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De Theatro Motivarum, Motivation: In Search of Essentials. Research on a Theoretical Model of the Process of Motivation and on Critical Determinants of Interference

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Chapter 6

Empirical Research

Conditions for Intervention in the Process of Motivation

6.1. Introduction

Elementary constructs have been isolated, capturing the concept of Motivation and providing support for a Model of Motivation that was assumed to represent the Process of Motivation.

Following initial observations in Chapter 1.5., additional hypotheses derived from this explanatory theoretical Model, are to be tested through empirical research, thus reflecting on the robustness of the Model. As observed, multiple hypotheses, within multiple empirical studies, derived from the explanatory Model were assumed to provide further evidence and add to its authority.

As stated Chapter 2.4.2., the Problem Statement not only called for insights into the Process of Motivation, but also into the Process of Interference and its elementary Determinants. As these Determinants were theoretically derived from the Model of Motivation, empirical research on hypotheses associated to each Determinant would provide not only insights into the Process of Interference, but would present also a means of verification reflecting on the robustness of the theoretical Model.

In Chapter 2.3.1. the Process of Interference was assumed to consist of three Determinants: Conditions, Competencies and Instruments. Chapter 6, then, is to provide an exploratory and descriptive correlational evidence for the first of these Determinants: the Conditions for intervention in the Process of Motivation. Empirical research on its associated hypotheses would constitute a first supplemental verification of the Model.

The objective of Chapter 6 is derived from the Problem Statement defined in Chapter 2.5.:

- *to unveil elementary processes involved in addressing Motivation, by providing insights into the Process of Interference,*
 - *into the Conditions necessary for effects to occur within the Process of Motivation, by means of:*
 - *a theoretical Model based on the Model of Motivation, as obtained through inductive inference, provided in a summarized overview,*
 - *and exploratory and descriptive empirical research providing evidence of the relation between the isolated constructs operationalizing the Process of Motivation and concepts presumed to be indicative of these Conditions,*
- thus providing secondary empirical evidence in support of the Model of Motivation, from which these Conditions are derived.*

6.2. Application of the Model of Motivation

An Analysis of Conditions

Following the introduction of an explanatory theoretical Model of Motivation in Chapter 3., a next step aimed at addressing Motivation. As assumed initially in Chapter 2., this Process of Interference was to be initiated by so-called 'Conditions'.

Before proceeding towards the empirical research, a brief presentation is provided of a theoretical Model on Conditions based on the Model of Motivation, in accordance with the Problem Statement. Reference is made to Mennes (2016, *in press*), notably Chapter 6, for an extensive overview.

A brief description of Assumptions precedes the analysis.

6.2.1. Assumptions Preceding an Analysis of Conditions

In the inductive inference leading to the identification of Conditions, a theoretical inventory was made of all possible manifestations in which a Process of Interference could intervene in the Process of Motivation. Referring to Appendix XXIV, Section A., a series of Assumptions were made, where these 'Interventions' in Motivation were assumed to occur in 8 variations and within 8 so-called 'Contexts', thereby reducing the vast universe of possible options in which a Process of Interference could intervene in a Process of Motivation, to a matrix of 8x8 manifestations, defined as so-called 'Intervention Strategies'.

6.2.2. An Analysis of Conditions

From an analysis of this reduced representation of the Process of Interference in its 8x8 manifestations of possible Intervention Strategies, emerged three distinct Conditions. These three Conditions were later, after performing empirical research following the analysis, refined and finalized to four Conditions that are assumed to be essential in addressing Motivation:

- Perceived Significance of the Goal, or objective
- Perceived Significance of the Actor-Intervener
- Perceived Support
- Perceived (Mis)-Match in Mutual Perceptions

For further details on the inductive analysis leading to the identification of the Conditions, reference is made to an abbreviated overview in Appendix XXIV, Section B.

Within the interplay of these Conditions, a recurrent pattern and algorithm was observed, that appeared to dramatically simplify an analysis of effects of the Process of Interference on the Process of Motivation.

The algorithm revealed the 8x8 matrix of Intervention Strategies, which conceptualized the Process of Interference in its variety of manifestations, could be divided in two antagonistic approaches. These two basic approaches in addressing, or 'Management' of Motivation were defined as two principal 'Modalities' in Management of Motivation.

- An 'Extrinsic' Modality, consisting of four distinct levels of Intervention;
- An 'Intrinsic' Modality, consisting of four distinct levels of Intervention.

Both Modalities were to define a subsequent analysis of Competencies, essential in Management of Motivation, and are further elaborated on in Chapter 7.

6.2.3. Conclusions

Preamble to a Definition of Hypotheses

In Pre-Fundamentals to the study, it is assumed the Model obtained in an analysis of Conditions, as derived from the Model of Motivation, provides an explanatory context from which elementary hypotheses can be derived.

In concluding the analysis of Conditions, four have been identified as essential. These essential constructs, then, are to be elementary in the formulation of those hypotheses, and are to be contained in a definition of hypotheses provided in Chapter 6.4.3.

In a verification of these Conditions, empirical research on these hypotheses is to reflect on the Model of Motivation, from which these Conditions are derived.

6.3. Operationalization

This Chapter seeks to provide evidence of the relation between concepts operationalizing the Process of Motivation and concepts that are thought to be expressions of the four Conditions assumed to be necessary for an Intervention to occur.

Concepts operationalizing Motivation were defined earlier in Chapter 5 as the factor scores summarizing components DEDICAT and ACHIEV that were found to capture the Motivation in its essential form.

In defining concepts that are indicative of the four Conditions, the empirical research is to be aimed at providing an inventory of all so-called 'Elements' within the settings of a business environment, and at operationalizing these Elements into quantifiable variables by means of a questionnaire, enabling a comparative analysis. For an overview of the operationalization, reference is made to Mennes (2016, *in press*), notably Chapter 8.3.

6.4. Research Design

As a result, this Chapter, in its essence, seeks to explain variance in a set of variables that are assumed to be indicative of all Elements within a business environment that could affect an Intervention and its effects on Motivation, as captured in factors scores isolated earlier.

The empirical research will progress in three phases:

- *A first phase consists of operationalizing all Elements that could affect Intervention within the settings of a business environment and translating these into quantifiable variables, resulting in a questionnaire;*
- *A second phase consists of determining which of these variables reveal a relationship with Motivation, operationalized in factor scores representing DEDICAT and ACHIEV as provided through a questionnaire;*
- *Followed by a third phase determining if these correlated variables are indicative of the Conditions presumed necessary for an Intervention to occur, by providing an explanatory context based on these Conditions.*

If the assumptions derived from the Process of Motivation, hold true, then all Elements within an experimental setting of a business environment displaying a correlation with Motivation are assumed to be directly or indirectly related to one or more of these enabling Conditions, hence can be explained in terms of one or more of these Conditions.

For a full overview and rationale of the research design, reference is made to Mennes (2016, in press), notably Chapter 8.4.

6.4.1. Statistics

Following this rationale, a three-fold approach in the statistical analysis will be followed:

- Establishing a complete overview of Elements within a business environment that could affect an Intervention by an external Actor-Intervener;
- Establishing a relationship by means of correlation coefficients;
- Establishing criteria for adequacy of an explanatory context.

1. Exploratory Panels, In-company Research, Literature

To generate a complete overview of Elements within a business environment that could affect an Intervention, techniques of generating the highest possible information are to be used. To this aim a combination of interviews and inventories provided through literature will be used.

In the interviews a panel-approach is to be used as a means to generate the highest possible output, with panel-members exchanging information and generating diversity in views (Samanta, 1993; Sharma & Chandra, 2003), thus generating pluriform data. Participants that have extensive knowledge of a business environment are to participate. To avoid bias, third parties will be involved both in conducting the interviews and in the analysis of output.

Data generated by these panel-interviews are to be supplemented by findings through additional, in-company research and from literature, in an analysis to be held through third parties, resulting in a so-called 'Inventory of Elements'.

2. Correlational Analyses

In establishing an indication of relationships between Elements and Motivation, questionnaires are used. Elements are represented in a questionnaire based on the Inventory of Elements. Motivation is to be captured using factor scores, associated with components DEDICAT and ACHIEV, as described briefly in Chapter 5.5.3. Factor scores are to be defined following the methodology described in Chapter 5.7.1.1. and summarized in Chapter 5.7.2.

A relationship between Elements and Motivation is analyzed by means of a Pearson product-moment correlation coefficient r (Howell, 2002). However, as data is expected to be non-normally distributed, Spearman's non-parametric correlation is to be analyzed in addition to the standard correlation (Siegel & Castellan, 1988)¹.

