – a call to theorizing about the IT artifact. *Information Systems Research*, 12(2), 121-134.
- Orme, J., & Salmon, D. (2002). Child protection drama in primary school - an effective educational approach? *Health Education*, 102(4), 187-196.
- Park, D., & Krishnan, H. A. (2003). Understanding the stability-change paradox: Insights from the evolutionary, adaptation, and institutionalization perspectives. *International Journal of Management*, 20(3), 265-170.
- Pateman, T. (1991). *Key Concepts: A Guide to Aesthetics, Criticism and the Arts in Education*. London: Falmer Press.
- Pavis, P. (2001). Theatre Studies and Interdisciplinarity. *Theatre Research International*, 26(2), 153-163.
- Peters, L. J., & Tripp, L. L. (1978, May 10-12). A Model of Software Engineering. *Paper presented at the Third International Conference on Software Engineering*.
- Pettigrew, A. M., Whittington, R., Melin, L., Sanchez-Runde, C., van den Bosch, F. A. J., Ruigrok, W., et al. (Eds.). (2003). *Innovative Forms of Organizing: International Perspectives*. London: SAGE Publications.
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations - A resource dependence perspective*. New York: Harper & Row.
- Pinto, J. K., & Slevin, D. P. (1987). Critical Factors in Successful Project Implementation. *IEEE Transactions on Engineering Management*, 34, 22-27.

- Powell, W. W., & DiMaggio, P. J. (1994). Introduction. In W. W. Powell & P. J. DiMaggio (Eds.), *The New Institutionalism in Organizational Analysis* (pp. 1-38.). Chicago: University of Chicago Press.
- Ramaprasad, A. (1987). Cognitive Process as a Basis for MIS and DSS Design. *Management Science*, 33(2), 139-148.
- Ramírez, R. (2005). The aesthetics of cooperation. *European Management Review*, 2, 28-35.
- Rational Software Corporation. (2003). Rational Unified Process (Version 2003.06.00.65) [Installed software]. Cupertino, CA: Rational Software Corporation.
- Rendell, P., & Cowdale, A. (1999). The exclusion zone model - a development methodology. *Paper presented at the 31st conference on Winter simulation: Simulation---a bridge to the future.*
- Rentschler, R., Radbourne, J., Carr, R., & Rickard, J. (2002). Relationship marketing, audience retention and performing arts organisation viability. *International Journal of Nonprofit and Voluntary Sector Marketing*, 7(2), 118-130.
- Révay, P. (1977). *RAS - SIS' handbok 113 - i teoretisk och praktisk belysning*. [Dissertation], The Royal Institute of Technology and The University of Stockholm, Stockholm.
- Richards, A. (1992). Adventure-based experiential learning. In J. Mulligan & C. Griffin (Eds.), *Empowerment Through Experiential Learning*. London: Kogan Page.
- Roberts, K. H., & Grabowski, M. (1996). Organizations, Technology and Structuring. In S. R. Clegg, C. Hardy & W. R. Nord (Eds.), *Handbook of Organization Studies* (pp. 409-423): Sage.
- Robey, D., & Markus, M. L. (1998). Beyond rigor and relevance: producing consumable research about information systems. *Information Resources Management Journal*, 11(1), 7-15.
- Rolland, C., Nurcan, S., & Grosz, G. (1999). Enterprise knowledge development: the process view. *Information & Management*, 36, 165-184.
- Roose, H., Waage, H., & Agneessens, F. (2003). Respondent Related Correlates of Response Behaviour in Audience Research. *Quality & Quantity*, 37(4), 411-434.
- Rowley, J. (2006). Where is the wisdom that we have lost in knowledge? *Journal of Documentation*, 62(2), 251-270.
- Rowley, J. (2007). The wisdom hierarchy: representations of the DIKW hierarchy. *Journal of Information Science*, 33(2), 163-180.
- Royce, W. W. (1970, August). Managing the Development of Large Software Systems: Concepts and Techniques. *Paper presented at the Wescon, USA.*