Standards from literature are followed in establishing the size of observed effects, i.e. with $\pm .3$ defined as 'medium' and $\pm .5$ as 'large', correlations starting from a $\pm .300$ range will be considered valid as indicator in defining a relationship (Cohen, 1988; Cohen, 1992). In addition scores must be significant at $p < .001$, two-tailed, thus reducing a chance occurrence in coefficients. Again, it is stressed at this point that strength in effect is no indication of a causal relation. No causality can be established through correlations alone, referring to the tertium quid theorem (Field, 2005), and the absence of an adequate indication of direction in correlation coefficients (Gould, 1981).

All assessments are to be made using standard SPSS procedures (Norusis, 1990).

3. Adequacy of Explanatory Context

In exploratory correlational research a phenomenon can occur that is associated to so-called 'data-dredging': the incidence of significant correlations occurring in data as a result of random-effects (Selvin & Stuart, 1966). As a consequence of these randomly-generated significant correlations, not all observations are expected to be

¹ Spearman's correlation coefficient is preferred to Kendall's Tau in larger data-sets (Field, 2005).

accounted for by the Conditions as defined in Chapter 6.2.2. As research and literature on the extent of these random occurrences seems to be lacking at present, a rough estimate is set at 20%. As a consequence, it is assumed at least 80% of all items correlating $\geq \pm .300$ with factor scores representing Motivation must be accounted for by one or more of the four Conditions, in providing an adequate explanatory context for the observed relation.

To avoid bias, third parties are to establish the relations between a specific item and one or more Conditions. To this end, independent observers will be approached ad random. Assessments are to be made anonymously by at least 5 observers.

Where these ad random observers are to define a match, a criterion for congruency is set at $\frac{3}{4}$: *an item is considered indicative of a specific Condition when a relation is assumed to be plausible by $\frac{3}{4}$ of observers.*

6.4.2. Sampling

Following the observations made in Chapter 2.4.3.3., a business environment is chosen to conduct the research in. Companies are to be included in the research that were approached earlier in the empirical research from Chapter 5 by third parties, not directly related to the researcher.

The final sample will include a randomized selection from all 22 companies participating in the empirical research of this dissertation, including different geographical locations, with at least 1 random sample per location. Findings are to differentiate between a total population and the respective geographical locations to avoid bias. As a result, from a total of 22 companies approached in four differing locations, the sample will focus on obtaining data from at least 4 companies.

As an indication for an adequate sample size, within limitations due to the extensive nature of the questionnaire, it is suggested to set no limitations to the size of sampling in each sub-sample order to generate adequate response from companies that are to be approached. As such, the total data-set is to be observed primarily for the correlational analyses, with results reported for the various sub-samples only to assess integrity. For the total data-set a standard procedure for defining sample size is used, with $n > 177$ defined as an adequate sample size for a first investigative study (Cohen, 1988)¹.

Summarizing, a set of samples will be analyzed in this Study, consisting of at least 4 samples from those obtained in the previous Studies contained in Chapter 5, within four distinct geographical locations, consisting in total of at least $n=177$. For an adequate sampling to occur, we are to follow previously defined criteria where a response of companies approached must exceed 70%, and a subsequent sampling must reach at least 70% respondents on average.

¹ with $\alpha = .05$, and $1-\beta = .8$ to detect a $r = .300$.

6.4.3. Hypotheses

A set of samples is to generate data that will provide insights in the Elements within a business environment that are assumed to reveal a relation to Motivation.

An important observation is to precede the formulation of hypotheses.

Although Conditions are assumed to affect both components DEDICAT and ACHIEV that are to capture Motivation, it is hypothesized that a difference will occur in the extent at which both components are affected. Conditions are expected to have a different effect on Phases 1, 2 and 3, and consequently component ACHIEV capturing Phase 3, than they would have in Phases 5, 6, 7 and 8, especially affecting component DEDICAT capturing Phase 8. Both components are associated to the outcomes of both series of Phases. As described more extensively especially in Chapter 3.3.2., it was assumed that external influences would affect Phases 5, 6 and 7 to a greater extent than they would affect Phases 1, 2 and 3 as these Phases would only be influenced in a subsequent cycle following Phase 8, and protective Mechanisms of Anticipation, Representation and Coping would neutralize external influences. As a consequence, within the Process of Interference between an intervening Actor-Intervener and the Individual, Conditions are assumed to affect ACHIEV to a lesser extent than DEDICAT, resulting in expected higher correlations between Elements indicative of these Conditions and DEDICAT than expected correlations between those Elements and ACHIEV.

Anticipating a differing impact of Conditions on components DEDICAT and ACHIEV representing the concept of Motivation, is expressed in the hypotheses that are to be formulated. However, as there is no theoretical ground for providing a quantitative indication of this assumed difference, in formulating an appropriate hypothesis an unconventional phrasing will be used suggesting a 'considerable higher proportion' of Elements to be associated with DEDICAT.

Following hypotheses, then, are to be met to provide a confirmation for an assumed relation between Motivation and Conditions enabling Intervention, in a first exploratory and descriptive research of the processes involved in addressing Motivation, as indicated in the Problem Statement:

- *Given that a set of concepts can be defined within a business environment that is to contain all aspects, or 'Elements', that could possibly affect an Intervention,*
- *... with these Elements within a business environment assumed to be captured through a questionnaire, thus enabling a quantification of effects,*
- *... and with the Process of Motivation assumed to be captured by factor score components DEDICAT and ACHIEV, following hypotheses are formulated:*
 - *Hypothesis 1 (H1): It is hypothesized that a number of these Elements within an experimental setting of a business environment will display a correlation with components DEDICAT or ACHIEV, represented by their respective factor scores.*

- *Hypothesis 2 (H2): It is hypothesized that from these Elements displaying a correlation with components DEDICAT and ACHIEV, a 'considerable higher proportion' of Elements, will display a correlation with component DEDICAT, than with component ACHIEV.*
- *Given these proportional differences, two additional hypotheses apply:*
 - a) *Hypothesis 3A (H3A): It is hypothesized that from these Elements within an experimental setting of a business environment displaying a correlation with component DEDICAT, a majority of at least 80% will be directly or indirectly related to one or more of so-called enabling 'Conditions', hence can be explained in terms of one or more of these Conditions.*
 - b) *Hypothesis 3B (H3B): It is hypothesized that from these Elements within an experimental setting of a business environment displaying a correlation with component ACHIEV, a majority of at least 80% will be directly or indirectly related to one or more of so-called enabling 'Conditions', hence can be explained in terms of one or more of these Conditions.*

Given the observations made on components DEDICAT and ACHIEV, when hypotheses H1 and H2 are met, in addition to, at least, hypothesis H3A, it is assumed that a correlational evidence will have been provided between concepts capturing Motivation and the Conditions enabling an adequate Intervention within the Process of Motivation to occur, as indicated by the Problem Statement, Chapter 2.5.

A confirmation of these hypotheses will provide secondary empirical evidence in support of the Model of Motivation, from which these Conditions are derived.

6.4.4. Conclusions

A set of samples is to provide insights into the Conditions necessary for an Intervention to occur by means of empirical research providing an exploratory and descriptive evidence of the relation between concepts operationalizing the Process of Motivation and concepts presumed to be indicative of these Conditions.

In a successive approach a complete overview of Elements within a business environment, is to be made, followed by a descriptive correlational analysis, leading to an explanatory context by means of the four Conditions.

Summarizing, then, a following research design is proposed:

- *Study 7: Exploratory Research: Inventory of Elements*
- *Study 8: Descriptive Correlational Research: aimed at verification of H1, H2*
- *Study 9: Enabling Conditions: aimed at verification of H3A, H3B*

6.5. Empirical Research

6.5.1. Study 7: Inventory of Elements

The Study is aimed at generating an Inventory of all aspects, or so-called 'Elements' within, or related to a business environment to provide input for subsequent correlational research, aimed at verification of H1 and H2 in Chapter 6.5.2., H3A and H3B in Chapter 6.5.3.

1. Methodology

Sample; Following observations made in Chapter 6.4.1.1., a combination of panel-interviews supplemented by inventories through in-company research and literature were used.

A total of seven panel-interviews were held with three groups of participants:

- 2 Groups consisting of students in business and economics
- 3 Groups consisting of a mix of business consultants and middle managers
- 1 Group consisting of university lecturers in business and economics
- 1 Group consisting of middle managers

Procedure; All panels were held in The Netherlands at a polytechnic university, Hogeschool Brabant, at Breda in the spring of 1996. Participants were personally approached at random by university students from Erasmus University, Rotterdam, The Netherlands, from lists provided by the researcher and supplied both by Hogeschool Brabant and Erasmus University, yielding a response in excess of 85%, with each panel consisting of 12 – 15 participants.

All groups were asked to generate input on the question: "if you were to describe a business environment, which Elements come to mind?".