- Sandström, C. I. (1997). *Utbildningens idéhistoria. Om samhällsförändringarnas inflytande på undervisningens mål och innehåll genom tiderna i Sverige och utlandet*. Hässelby: Svensk Facklitteratur.
- Scott, W. R. (2002). *Organizations: Rational, Natural and Open Systems* (4th ed.). Upper Saddle River, New Jersey: Prentice Hall.
- Senn, J. (1998). The challenging of relating IS research to practice. *Information Resources Management Journal.*, 11(1), 23-28.
- Shakespeare, W. (1980). *The Complete Works of William Shakespeare: with a Life Of the Poet by Charles Symmons, D.D.* London: Atlantis.
- Shannon, C. E., & Weaver, W. (1949). *The Mathematical Theory of Communication*. Urbana, IL: University of Illinois Press.
- Sillince, J. A. A. (2006). Resources and Organizational Identities: The Role of Rhetoric in the Creation of Competitive Advantage. *Management Communication Quarterly*, 20, 186-212.
- Simon, H. A. (1997). *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations*. New York: The Free Press.
- Simon, M. (2003). *The Audience & the Playwright: How To Get the Most Out of Live Theatre*. New York: Applause.
- SIS. (1973). *Riktlinjer för administrativ systemutveckling*. Stockholm: Sveriges Standardiseringskommision.
- SIS. (1975). *Systems Development: A Constructive model*. Stockholm: Sveriges Standardiseringskommission.
- Skyttner, L. (2001). *General Systems Theory - Ideas and Applications*. Singapore: World Scientific Publishing Co.
- Spender, J. (1996). Organizational knowledge, learning and memory: three concepts in search of a theory. *Journal of Organizational Change*, 9(1), 63-78.
- Stake, R. (1995). *The art of case research*. Newbury Park, CA: Sage Publications.
- Standing, C. S. S. (1999). The role of politics in IS career progression. *Systems Research and Behavioral Science*, 16(6), 519-531.
- Stanislavskij, K. S. (1936). *An actor prepares* (E. R. Hapgood, Trans.). New York: Theatre Arts.
- Stanislavskij, K. S. (1949). *Building a character*. New York: Theatre Arts.
- Stanislavskij, K. S. (1975). *Creating a role*. New York: Theatre Arts.
- Stapleton, J. (1997). *Dynamic Systems Development Method*. Harlow, England: Addison-Wesley.



- Stapleton, J. (2003). *DSDM - Business Focused Development* (2 ed.). Harlow, England: Addison-Wesley.
- Stenmark, D. (2002). Information vs. Knowledge: The Role of intranets in Knowledge Management. *Paper presented at the 35th Hawaii International Conference on System Sciences*, Hawaii.
- Stensmo, C. (1994). *Pedagogisk filosofi. En introduktion*. Lund: Studentlitteratur.
- Stewart, V., Stewart, A., & Fonda, N. (1981). *Business Applications of Repertory Grid*. Maidenhead, Berkshire, England: McGraw-Hill.
- Stickley, Y. W. a. T. (2003). Theatre and Pedagogy: using drama in mental health nurse education. *Nurse Education Today*, 23, 443-448.
- Stoll, K.-H. (1976). Interviews with Edward Bond and Arnold Wesker. *Twentieth Century Literature*, 22(4), 411-432.
- Stoppard, T. (1997). *The invention of love*. London: Faber.
- Strasberg, L. H. (1988). *A dream of passion: the development of the method*. London: Bloomsbury.
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research, Grounded Theory, Procedures and Techniques*. Newbury Park: Sage Publications.
- Sundgren, G. (1996). *Kunskap och demokrati. Om elevers rätt till en egen kuskapsprocess*. Lund: Studentlitteratur.
- Susman, G. I., & Evered, R. D. (1978). An Assessment of the Scientific Merits of Action Research. *Administrative Science Quarterly*, 23(4), 582-603.
- Sutton, R. I., & Staw, B. M. (1995). What theory is not. *Administrative Science Quarterly*, 40, 371-384.
- Sveiby, K.-E. (1998, 31 Dec). *What is Information?* from <http://www.sveiby.com/Portals/0/articles/Information.html>
- Szondi, P. (1987). *Theory of the Modern Drama* (M. Hays, Trans.). Cambridge: Polity Press.
- Taylor, S. S. (2002). Overcoming aesthetic muteness: Researching organizational members' aesthetic experience. *Human Relations*, 55(7), 821-840.
- Taylor, S. S., & Hansen, H. (2005). Finding Form: Looking at the Field of Organizational Aesthetics. *Journal of Management Studies*, 42(6), 12111-11231.
- Teasley, S., Covi, L., Krishnan, M. S., & Olson, J. S. (2000, December). How does radical collocation help a team succeed? *Paper presented at the 2000 ACM conference on Computer supported cooperative work*.
- Thompson, J. (1998). Theatre and Offender Rehabilitation: Observations from the USA. *Research in Drama Education*, 3(2), 197-211.