Input from panels were recorded on tape during 60 – 90 mn sessions. Sessions were held until no further Elements were generated by the group¹.

Analysis; Tapes were then analyzed by teams of four students from Erasmus University, resulting in an inventory of items for each panel. In addition, each panel was reviewed twice by a second team of students. All items generated by the seven panels were then merged into a final database of Elements.

These Elements, in turn, were compared to so-called 'satisfaction questionnaires' obtained from European companies through the assistance of the European Foundation for Quality Management (EFQM), located in Brussels, Belgium.

¹ A number of additional questions were formulated at the end of sessions, relating to different topics, namely Motivation in general, and change management.

A final comparison was made with items presented in the literature, both from descriptive models and from available inventory lists.

2. Results

I. Inventory of Elements

From the seven panel-interviews, a substantial number of Elements were generated, when merged into an overall Inventory of Elements following the analysis of recordings. In a subsequent comparison with satisfaction questionnaires through the EFQM, a total of 40 companies provided their questionnaires, resulting in 10 additional items to the Inventory of Elements.

An overview of participating companies in the analysis of satisfaction questionnaires is provided in Appendix XXV. Referring to Appendix XXVI, following an analysis of the literature, comparing descriptive models and available inventory lists, a final list of Elements was compiled.

The Inventory of Elements produced a list containing 482 Elements, a total overview of which is provided Appendix XXVII.

II. Questionnaire

In a next step, a four-fold, stepwise abbreviation could be obtained in the extensive list of 482 Elements. First, all Elements directly related to a status quo of Motivation were eliminated, as these Elements were considered indicative of the Process of Motivation itself, or Stages within the Process. These Elements were used to operationalize the concept the subsequent correlational analysis was aimed at, following the Problem Statement set forth in Chapter 2.5. Thus, a first abbreviation consisted of an extensive reduction of the listing with 102 Elements, resulting in 380 Elements remaining¹.

A second abbreviation was obtained by omitting all Elements aimed at so-called 'generalizations', or generalized perceptions of subjects. A sample of subjects addressed with questions containing only generalized perceptions would generate inconsistent data, capturing a perception of what is believed to be a general consensus among subjects. Instead, addressing subjects with questions containing personal perceptions will provide an adequate and correct database with personal perceptions, thus generating the very data the subject is asked to evaluate in

¹ Referring to Appendix XXVII, these Elements, clustered under 1.5., 2.5. and 2.6., were omitted from the list.

subjective terms using a generalized perception format¹. This second abbreviation involved 56 Elements, thus, with a reduced set of 324 questions remaining, 380 Elements could be covered².

A third abbreviation aimed at covering Elements that revealed an overlap or redundancy in covering the different aspects of a business environment. These Elements included policymaking and plans, or subjective perceptions versus actual status of Elements. As these diversifications would not lead to different outcomes with respect to the Problem Statement, multiple Elements could be covered by single questions, resulting in a dramatic reduction of the final survey. This reduction, involving a total of 135 Elements, enabled a further abbreviation of the questionnaire with a final listing of 189 questions covering a total of 380 Elements³.

A fourth, and final step was aimed at eliminating Elements involving interactions between individuals that were not clearly identified, and referred to as so-called 'unspecified interactions'. The cluster of Elements referring to these unspecified interactions was considered redundant, as these were already covered by clusters of so-called 'specified interactions'. With this final reduction, covering a total of 28 Elements, a further abbreviation was achieved with a total listing of 161 questions remaining, covering a total of 380 Elements⁴.

In a subsequent stage, the 161 questions were formulated covering these 380 Elements and supplemented by a number of accompanying questions. At this point, an essential choice was made on a guiding principle in phrasing of questions: the respondent was asked to evaluate each Element on its status quo, i.e. in terms of a qualification, or perceived satisfaction, providing a phrasing that would cover the

¹ Thus, a generalized perception of a subject (e.g.: "I believe *the majority of employees* favors the approach management is taking in this issue"), is to be replaced by a personalized perception (e.g.: "*I personally* favor the approach management is taking in this issue"), in order to obtain adequate data. Thus, the clustered data obtained from personalized perceptions from subjects provide the correct data intended, that is inadequately obtained when subjects are approached to provide subjective generalized data.

² Referring to Appendix XXVII, as a result of this second abbreviation, Elements clustered under 1.4., and 1.7. were omitted from the list.

³ Referring to Appendix XXVII, as a result of eliminating policymaking and plans, Elements clustered under 3. were eliminated, while retaining the actual status of these Elements clustered under 4. In Elements related to Subjects, subjective perceptions were retained in favor of actual status, resulting in eliminating Elements clustered under 1.1., 1.2. and 1.3. (with Elements under 1.4., 1.5., 1.6. and 1.7. already omitted), while retaining Elements under 2.1., 2.2. and 2.3.

⁴ Referring to Appendix XXVII, as a result of this fourth reduction, Elements clustered under 2.4.1., were omitted from the list.

380 Elements as close as possible.¹

A number of additional smaller amendments resulted in a final questionnaire introduced in Appendix XXVIII². The 'Work-Oriented Satisfaction Inventory', designated as 'SA-1.02', consists of 147 questions and 22 accompanying questions that cover an abbreviated set of 380 Elements within a business environment, aimed at operationalizing a status quo of each Element, in terms of a qualification, or perceived satisfaction³. Each question is provided with letter-coded indications and the Likert-scales used per item. For reasons of brevity, a condensed phrasing is used and explanatory texts included in the original questionnaire have been omitted. As all Elements are assumed to have an equal relative importance, the scaling of all questions is equal, with the exception of a number of general questions. To avoid so-called 'fatigue-effects', caused by repetition in answering, questions are grouped in different clusters. This has led to a different sequence of questions as compared to the overview of Elements presented in Appendix XXVII. In order to provide a means of comparison, the numbered cluster references used as an identification in Appendix XXVII, are referred to in Appendix XXVIII. Finally, in order to neutralize phrasing, questions are formulated with scale-extremes included in the wording, thus avoiding positive or negative phrasing (e.g. Idaszak & Drasgow, 1985).

¹ A seemingly methodologically correct phrasing would have been to ask for each Element if it was related to Motivation as perceived by the respondent. This, however, would have resulted not only in highly biased data, but also in a methodologically incorrect research design, correlating perceived relations to Motivation to factor scores indicating Motivation, thus providing incorrect data, given the initial Problem Statement. Research would have provided an inventory of subjective perceptions in lieu of a correlational overview of Elements: a conceptual error often seen in marketing and electoral research.

² In most cases, a single question was formulated covering a number of Elements, following the rationale of the four-fold abbreviation that produced the reduced listing of 161 questions. In 5 cases, a single Element was covered by multiple questions. Referring to Appendix XXVII, clusters 2.3.1.2., 2.3.1.4., 2.3.1.5., 2.3.3.2., and 2.3.4.2. covered respective Elements with an additional 12 questions, thus increasing the list to 173 questions. In 3 cases, however, a subsequent reduction was made with a single question covering multiple Elements. Referring to Appendix XXVII, clusters 2.1.1. and 2.1.2. were summarized into 3 questions due to the personal character of the Elements involved, thus reducing the questionnaire from 173 to 165 questions. Cluster 2.3.4.2.6 consisted of 5 Elements, summarized in 2 questions, cluster 2.3.3.1. consisted of 2 Elements, summarized in 1 question, thus reducing the questionnaire from 165 to 161 questions. Despite a careful reduction in stages, 14 Elements could not be covered as a result of physical constraints, restricting the questionnaire to seven pages. These Elements included clusters 2.2.1.1., 2.2.2.1.1., 2.2.2.1.2., 2.7.1.1., 2.7.1.2., 4.4.1., 4.6.2., 4.6.3., 4.6.4., 4.6.5., 4.7.1., 4.9.1., 4.9.2. and 4.17., thus reducing the final questionnaire to 147 questions.

³ An overview of the rationale behind the design and phrasing of the questionnaire is provided in: Timmers, J.G., & Mennes, M.A. (1998). *Employee Satisfaction; Fundamentals on the Design of Satisfaction Questionnaires*, Part 1, Research Project for the European Foundation for Quality Management. Brussels: European Foundation for Quality Management.

3. Discussion

A principal aim of Study 7 was to obtain an Inventory of all Elements operational within a business environment.

A claim to achieve completeness in an overview is in itself an overestimation. The list presented can hardly reach such a criterion, set aside that a four-fold reduction was made in questions covering an initial set of 482 Elements, resulting in a final listing containing only 147 questions.

Given, however, that in its final form a listing has been generated which, through a series of carefully substantiated abbreviations, claims to cover all essential Elements within a business environment, a number of further limitations apply.

First, information has been generated through panels within a Western-European context. Although the Elements demonstrate a strong resemblance to the literature, a cultural context sets limitations to the information obtained. Second, having had panel interviews in a single country further restricts a frame of reference and sets limitations to what is perceived of as a 'business environment'. And third, although participants were approached with different backgrounds, they all represent members from a same 'business-related' community, thus producing bias in a generated response.

Given these limitations, nonetheless, it is assumed following criteria set in Chapter 6.4.1.1., that the Elements obtained in the exploratory research from Study 7 provide a workable set of data to present a platform for a next step towards descriptive correlational research.

4. Conclusion

In an attempt to generate an overview of all Elements constituting a business environment, a first set of Elements was generated through panel-interviews. An Inventory of Elements was made by third parties to avoid bias, and supplemented by findings through additional in-company research and from literature.

A final data-set of 482 Elements was operationalized in a questionnaire following a series of substantiated abbreviations. The 'Work-Oriented Satisfaction Inventory', designated as the SA 1.02 inventory, and presented in Appendix XXVIII, consisted of 147 questions, and 22 accompanying questions.

The questionnaire is to be used in a subsequent descriptive research aimed at defining Elements that demonstrate a correlation to components DEDICAT and ACHIEV that capture the concept of Motivation.

6.5.2. Study 8: Descriptive Correlational Research

Elements have been assembled that claim to cover all aspects of a business environment. Through a questionnaire respondents are interviewed on the status of each of these Elements. It is hypothesized that in a series of representative samples Elements that demonstrate a correlation with Motivation must be indicative of one or more of the alleged Conditions that are presumed essential for an Intervention to occur.

Study 8 is aimed at verification of hypothesis H1 and H2, as defined Chapter 6.4.3.

1. Methodology

Sample; Following Chapter 6.4.2., from the 22 companies that had been and were being approached to participate in the empirical research of the dissertation, a random selection of companies was made for Study 8.

From a total of 10 companies that were randomly approached, 2 companies declined, both due to the extensive nature of the questionnaire. The randomized approach method resulted in an over-representation of the South-Africa sample. In order to avoid bias, the sample was reduced using a standard randomized data-reduction procedure in the SPSS processing (Norusis, 1990).

A short description of all participating companies is provided in Appendix XXIX. Summarizing details are provided in Table 6.1.

Procedure; At all locations, the SA 1.02 questionnaire was handed out in a classroom-setting together with the HF 2.01 questionnaire, with reference to Chapter 5.3. The procedure was described earlier in Chapter 5.5.1.1. Questionnaires were translated and made available in English, Dutch, Bahasa Malaysia, Afrikaans and Kosa at the respective locations' facilities. In a number of cases, a random sample of all participants filling-out the HF 2.01, had the SA 1.02 administered (Companies IX, XV and XX). In one company the sampling of the SA 1.02 questionnaire took place at a later date, in conjunction with the HF 2.01 in a separate random sample (Company XIV).

Measures; A correlational research was to be made between Elements, and their evaluation by respondents on their status quo in terms of a qualification, or perceived satisfaction, and components DEDICAT and ACHIEV, capturing Motivation, in the assumption that correlates with DEDICAT would be obtained more frequently in comparison to those associated with ACHIEV, as elaborated on in Chapter 6.4.3.

Thus, following constructs were defined:

Sampling date	Reduced Sample (1) n	Original Sample				
		n		N Response		
		Abs	Abs	Abs	%	
<u>Netherlands</u>						
1 Company XXI	06-1999	108	108	108	100.0%	(2)
2 Company IX	02-2002	40	40	40	100.0%	(2) (3)
Totals		148	148	148	100.0%	
<u>Malaysia</u>						
3 Company XIV	07-1998	99	99	99	100.0%	(2) (4)
4 Company XV	01-1999	51	51	51	100.0%	(2) (5)
Totals		150	150	150	100.0%	
<u>South-Africa</u>						
5 Company XVI	10-1998	42	126	142	88.7%	
6 Company XVII	10-1998	53	131	140	93.6%	
7 Company XVIII	10-1998	55	149	160	93.1%	
Totals		150	406	442	91.8%	
<u>United States</u>						
8 Company XX	04-2002	46	46	46	100.0%	(2) (5)
Grand Totals		494	750	786	95.4%	

Notes:

(1) Due to over-representation of the South-African sample, a random-reduction was applied to avoid bias

(2) Sample consisted of Business Unit within larger company

(3) For this company a group of participants was randomly approached from the original sample in Table 5.1.

(4) For this company a different group of participants was randomly approached on a different date than the one obtained from the original sample in Table 5.7.

(5) For these companies, a group of participants was randomly approached from the original samples in Table 5.7.

Table 6.1.

Summarized sampling characteristics of the Descriptive Correlational Research samples

- *Process of Motivation.* Level of Motivation was measured using the outcomes of the Studies conducted in Chapter 5, captured in two factor scores component DEDICAT and component ACHIEV, with their essential items defined as follows:

- Component DEDICAT, consisting of items referenced as: ce, cf, cg, ci, cs, ct, dz and eb from questionnaire HF 2.01
- Component ACHIEV, consisting of items referenced as: at, au, av, ba, bb and bc from questionnaire HF 2.01

For a full description of these references used in designating items, see Appendix III, Section B., or Table 5.3., for an abridged overview. The HF-2.01 questionnaire was used to generate factor scores associated to components DEDICAT and ACHIEV, as described in Chapter 5.7.1.1., summarized in Chapter 5.7.2.

- *Elements.* As elaborated on in Chapter 6.5.1.2.II., all Elements within a business environment were operationalized in a reduced format in the SA 1.02 questionnaire, evaluating the perceived status quo of each Element by separate questions, with reference to Appendix XXVIII. All Elements and respective questions are referred to by their reference codes, detailed in the Appendix.

Analysis; The bivariate correlational analysis between items representing Elements

and scores associated to component DEDICAT and component ACHIEV respectively, was performed using a standard Pearson product-moment correlation, as indicated in Chapter 6.4.1.2. In addition, as data were expected to follow a non-normal distribution these correlations were supplemented by non-parametric correlations. In addition to these over-all data correlations, a division was made in different locations for the standard bivariate correlations.

The analysis was performed following criteria set in Chapter 6.4.1.2.

2. Results

From the 8 companies participating in the research, as indicated Chapter 6.5.2.1., a response was obtained from 95.4% on average, with $n=750$ for the original sample and $n=494$ for the reduced sample, due to an over-representation of the South Africa data-set. Referring to Table 6.1., four data-sets, were obtained: two sets from the Netherlands ($n=148$), two from Malaysia ($n=150$), three from South Africa ($n=150$, randomly reduced from a total of $n=406$) and one data-set from the US ($n=46$). A Cronbach alpha was obtained of .98 for the entire population, indicating an adequate reliability of the questionnaire. Thus, a sample was obtained for the descriptive correlational research that could meet minimal standards of representativity set earlier in Chapter 6.4.2., with some cause for concern on the US-based sample as a result of its limited size.

An overview of results is presented in Appendices, for reasons of brevity: Appendix XXX contains general descriptive statistics for the data-set. Appendix XXXI provides a comprehensive overview of results for item correlations between Elements, operationalized in questions, and component DEDICAT. Appendix XXXII gives an overview of correlations between Elements and component ACHIEV. A numbered indication of each Element and its reference code is provided, together with Pearson Product-moment and Spearman's correlation coefficient scores for the Total ($n=494$) Population, with Pearson correlation scores provided for the four separate data-sets. In both Tables, correlations between $\pm .300$ and $\pm .400$ are indicated in gray, correlations exceeding $\pm .400$ are indicated in blue, together with indications of significance at the .001, .01 and .05 levels, two-tailed. It is noted that although a random sample of participants from the South Africa data sample ($n=150$), is included in the Total-Group column to avoid over-representation, the correlations mentioned in the SA column covering the South Africa data-set reflect the scores as obtained from *all* South African participants ($n=406$).

In the results obtained, correlations between Elements and component DEDICAT were all negatively correlated as a result of a reversed scoring in comparison with the factor score. Correlations averaged around $-.26$ with highest scores ranging around $-.45$. Both Pearson and Spearman's bivariate scores appeared to coincide highly, reflecting a negligible divergence from normality: no Pearson scoring in the relevant $>-.300$ range deviated from its Spearman's counterpart, whereas only 9

Elements scoring $>-.300$ according to the non-parametric measure were not supported by a Pearson scoring. All correlates $>-.300$ were significant at the .001 level, two-tailed. 41 Elements had correlates (Pearson) ranging between $-.300$ and $-.400$, with 11 Elements correlates (Pearson) exceeding $-.400$ ¹. Thus 52 Elements were correlated according to criteria set earlier in Chapter 6.4.1.2. with factor scores indicating component DEDICAT.