- Thompson, J. D. (1967). *Organizations in Action*. New York: McGraw-Hill.
- Tiamiyu, M. A. (2000). Availability, accessibility and use of information technologies in Nigerian federal agencies: a preliminary survey. *Information Technology for Development*, 9, 91-104.
- Truex, T., Baskerville, R., & Travis, J. (2000). Amethodical systems development: the deferred meaning of systems development methods. *Accounting, Management and Information Technologies*, 10(1), 53-79.
- Tuomi, I. (1999). Data Is More Than Knowledge: Implications of the Reversed Knowledge Hierarchy for Knowledge Management and Organizational Memory. *Paper presented at the 32nd Hawaii International Conference on System Sciences*, Hawaii.
- Vaagaasar, A. L., & Andersen, E. S. (2007). On task evolvement in renewal projects. *International Journal of Project Management*, 25, 346-353.
- Walls, J. G., Widmeyer, G. R., & El Sawy, O. A. (1992). Building an information systems design theory for vigilant EIS. *Information Systems Research*, 3(1), 36-59.
- Walsham, G. (1993). *Interpreting Information Systems in Organizations*. Chichester: Wiley.
- Walton, E., & Russell, M. (2004). Organizational Change: Strategies and Interventions. In J. J. Boonstra (Ed.), *Dynamics of Organizational Change and Learning*. Hoboken, NJ, USA: John Wiley & Sons, Incorporated.
- Van de Ven, A. H., & Ferry, D. L. (1980). *Measuring and Assessing Organizations*. New York: Wiley.
- Van de Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. *Academy of Management. The Academy of Management Review*, 20(3), 510-541.
- Van Manen, M. (1990). *Researching lived experience*. New York: State University of New York Press.
- Vargas, C. M. (2000). Sustainable development education: Averting or mitigating cultural collision. *International Journal of Educational Development*, 20, 377-396.
- Weber, M. (1978). *Economy and Society*. Berkeley and Los Angeles, California: University of California Press.
- Weick, K. E. (1979). *The Social Psychology of Organizing*. Reading, MA: Addison-Wesley.
- Weick, K. E. (1995). *Sensemaking in Organizations*. Thousand Oaks: Sage.
- Weick, K. E. (1995). What theory is not, theorizing is. *Administrative Science Quarterly*, 40, 385-390.

- Verrijn-Stuart, A. (2003). The Paradox of Perfect Knowledge. In B. Sundgren, P. Mårtensson, M. Mähring & K. Nilsson (Eds.), *Exploring Patterns in Information Management - Concepts and Perspectives for Understanding IT-Related Change* (pp. 49-62). Stockholm: The Economic Research Institute (EFI).
- Westelius, A. (1996). *A study of patterns of communication in management accounting and control projects* (Dissertation). Stockholm: Stockholm School of Economics.
- Wetterström, J. (2001). *Stor opera - små pengar: Ett operativt företag och dess ledningshistoria*. Stockholm: Carlssons.
- Whitley, R. (2000). *The Intellectual and Social Organization of the Sciences*. Oxford: Oxford University Press.
- Whitley, R. (2006). Project-based firms: new organizational form or variations on a theme? *Industrial and Corporate Change*, 15(1), 77-99.
- Wigander, K.-O., Svensson, Å., Schoug, L., Rydin, A., & Dahlgren, C. (1979). *Strukturerad analys och konstruktion av informationsbehandlingssystem*. Lund: Studentlitteratur.
- Winograd, T. (1987). A language/action perspective on the design of cooperative work. *Human Computer Interaction*, 3(1), 3-30.
- Yin, R. K. (1989). Research Design Issues in Using the Case Study Method to Study Management Information Systems. In J. I. Cash & P. R. Lawrence (Eds.), *The information systems research challenge: qualitative research methods*. (pp. 1-6). Boston, MA.: Harvard Business School Research Colloquium, Harvard Business School.
- Yu, E. S. K., & Mylopoulos, J. (1994, 13-16 December 1994). From E-R to "A-R" - Modelling strategic actor relationships for business process reengineering. *Paper presented at the 13th International Conference on the Entity-Relationship Approach*, Manchester, UK.
- Zeleny, M. (1987). Management support systems: towards integrated knowledge management. *Human Systems Management*, 7(1), 59-70.
- Ödman, P.-J. (1979). *Tolkning, förståelse, vetande*. Halmstad: AWE/Gebers.



# The Swedish Research School of Management and Information Technology

## MIT

---

The *Swedish Research School of Management and Information Technology* (MIT) is one of 16 national research schools supported by the Swedish Government. MIT is jointly operated by the following institutions: Blekinge Institute of Technology, Gotland University College, IT University of Göteborg, Jönköping International Business School, Karlstad University, Linköping University, Lund University, Mälardalen University, Växjö University, Örebro University and Uppsala University, host to the research school. At the Swedish Research School of Management and Information Technology (MIT), research is conducted, and doctoral education provided, in three fields: management information systems, business administration, and informatics.

## DISSERTATIONS FROM THE SWEDISH RESEARCH SCHOOL OF MANAGEMENT AND INFORMATION TECHNOLOGY

### Doctoral theses (2003- )

1. **Baraldi, Enrico (2003)** *When Information Technology Faces Resource Interaction. Using IT Tools to Handle Products at IKEA and Edsbyn*, Department of Business Studies, Uppsala University, Doctoral Thesis No. 105.
2. **Wang, Zhiping (2004)** *Capacity-Constrained Production-Inventory Systems – Modelling and Analysis in both a Traditional and an E-Business Context*, Dissertation No. 889, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
3. **Ekman, Peter (2006)** *Enterprise Systems & Business Relationships – The Utilization of IT in the Business with Customers and Suppliers*, School of Business, Mälardalen University, Doctoral Dissertation No 29.
4. **Lindh, Cecilia (2006)** *Business Relationships and Integration of Information Technology*, School of Business, Mälardalen University, Doctoral Dissertation No 28.
5. **Frimanson, Lars (2006)** *Management Accounting and Business Relationships from a Supplier Perspective*, Department of Business Studies, Uppsala University, Doctoral Thesis No. 119.
6. **Johansson, Niklas (2007)** *Self-Service Recovery*, Information Systems, Faculty of Economic Sciences, Communication and IT, Karlstad University, Dissertation KUS 2006:68.
7. **Sonesson, Olle (2007)** *Tjänsteutveckling med personalmedverkan – En studie av banktjänster, Företagsekonomi, Fakulteten för ekonomi, kommunikation och IT, Karlstads universitet, Doktorsavhandling, Karlstad University Studies, 2007:9.*
8. **Maaninen-Olsson, Eva (2007)** *Projekt i tid och rum – Kunskapsintegrering mellan projektet och dess historiska och organisatoriska kontext*, Företagsekonomiska institutionen, Uppsala universitet, Doctoral Thesis No. 126.

9. **Keller, Christina (2007)** *Virtual learning environments in higher education – A study of user acceptance*. Linköping Studies in Science and Technology, Dissertations, No.1114.
10. **Abelli, Björn (2007)** *On Stage! Playwriting, Directing and Enacting the Informing Processes*. School of Business, Mälardalen University, Doctoral Dissertation No 46.