In a rough comparison between data-sets, the Malaysian data-set provided a prominent range of Elements correlating with DEDICAT, whereas the Netherlands data-set appeared to be more modestly related along the range of its scores. The South Africa data-set seemed to follow largely the Total Sample profile². There was a high degree of symmetry especially among the higher correlates (Pearson) between the different data-sets. Data-sets were convergent in correlations exceeding $-.300$ for 22 Elements. For another 16 Elements 2 of 3 data-sets converged, leaving only 14 Elements with correlates exceeding $-.300$ that were supported by only one data-set. To reflect the extent at which data-sets coincided, a designation into 'primary' and 'secondary' correlates was made. Primary correlates displayed a high convergence between the different data-sets, with all or at least 2 of 3 data-sets revealing correlates exceeding $-.300$. Secondary correlates were only represented by 1 data-set. Conversely, with items not meeting the $-.300$ criterion for the Total-Group sample, only 2 items produced higher correlations for all 3 samples, and 12 were covered by 2 of 3 data-sets, indicating a high convergence of outcomes between the three samples separately and the overview provided in the Total-Group sample.

Summarizing, 52 Elements produced correlations exceeding the $\pm .300$ criterion, with factor scores indicating DEDICAT. From these 52 Elements, 38, or almost $\frac{3}{4}$, were designated as 'primary' correlates and 14 as 'secondary'. In Table 6.2., a summative overview is provided of these 52 Elements exceeding the criterion set at $\pm .300$ for the Pearson product-moment correlations, together with an overview of distinctive data-sets.

With reference to Appendix XXXII, an analysis was made of inter-item correlations between Elements and factor score component ACHIEV.

¹ On a side note, a prominent emphasis in correlations seemed to exist between DEDICAT and Elements indicative of Top Management performance, where effects of Immediate Management appeared to be virtually absent. Although the nature of component DEDICAT, reflecting Company Dedication, seems to favor effects of Top Management, the absence of correlates with Immediate Management is remarkable as component DEDICAT reflects essentials of a Phase of Dedication within the Process of Motivation.

² No further analysis was performed on the US data sample due to its smaller sample size.

#	Ref.	Bivariate Item Correlation with Factorscore DEDICAT (3) (4)													
		Total-Group		NL		Mal		SA		US		(5)			
		N	r	N	r	N	r	N	r	N	r		(6)		
(1)	(2)	(7)					(8)								
3	S - H	447	-0.303 ***	132	-0.340 ***	132	-0.275 ***	388	-0.293 ***	43	-0.509 ***				
5	S - J	444	-0.308 ***	130	-0.301 ***	131	-0.395 ***	388	-0.299 ***	43	-0.314 *				
10	S - r	490	-0.380 ***	148	-0.441 ***	148	-0.352 ***	400	-0.345 ***	46	-0.378 **				
11	S - s	489	-0.304 ***	148	-0.269 ***	148	-0.398 ***	399	-0.256 ***	46	-0.170				
13	S - u	488	-0.350 ***	147	-0.362 ***	148	-0.338 ***	399	-0.278 ***	46	-0.461 ***				
25	S - am	482	-0.353 ***	147	-0.361 ***	143	-0.396 ***	401	-0.334 ***	45	-0.056				
26	S - ap	486	-0.431 ***	148	-0.399 ***	145	-0.387 ***	401	-0.405 ***	45	-0.449 **				
27	S - aq	485	-0.398 ***	147	-0.377 ***	145	-0.435 ***	401	-0.394 ***	45	-0.217				
28	S - ar	485	-0.367 ***	148	-0.359 ***	146	-0.394 ***	395	-0.374 ***	45	-0.334 *				
29	S - av	478	-0.338 ***	145	-0.380 ***	143	-0.364 ***	394	-0.173 ***	44	-0.314 *				
30	S - aw	430	-0.461 ***	123	-0.527 ***	134	-0.423 ***	364	-0.404 ***	38	-0.520 ***				
35	S - bh	388	-0.319 ***	111	-0.173	117	-0.302 ***	338	-0.338 ***	36	-0.159				
37	S - bJ	399	-0.345 ***	112	-0.268 **	121	-0.344 ***	338	-0.367 ***	40	-0.230				
38	S - bk	483	-0.337 ***	145	-0.380 ***	147	-0.420 ***	395	-0.176 ***	45	-0.002				
39	S - bL	482	-0.382 ***	144	-0.356 ***	147	-0.468 ***	395	-0.275 ***	45	-0.342 *				
40	S - bn	483	-0.437 ***	143	-0.402 ***	148	-0.502 ***	397	-0.460 ***	44	-0.552 ***				
41	S - bo	484	-0.480 ***	143	-0.367 ***	148	-0.496 ***	395	-0.531 ***	45	-0.411 **				
42	S - bp	485	-0.414 ***	144	-0.179 *	148	-0.471 ***	395	-0.459 ***	45	-0.545 ***				
43	S - bq	485	-0.459 ***	144	-0.294 ***	148	-0.468 ***	395	-0.520 ***	45	-0.364 *				
44	S - bt	485	-0.402 ***	144	-0.334 ***	148	-0.425 ***	394	-0.366 ***	45	-0.376 *				
45	S - bu	486	-0.427 ***	145	-0.417 ***	148	-0.383 ***	395	-0.428 ***	45	-0.389 **				
46	S - bv	485	-0.377 ***	145	-0.306 ***	148	-0.302 ***	394	-0.456 ***	45	-0.338 *				
47	S - bw	481	-0.353 ***	143	-0.252 **	148	-0.364 ***	391	-0.425 ***	45	-0.353 *				
48	S - bx	485	-0.324 ***	144	-0.272 ***	148	-0.266 ***	393	-0.399 ***	45	-0.289				
49	S - by	486	-0.337 ***	145	-0.396 ***	148	-0.308 ***	395	-0.320 ***	45	-0.182				
50	S - bz	484	-0.367 ***	143	-0.369 ***	148	-0.387 ***	395	-0.341 ***	45	-0.338 *				
52	S - cb	486	-0.349 ***	145	-0.217 **	148	-0.399 ***	395	-0.304 ***	45	-0.594 ***				
53	S - cc	485	-0.382 ***	145	-0.393 ***	147	-0.375 ***	395	-0.390 ***	45	-0.602 ***				
54	S - cf	483	-0.332 ***	144	-0.338 ***	147	-0.380 ***	395	-0.302 ***	45	-0.588 ***				
55	S - cg	483	-0.419 ***	144	-0.472 ***	146	-0.398 ***	396	-0.391 ***	45	-0.510 ***				
56	S - ch	483	-0.461 ***	144	-0.390 ***	146	-0.497 ***	397	-0.433 ***	45	-0.572 ***				
57	S - ci	483	-0.361 ***	144	-0.331 ***	146	-0.409 ***	397	-0.325 ***	45	-0.499 ***				
58	S - cJ	480	-0.302 ***	143	-0.236 **	146	-0.343 ***	395	-0.213 ***	45	-0.437 **				
59	S - ck	482	-0.318 ***	144	-0.262 **	146	-0.319 ***	395	-0.230 ***	45	-0.679 ***				
61	S - cp	483	-0.358 ***	145	-0.295 ***	145	-0.299 ***	397	-0.411 ***	46	-0.506 ***				
73	S - dd	466	-0.311 ***	140	-0.213 *	142	-0.475 ***	371	-0.230 ***	45	-0.082				
74	S - de	467	-0.318 ***	141	-0.174 *	142	-0.515 ***	372	-0.279 ***	45	0.025				
75	S - df	464	-0.311 ***	141	-0.156	141	-0.462 ***	369	-0.266 ***	45	-0.076				

Notes:

- (1) Numbered item, for a full overview of items, reference is made to Appendix XXX
- (2) Reference used, for a full overview of items, reference is made to Appendix XXX
- (3) Significance levels of item correlations with Factorscore DEDICAT indicated in color:
 Item correlations >.300 ≤ .400 or >-.300 ≤ -.400
 Item correlations >.400 or >-.400
- (4) * Correlation significant at the 0.05 level (2-tailed).
 ** Correlation significant at the 0.01 level (2-tailed).
 *** Correlation significant at the 0.001 level (2-tailed).
- (5) Reference Data samples: NL = Netherlands (n = 148) Mal = Malaysia (n = 150) SA = South-Africa (n = 406)
 US = United States (n = 48)
- (6) r = Pearson Product-moment Correlation Coefficient r = Spearman's correlation coefficient
- (7) Total score includes a random sample of n = 150 from the total South-Africa data sample consisting of n = 406
- (8) SA Data sample consisting of n = 406

Table 6.2.
 Summarized Item Correlations between Elements and Component DEDICAT
 A full overview of item correlations is provided in Appendix XXXI

#	Ref.	Bivariate Item Correlation with Factorscore DEDICAT (3) (4)										
		Total-Group		NL		Mal		SA		US		(5)
(1)	(2)	N	r	N	r	N	r	N	r	N	r	(6)
81	S - dn	479	-0.342 ***	144	-0.105	142	-0.427 ***	397	-0.339 ***	46	-0.230	
104	S - ev	334	-0.416 ***	88	-0.428 ***	95	-0.285 **	307	-0.408 ***	31	-0.308	
105	S - ew	334	-0.351 ***	88	-0.398 ***	95	-0.298 **	305	-0.385 ***	31	-0.304	
114	S - fq	179	-0.372 ***	32	-0.292	90	-0.518 ***	143	-0.247 **	12	-0.286	
115	S - fr	179	-0.310 ***	32	-0.077	90	-0.424 ***	143	-0.285 ***	12	-0.217	
116	S - fs	178	-0.312 ***	32	-0.110	89	-0.410 ***	142	-0.231 **	12	-0.470	
124	S - ga	179	-0.340 ***	32	-0.290	90	-0.539 ***	142	-0.290 ***	12	0.167	
125	S - gb	179	-0.323 ***	32	-0.220	90	-0.467 ***	143	-0.337 ***	12	0.408	
126	S - gc	179	-0.306 ***	32	-0.230	90	-0.439 ***	143	-0.228 **	12	-0.050	
140	S - gz	472	-0.327 ***	145	-0.424 ***	138	-0.350 ***	393	-0.317 ***	44	-0.177	
141	S - ha	473	-0.309 ***	145	-0.345 ***	138	-0.357 ***	394	-0.246 ***	44	-0.209	
142	S - hb	467	-0.310 ***	140	-0.341 ***	138	-0.396 ***	393	-0.329 ***	44	0.012	
143	S - hc	473	-0.350 ***	145	-0.381 ***	138	-0.320 ***	394	-0.360 ***	44	-0.236	
144	S - hf	474	-0.380 ***	145	-0.394 ***	139	-0.342 ***	393	-0.409 ***	44	-0.405 **	

Notes:

- (1) Numbered item, for a full overview of items, reference is made to Appendix XXX
- (2) Reference used, for a full overview of items, reference is made to Appendix XXX
- (3) Significance levels of item correlations with Factorscore DEDICAT indicated in color:
 - Item correlations > .300 ≤ .400 or >-.300 ≤ -.400
 - Item correlations > .400 or >-.400
- (4) * Correlation significant at the 0.05 level (2-tailed).
 ** Correlation significant at the 0.01 level (2-tailed).
 *** Correlation significant at the 0.001 level (2-tailed).
- (5) Reference Data samples: NL = Netherlands (n = 148) Mal = Malaysia (n = 150) SA = South-Africa (n = 406) US = United States (n = 48)
- (6) r = Pearson Product-moment Correlation Coefficient r = Spearman's correlation coefficient
- (7) Total score includes a random sample of n = 150 from the total South-Africa data sample consisting of n = 406
- (8) SA Data sample consisting of n = 406

Table 6.2. (Continued)
 Summarized Item Correlations between Elements and Component DEDICAT
 A full overview of item correlations is provided in Appendix XXXI

The item correlations for ACHIEV seemed to be much less pronounced with an average of -.02 with highest scores reaching in the .15 range. Pearson and Spearman's correlation coefficient scores produced a comparable profile with almost identical significance levels. No correlations emerged exceeding the ± .300 criterion for a valid indication in defining a relationship as described in Chapter 6.4.1.2. As such, it appeared from the analysis that no Elements, operationalized in the SA 1.02 questionnaire obtained from Study 7, Chapter 6.5.1.2.II., revealed a relation with component ACHIEV, assumed to represent Phase 3 of the Process of Motivation.

Likewise, no noteworthy correlates could be detected in the three valid subgroups representing the Netherlands, Malaysian and South African populations.

Summarizing and evaluating the results from the analysis, 52 Elements appeared to correlate with factor score component DEDICAT, according to criteria defined at ± .300, with no correlations obtained for Elements in relation to factor score component ACHIEV.

These findings provide evidence in support of hypothesis H1, where a correlation was assumed to exist between components DEDICAT or ACHIEV with Elements within a business environment that could affect Intervention. In addition, results also appear to confirm hypothesis H2, where it was assumed that from all Elements within the experimental setting displaying a correlation, a 'considerable higher proportion' of Elements, would display a correlation with factor score component DEDICAT, than with factor score component ACHIEV.

3. Discussion

Although a connection between Elements and Conditions needs to be established in a next Stage in Study 9, Chapter 6.5.3., with no correlations exceeding the minimum set at $\pm .300$ found for Elements with component ACHIEV, and with 52 Elements appearing in correlates with component DEDICAT, the preliminary hypothesis H1 is found to be confirmed.

As elaborated on in Chapter 6.4.3., the rationale behind hypothesis H1 was that external influences, i.e. Elements within an experimental setting, would affect Phases 5, 6, 7 and 8 to a greater extent than they would affect Phases 1, 2 and 3 as these Phases would only be influenced indirectly in a subsequent cycle following Phase 8. As a result it was assumed that correlations associated with ACHIEV would be lower. Although a modest number of items display a significant correlation with ACHIEV, no item succeeded in exceeding minimal criteria set. If we are to redefine these criteria towards assessing only a 'small' effect, the analysis would focus on correlations starting from a $\pm .100$ range according to current standards (Cohen, 1988; Cohen, 1992), with a level of significance defined at $p < .01$, two-tailed, to reduce a chance occurrence. According to these criteria, 17 Elements emerge as observed in Appendix XXXII, ranging from $-.118$ to $-.240$ ¹. The conclusion seems justified, then, that relations do exist between Elements isolated and factor score component ACHIEV, but that these relations are not substantial and appear less prominent in results obtained.

Following the observations made earlier in Chapter 3.3.4., identifying Phases 1, 2 and 3 as three initial Phases of 'genesis', where the Process of Motivation appears to be initiated and propelled, and five subsequent Phases where the Process protects itself from outside Intervention, the implications of the findings from the present empirical Studies appear to be three-fold. First, these results could indicate the assumptions are false and results both affecting DEDICAT and ACHIEV are obtained by chance. The conclusion seems premature, as no Competencies or Instruments, based on Conditions have yet been observed. Second, the results are obtained by one or more unidentified co-variables, or Conditions affecting the

¹ With reference to Appendix XXXII, these Elements are identified as S-o, S-y, S-ac, S-ad, S-af, S-ag, S-bi, S-bt, S-bu, S-bv, S-co, S-de, S-dd, S-de, S-df, S-eu, and S-ev.

observed correlates. In this case, Study 9 is likely to provide direct or indirect indications or evidence of these extraneous interferences. Or third, the results provide a first evidence of the fore mentioned assumptions that Mechanisms in initial Phases serve to protect the Process of Motivation, where addressing Phases 1, 2 and 3 can only be achieved indirectly, as assumed following the Model of Motivation and the observations made Chapter 3.3.2.2. and Chapter 3.3.2.3., and effects of addressing these Phases materializes in expressions contained in a Phase of Dedication.

As an important first preliminary conclusion, then, these results could provide a first preliminary confirmation for the assumption that components DEDICAT and ACHIEV are expected to yield different results when addressed in a Process of Motivation.

Following this conclusion, however, a number of additional observations must be made.

As the data had to include not only the Elements from the SA 1.02 inventory, but also the data from the HF 2.01 list, in order to generate scores associated to components DEDICAT and ACHIEV, the final questionnaire consisted of 250+ items covering 10 pages. The vast list of items could have led to a number of possible detrimental effects in the quasi-experimental design of the Study. Although all questionnaires were verified on effects of a faulty completion of the questionnaires, with no rejects registered, effects of fatigue could have provided a bias in answers. In addition, elaborated on earlier in Chapter 5.5.1.3., limitations apply as a result of using questionnaire HF2.01.

Second, as mentioned earlier, the integrity of a randomized sampling was jeopardized with 2 companies declining to participate. In addition, sample size of the US sample proved too small for an adequate analysis to be made.

A number of limitations apply also to the questionnaire, not only in its reduction of selected items, as compared to the total number of associated Elements, but also to the chosen format, where respondents were asked to provide qualifications instead of subjective experiences, as detailed in Chapter 6.5.1.2.II.