## **Licentiate theses (2004- )**

1. **Johansson, Niklas E. (2004)** *Self-Service Recovery - Towards a Framework for Studying Service Recovery in a Self-Service Technology Context from a Management and IT Perspective*. Karlstad University, Licentiate Thesis KUS 2004:3.
2. **Ekman, Peter (2004)** *Affärssystem & Affärsrelationer - En fallstudie av en leverantörs användning av affärssystem i interaktionen med sina kunder*. Mälardalen University, Licentiate thesis No.25.
3. **Wrenne, Anders (2004)**. *Tjänsteplattformar - vid utveckling av mobila tjänster inom telekommunikation*, Karlstads universitet, Licentiatuppsats, Centrum för tjänsteforskning, KUS 2004:4
4. **Wismén, May (2004)**. *Kunskapsprocesser inom hälso- och sjukvård - en studie av kunskapsintegrering mellan laboratorium och dess kunder*, Karlstads universitet, Licentiatavhandling, KUS 2004:10.
5. **Stoltz, Charlotte (2004)**. *Calling for Call Centres - A Study of Call Centre Locations in a Swedish Rural Region*, lic.-avh. No. 1084, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
6. **Abelli, Björn (2004)**. *Theatre Production - A System Development Process*, Mälardalen University, Licentiate thesis No.30.
7. **Maaninen-Olsson, Eva (2004)**. *Det gränslösa projektet - En studie om förmedling och skapande av kunskap i tid och rum*, Företagsekonomiska institutionen, Uppsala Universitet, Licentiatavhandling nr. 41.
8. **Sällberg, Henrik (2004)**. *On the value of customer loyalty programs – a study of point programs and switching costs*, lic.-avh. No. 1116, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
9. **Stockhult, Helén (2005)**. *Medarbetaransvar - ett sätt att visa värderingar: En konceptualisering av medarbetarnas ansvar och ansvarstagande i callcenter*, Institutionen för ekonomi, statistik och informatik, Örebro universitet, Licentiatavhandling nr. 1.
10. **Vascós Palacios, Fidel (2005)**. *On the information exchange between physicians and social insurance officers in the sick leave process: an Activity Theoretical perspective*, lic.-avh. No. 1165 IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
11. **Keller, Christina (2005)**. *Virtual Learning Environments in higher education. A study of students' acceptance of educational technology*, lic.-avh. No. 1167 IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
12. **Ahlström, Petter (2005)**, *Affärsstrategier för seniorbostadsmarknaden*, lic.-avh. No. 1172, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
13. **Dahlin, Peter (2005)**. *Structural Change of Business Networks – Developing a Structuration Technique*, Mälardalen University, Licentiate thesis No.49.

14. **Granebring, Annika (2005).** *ERP Migration Structure – an Innovation Process Perspective*, Mälardalen University, Licentiate thesis No.50.
15. **Cöster, Mathias (2005).** *Beyond IT and Productivity – How Digitization Transformed the Graphic Industry*, lic.-avh. No. 1183, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
16. **Horzella, Åsa (2005).** *Beyond IT and Productivity – Effects of Digitized Information Flows in Grocery Distribution*, No. 1184, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
17. **Kollberg, Maria (2005).** *Beyond IT and Productivity – Effects of Digitized Information Flows in the Logging Industry*, No. 1185, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
18. **Hansson, Magnus (2005).** *From Dusk till Dawn – Three Essays on Organizational Closedowns*, Örebro universitet, Licentiatavhandling nr. 3.
19. **Verma, Sanjay (2005).** *Product's Newness and Benefits to the Firm – A qualitative study from the perspective of firms developing and marketing computer software products*, Mälardalen University, Licentiate thesis No. 54.
20. **Sundén, Susanne & Wicander, Gudrun (2005).** *Information and Communication Technology Applied for Developing Countries in a Rural Context – Towards a Framework for Analyzing Factors Influencing Sustainable Use*, Karlstad University, Licentiate thesis KUS 2006:69.
21. **Käll, Andreas (2005).** *Översättningar av en managementmodell – En studie av införandet av Balanced Scorecard i ett landsting*, No.1209, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
22. **Mihailescu, Daniela (2006).** *Implementation Methodology In Action: A study of an Enterprise Systems implementation methodology*, lic.-avh. No.1233, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
23. **Flodström, Raquel (2006).** *A Framework for the Strategic Management of Information Technology*, No.1272, IDA-EIS, Universitetet och Tekniska Högskolan i Linköping.
24. **Werelius, Sofie (2006).** *Consumer Business Relationship with Retailer and Etailer for the Purchase of Clothing – A Network Perspective*, Department of Business Studies, Uppsala University, Licentiate thesis No. 45.



Contact person: Professor Birger Rapp, director of MIT, birger@rapp.se.,  
Phone: 070- 8152650 .

Address: Forskarskolan Management och IT, Företagekonomiska  
Institutionen, Box 513, 751 20 Uppsala.