4. Conclusion

In Study 8, a descriptive correlational research was initiated, aimed at verification of a first hypothesis H1, that a number of Elements would display a correlation with components DEDICAT or ACHIEV, represented by their respective factor scores. In addition, in a second hypothesis H2, it was assumed that from all Elements displaying a correlation, a considerable higher proportion of Elements would display a correlation with component DEDICAT, than with component ACHIEV. Although as yet incomplete, the results of this descriptive correlational research confirm both hypotheses.

6.5.3. Study 9: Enabling Conditions

The third, and last of the three studies in this Chapter, aims at a verification of hypotheses H3A and H3B. It is hypothesized that from the Elements isolated in Study 8 displaying a correlation with components DEDICAT and ACHIEV, a majority of at least 80% will be directly or indirectly related to one or more of the Conditions, hence can be explained in terms of one or more of these Conditions.

However, with no apparent correlations emerging from Study 8, between factor score component ACHIEV and an Inventory of Elements, no further analysis can be performed aimed at a verification of hypothesis H3B, and consequently is to be discarded from the Study¹.

1. Methodology

Procedure; The 52 Elements with correlates exceeding $\pm .300$ obtained from Study 8, were presented to 7 independent observers chosen at random from a group of 60 students following a minor-course in Business Studies at Leiden University, The Netherlands. The observers were given instructions to assess a potential relation between Elements and Conditions, following a standardized format, providing them with a listing of the 52 Elements together with criteria for classifications indicative of the Conditions. The overview of Elements and their classifications were returned anonymously. An overview of instructions and scoring format is provided Appendix XXXIII.

Measures; Given a presumed hypothesis H3A an assessment was to be made by independent observers if Elements displaying a correlation with factor score DEDICAT, hence with Motivation, could be directly or indirectly associated to one or more of the Conditions.

Thus, in the analysis, following constructs were defined:

- *Elements.* Elements assumed to demonstrate a relation, directly or indirectly to Motivation were operationalized as the 52 Elements obtained from Study 8, Chapter 6.5.2. For a description and phrasing of Elements reference is made to Appendix XXXIII.

- *Conditions.* The four Conditions were defined as follows:

¹ It is stressed, however, that the exclusion of further analysis is a direct result of a confirmation of hypothesis H1, stressing the importance of DEDICAT in its responsiveness to Conditions for Intervention instead of ACHIEV. Reference is made to Chapter 6.4.3. and observations made in Chapter 6.5.2.3.

- *Perceived Significance of the Goal, or objective set*; An Element was considered to be indicative of the Condition, when it was directly related or when it was assumed to facilitate in defining a personal objective. In the listing of Elements indications for a potential relation with the Condition were formulated as follows: "The item ...(*indicated*)... is / is not related or supportive in defining an objective".
- *Perceived Significance of the Actor-Intervener*; An Element was considered to be indicative of the Condition, when it was assumed to reflect, directly or indirectly, the attributes of an external Actor-Intervener. In the listing of Elements indications for a potential relation with the Condition were formulated as follows: "The item ...(*indicated*)... could / could not serve as an important actor, or an 'important person'".
- *Perceived Support*; An Element was considered to be indicative of the Condition, when it was assumed to reflect an ability to provide assistance or encouragement. In the listing of Elements indications for a potential relation with the Condition were formulated as follows: "The item ...(*indicated*)... could / could not be serving as a means to provide assistance or support".
- *Perceived (Mis)-Match in Mutual Perceptions*; An Element was considered to be indicative of the Condition, when it was assumed to reflect an equivalence, or resemblance, in experience¹. In the listing of Elements indications for a potential relation with the Condition were formulated as follows: "The item ...(*indicated*)... could / could not assist in defining if we have a 'match' or share a 'common language' ".

Analysis; The listing, with each item assessed on its potential relation to one or more of the four Conditions, was analyzed per item by each of the 7 observers. Following criteria defined in Chapter 6.4.1.3., where a relation between a specific item and one or more Conditions was assumed plausible when suggested by $\frac{3}{4}$ of observers, a criterion for congruency was set when 5 of 7 observers were to indicate a relation for each specific item.

The Analysis was performed on the cumulative scores from the anonymous listings provided by the 7 observers.

2. Results

Independent randomly chosen observers were to classify 52 variables that were found to correlate with Motivation, and to determine whether these so-called 'Elements' were indicative of one or more of the Conditions presumed to be active in each Intervention within the Process of Motivation. Results of the classification appear in Table 6.3. Per item an overview is provided of the assessments made by $\frac{3}{4}$

¹ Where a Mis-Match, or difference in perception, was considered unfavorable as a Condition.

of observers, as to which of Conditions each item is related to. All Elements and respective questions are referred to by their reference codes. For reasons of brevity, a condensed phrasing is used. For a full description, both of phrasing and of references, see Appendix XXVIII.

As a first observation, only a few items, or Elements, appeared to be indicative of only one Condition: 9 Elements, or 17.3%. (S-H, S-av, S-bh, S-bn, S-bo, S-bq, S-by, S-cg and S-ew). 8 Elements, or 15.4% were indicative of all four Conditions (S-bu, S-bv, S-bz, S-cc, S-fq, S-ga, S-gb and S-gc)¹.

It was assumed that all Elements with a pronounced relation to Motivation, would reflect effects of one or more of Conditions suggested to be essential for a successful Intervention in the Process of Motivation to occur. Following criteria set in Chapter 6.4.1.3., where it was assumed that at least 80% of the 52 items correlating with factor score component DEDICAT were to be classified by independent observers as related to one or more of the Conditions suggested, these results provide an adequate explanatory context for these relations. *From the Data, it was found that 44 of the 52 Elements, or 84.6%, were classified according to these specifications, thus confirming hypothesis H3A, Chapter 6.4.3.*

3. Discussion

The principal aim of the last Study was to obtain an indication if Elements previously isolated in Study 8, displaying a correlation especially with component DEDICAT, are in majority related to one or more of the Conditions, suggested in Chapter 6.2.2. First results appear to confirm these assumptions.

However, a number of observations are to be made.

Considerations to the comprehensiveness and integrity of the listing have been covered in Chapter 6.5.1.3., limitations especially to the content of the listing, were elaborated on in Chapter 6.5.2.3. Given the listing as presented, the principal limitation in this final Study lies in the assessment and classification of the items by the independent observers. A first limitation applies to the definitions used, as presented in Chapter 6.5.3.1. Although the format of the listings presented to the observers was designed to eliminate bias and misinterpretation of concepts used, the anonymous approach prevented a verification of perceptions and interpretations of the observers.

A second limitation lies in the limited number of observers, and their uniform background, both culturally and socially. Further research is needed to further diversify these findings.

¹ From these 8 Elements, 6 Elements (S-bu, S-bv, S-cc, S-fq, S-ga and S-gc) will prove to be indicative of either Extrinsic or Intrinsic Technical and Attitudinal Competencies as to be suggested in Chapter 7.2.2., and analyzed in the empirical research Chapter 7.5.

#	Ref.	Item	Total-Group		Condition			
			N	r	Objective	Actor	Support	Match
(1)	(2)	(3)	(4)	(5)				
3	S - H	Workcontent	447	-0.303	✓			
5	S - J	Work - performance	444	-0.308	✓			✓
10	S - r	Work - interest	490	-0.380	✓			✓
11	S - s	Work - relevance	489	-0.304	✓		✓	✓
13	S - u	Work - challenge	488	-0.350	✓		✓	
25	S - am	Guidelines and procedures	482	-0.353	✓		✓	✓
26	S - ap	Responsibilities	486	-0.431	✓		✓	✓
27	S - aq	Authority	485	-0.398	✓		✓	
28	S - ar	Incentives	485	-0.367	✓		✓	✓
29	S - av	Personal objectives	478	-0.338	✓			
30	S - aw	<i>if applicable</i> : attainability personal objectives	430	-0.461	✓		✓	
35	S - bh	<i>if applicable</i> : satisfaction objectives provided	388	-0.319	✓			
37	S - bj	<i>if applicable</i> : satisfaction priorities provided	399	-0.345				
38	S - bk	Company mission/vision statement(s)	483	-0.337	✓		✓	✓
39	S - bl	Company goals	482	-0.382	✓		✓	✓
40	S - bn	Top management - leadership	483	-0.437			✓	
41	S - bo	Top management - guidelines and goals	484	-0.480	✓			
42	S - bp	Top management - priorities	485	-0.414				
43	S - bq	Top management - decision making	485	-0.459		✓		
44	S - bt	Top management - communication	485	-0.402		✓	✓	✓
45	S - bu	Top management - performance stimulation	486	-0.427	✓	✓	✓	✓
46	S - bv	Top management - recognition	485	-0.377	✓	✓	✓	✓
47	S - bw	Top management - delegation	481	-0.353				
48	S - bx	Top management - performance appraisal	485	-0.324		✓	✓	✓
49	S - by	Top management - team building	486	-0.337		✓		
50	S - bz	Top management - personal relationship	484	-0.367	✓	✓	✓	✓
52	S - cb	Top management - approachable and receptive for suggestions	486	-0.349		✓	✓	✓
53	S - cc	Top management - dignity and respect	485	-0.382	✓	✓	✓	✓
54	S - cf	Top management oriented recognition	483	-0.332				
55	S - cg	Top management oriented trust	483	-0.419				✓
56	S - ch	Top management oriented respect	483	-0.461		✓		✓
57	S - ci	Top management oriented personal relationship	483	-0.361		✓	✓	✓
58	S - cj	Top management oriented communication	480	-0.302		✓	✓	✓
59	S - ck	Top management oriented accessibility for suggestions	482	-0.318			✓	✓
61	S - cp	Company authority structure	483	-0.358				
73	S - dd	<i>If applicable</i> : quality program	466	-0.311				
74	S - de	<i>If applicable</i> : quality awareness	467	-0.318				
75	S - df	<i>If applicable</i> : quality program results	464	-0.311				

Notes:

- (1) Numbered item, for a full overview of items, reference is made to Appendix XXVIII and Appendix XXX
- (2) Reference used, for a full overview of items, reference is made to Appendix XXVIII and Appendix XXX
- (3) Items are formulated in abbreviated format, for a full overview of items, reference is made to Appendix XXVIII
- (4) Total score includes a random sample of n = 150 from the total South-Africa data sample consisting of n = 406
- (5) Pearson Product-moment Correlation Coefficient of item with Factorscore DEDICAT, for a full overview of items, reference is made to Appendix XXX

Table 6.3.
Summarized Item Correlations between Elements and Component DEDICAT
A Classification of Conditions

#	Ref.	Item	Total-Group		Condition			
			N	r	Objective	Actor	Support	Match
(1)	(2)	(3)	(4)	(5)				
81	S - dn	Community orientation	479	-0.342	✓			✓
104	S - ev	Possibilities career improvement	334	-0.416	✓		✓	
105	S - ew	Job rotation	334	-0.351			✓	
114	S - fq	Direct reports oriented guidelines and goals	179	-0.372	✓	✓	✓	✓
115	S - fr	Direct reports oriented priorities	179	-0.310		✓	✓	✓
116	S - fs	Direct reports oriented decision making	178	-0.312		✓	✓	
124	S - ga	Direct reports oriented trust	179	-0.340	✓	✓	✓	✓
125	S - gb	Direct reports oriented accessibility for suggestions	179	-0.323	✓	✓	✓	✓
126	S - gc	Direct reports oriented dignity and respect	179	-0.306	✓	✓	✓	✓
140	S - gz	Training - attendance	472	-0.327	✓		✓	
141	S - ha	Training - information	473	-0.309			✓	✓
142	S - hb	Training - relevance	467	-0.310	✓		✓	
143	S - hc	Opportunities personal development	473	-0.350	✓		✓	
144	S - hf	Opportunities development capacities	474	-0.380	✓		✓	

Notes:

- (1) Numbered item, for a full overview of items, reference is made to Appendix XXVIII and Appendix XXX
- (2) Reference used, for a full overview of items, reference is made to Appendix XXVIII and Appendix XXX
- (3) Items are formulated in abbreviated format, for a full overview of items, reference is made to Appendix XXVIII
- (4) Total score includes a random sample of n = 150 from the total South-Africa data sample consisting of n = 406
- (5) Pearson Product-moment Correlation Coefficient of item with Factorscore DEDICAT, for a full overview of items, reference is made to Appendix XXX

Table 6.3. (Continued)
Summarized Item Correlations between Elements and Component DEDICAT
A Classification of Conditions

4. Conclusion

Item-correlates were classified according to Conditions that were assumed to be essential for a successful Intervention to occur in the Process of Motivation.

From the 52 items that appeared to be indicative of Elements that play a significant role in Motivation according to findings from Study 8, 44, or 84.6% were found to be indicative of these Conditions, thus meeting criteria defined in Chapter 6.4.1.3. As a result, hypothesis H3A, formulated Chapter 6.4.3., was considered valid. However, due to a lack of substantial items correlating with ACHIEV, the data did not provide support for hypothesis H3B, aimed at correlations with ACHIEV.

6.5.4. Conclusions

Given the Problem Statement, as defined in Chapter 2.5., the empirical research aimed at providing an exploratory and descriptive correlational evidence of the relation between isolated constructs operationalizing the Process of Motivation and concepts, or

'Elements', presumed to be indicative of Conditions, assumed to be necessary for an Intervention to occur in the Process of Motivation.

An Inventory was made in Study 7, of all Elements within the settings of a business environment, operationalizing and translating these Elements into a questionnaire, designated as 'SA-1.02'. On the assumption that the Conditions were the principal Determinants initiating an Intervention, it was hypothesized that all Elements within this experimental setting displaying a correlation with Motivation would be indicative of, and directly or indirectly related to one or more of these enabling Conditions, hence could be explained in terms of one or more of these Conditions.

From an Inventory of Elements, 52 emerged with correlates primarily associated to factor score component DEDICAT, providing evidence in support of hypotheses H1 and H2, formulated Chapter 6.4.3.

From these 52 Elements, 84.6% were found to be indicative of one or more of the four Conditions, by independent, randomly selected observers. As a consequence, Study 9 provided a confirmation for hypothesis H3A, formulated Chapter 6.4.3., that Elements associated to Motivation, and correlating with DEDICAT were directly or indirectly related to one or more of the four enabling Conditions. However, due to a lack of substantial items correlating with ACHIEV, the data did not provide support for hypothesis H3B, aimed at correlations with ACHIEV.

6.6. Summary

Following the presentation of a Model of Motivation, it was assumed in Chapter 6 that specific Conditions were needed for an interfering Actor-Intervener to influence the Process of Motivation induced within the Individual.

Following an inductive inference briefly described in Chapter 6.2.2., based on the Model of Motivation presented Chapter 3., four Conditions were proposed that were assumed to be essential in addressing, or 'Management' of Motivation:

- *Perceived Significance of the Goal, or objective*
- *Perceived Significance of the Actor-Intervener*
- *Perceived Support*
- *Perceived (Mis)-Match in Mutual Perceptions*

Following the Problem Statement defined in Chapter 2.5., the empirical research was to provide a descriptive correlational evidence for these Conditions by a straightforward verification if correlations with Motivation could be explained as resulting from these alleged underlying Conditions. To this end, within a business environment, an Inventory was made of all aspects, or so-called 'Elements', contained within this environment. Given that these four Conditions were assumed to be operational in each Intervention inducing Motivation, it was hypothesized that all Elements displaying a relation with Motivation were to be indicative of one or more of these Conditions. Each correlation between isolated constructs operationalizing the Process of Motivation and

concepts operationalizing these Elements was assumed to be an expression of an Intervention in the Process of Motivation, and as such, was assumed could be reduced to the effects of one or more of these four elementary Conditions. In short, if an Element was to affect Intervention in the Process of Motivation it was assumed to be initiated by one or more of these Conditions.

In three subsequent steps these assumptions were verified.

Study 7, Chapter 6.5.1., aimed at obtaining an extensive overview of all Elements within a business environment. An Inventory of Elements was made containing 482 Elements. In a successive, four-fold abbreviation a questionnaire, SA 1.02, was obtained that would cover these Elements from a listing containing 147 questions, and a number of accompanying questions.

Study 8, Chapter 6.5.2., was to determine which Elements from the Inventory would reveal a relationship with Motivation, operationalized in factor scores DEDICAT and ACHIEV. Following observations made in Chapter 3.3.2. and summarized in Chapter 6.4.3., it was assumed that a considerable higher proportion of Elements would display a correlation with component DEDICAT, than with component ACHIEV. 52 Elements appeared to correlate with component DEDICAT, according to criteria defined in Chapter 6.4.1.2., with no correlations obtained for Elements in relation to component ACHIEV.

In Study 9, Chapter 6.5.3., it was found that from these 52 Elements, 44 Elements, or 84.6%, were related according to assessments made by (more than) 5 of 7 independent observers, thus exceeding criteria defined in Chapter 6.4.1.3. With no correlations meeting initial criteria, the Study produced no confirmation for factor score component ACHIEV.

Following the Problem Statement defined in Chapter 2.5., then, the empirical research provided exploratory and descriptive correlational evidence for a relation between constructs capturing Motivation and the Conditions enabling an adequate Intervention to occur within the Process of Motivation.

Providing evidence for these Conditions is the key finding of the second empirical research of this dissertation.

In addition, these findings provide secondary empirical evidence in support of the Model of Motivation, from which these Conditions were derived.