SUMMARY: THE CORE OF THE MATTER

**Viability and effectiveness
of behavior directed dual system interventions
aimed at change in organizations**

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Introduction

The fact that human behavior is an important element to change in organizations will be seen as obvious by many. Yet the subject of behavior is only discussed to a certain degree in the practice of change management. Important basis in this study is the *dual system approach* that puts forth the idea that there should be a distinction made between conscious, planned behavior and unconscious, automatic behavior. The study into unconscious, automatic behavior in particular has become important in the last years.

The problem statement in this thesis is as follows: what are viable and effective methods to apply the dual system approach in behavior directed interventions aimed at change in organizations?
Field experiments were conducted in four Dutch organizations, followed by realistic evaluations, to answer this question. The thus gained findings were compared in a cross case analysis.

Theory

The following sources were systematically examined: psychological publications on behavior and change, academic literature on change in organizations, popular literature in this area and literature on intervention methods that fit a dual system approach.

In psychological publications the traditional discrepancy between behaviorist and cognitive psychology is studied as well as the synthesis of these approaches in dual system-theory.
Behaviorist psychology maintains the idea that human behavior is a function of characteristics of the context. Change in behavior follows change in stimuli in the context.
The application of behaviorist methods in bringing about change in organizations is not very popular in Europe. In particular because they are regarded as manipulative. Utilising a stringent behaviorist approach to change in an organization can be efficient, especially when interventions focused primarily on persuading employees by way of communication have not been effective; but run the risk of meeting with opposition.

Cognitive psychology maintains the idea that human behavior is a function of inner mental phenomena like beliefs, attitudes and intentions.

Change in behavior follows the processing of information. Cognitive methods are utilised, albeit implicitly, by many organizations. This fits the free will thinking that is popular in organizational studies. Important criticism for the cognitive view is that changes in beliefs, attitudes and intentions generally only lead to a small degree of change in behavior. Applying a strictly cognitive approach to change within an organization runs the risk of being ineffective.

The dual system approach maintains the idea that human behavior and change in behavior come from the interplay between automatic, unconscious processes and controlled conscious processes.
The characteristics of both systems and the dominance of unconscious, automatic behavior over conscious, planned behavior offer an elegant explanation for the fact the many plans within organizations are formulated but never get implemented.
Although dual system theory is still developing it can be promising as a basis for practical application when it comes to bringing about change in organizations.

A part of the academic literature on organizational science gets into the mechanics that lead to change on an individual or collective level as well. Although in many cases behavioral theories are kept implicit, in some cases explicit models and theories are presented that fit the dual system approach in psychology.
The contrast between the deterministic and voluntaristic perspective is important here. Many change theories combine these two viewpoints.
According to some authors the voluntaristic or free will approach is excessively popular in organizational studies.
In popular literature regarding change in organizations behavior and change in behavior are only explicitly mentioned by a few authors as important variables; and these concepts are only elaborated on in a few cases.
The emphasis in popular publications on change, more than in academic literature, is on prescribing formulas: practical tips, check lists and action plans. Many authors employ an approach that implicitly combines voluntaristic and deterministic notions. This fits the dual system approach in psychology.

Direct translations of the results from experimental research in psychology to practical interventions aimed at the organizational environment might not be obvious, but the interplay between conscious, planned behavior and unconscious, automatic behavior should be taken into account in the development of interventions.
Three intervention methods can be found in psychological publications which are theory based, behavior directed and fit the dual system approach. These are Organizational Behavior Modification, the Transtheoretical Model and the Precede-Proceed Model. These three approaches offer a starting point for the development and application of so called BDSI's: *Behavior directed Dual System-based Interventions.* Based on the review of the literature a basic model for the development of BDSI's is presented.

Study 1: Black Box

Research was done at IT organization Black Box from February 2003 through October 2003. The analysis was focused on the performance of the telephone salespeople. The specific target behavior that was studied was the making of outgoing phone calls. The target concerned raising the number of outgoing calls per person, per day. In the wake of

this the number of issued quotes and the number of quotes divided by the number of phone calls, the so called hit rate, were also examined.
During seven weeks within this period two groups were coached by e-mail and telephone. The experimental group was coached in a behavior directed manner through a method derived from the dual system approach.

The execution of the experiment at Black Box made it clear that it is possible to develop a practical intervention based on the dual system theory and then to implement it. There seems to be support for hypothesis 1.

The number of telephone calls per work day increased in both the experimental and control groups. As for the number of quotes issued and the hit rate, the increase was most discernible in the experimental group. The results of the analysis seem to support hypothesis 2.

The realistic evaluation suggests that, within the outlined context, behavior directed coaching on a weekly basis, in which each individual can choose his own target behavior based on analysis of past successes, is effective in realising change.

Study 2: Bosch Rexroth

Research was done at drive and control solutions company Bosch Rexroth from October 2004 through October 2005. The analysis was focused on the performance of account managers. The specific target behavior studied was the maintaining of account plans. In practice this comes down to making, adapting and/or altering account plans in the computer application SuperOffice.
Target was the increase of the target behavior.
Two groups were coached via e-mail and telephone for eleven weeks within this period. Just as with Black Box, the experimental group was coached using a method derived from the dual system approach.

The study at Bosch Rexroth confirmed the findings made in the Black Box analysis; that it is possible to develop and implement BDSI's in work environments. There seems to be support for hypothesis 1.

There were no clear visible differences between both groups. The research findings offer no support for hypothesis 2. In this case implementation of the coaching plan lead to increase in the targeted behavior in both groups. The fact that there were some important disruptions to the implementation of the experiment may have played a role in this finding.

The realistic evaluation suggests that, in the outlined context, behavior directed coaching on a weekly basis, in which the target behavior has been determined in a top-down way, is not effective in realising change.

Study 3: KLM E&M

Research was done in the Line Maintenance Widebody department within the maintenance organization of airliner KLM's Engineering & Maintenance (KLM E&M)

between October 2005 and November 2006. During this period a field experiment was set up, over the course of thirteen weeks, in which ground engineers (GE's) were stimulated to postpone fewer repairs by means of a change in the procedure for transferring planes after maintenance.

The intervention involved the personal transfer of the airplane by the GE to the crew that was to fly it. Something that had been customary in the past but had been discarded by most airlines years ago for reasons of efficiency. The field experiment at KLM E&M shows that though it is possible to develop a relatively simple intervention based on the dual system approach, flawless implementation of such an intervention is far from easy. Various disrupting factors played a part during the analysis.

Another point is that it was necessary for too many of the people involved to implement a change of behavior in order for the GE's change of behavior to be successful. In reality this just wasn't attainable.

The analysis results in a negative outcome regarding the question of whether or not BDSI's are applicable. There seems to be no support for hypothesis 1.

Based on the available results, hypothesis 2 must be thrown out. None of the expected differences could be observed.

The realistic evaluation shows that there were major hindrances to achieving the intended results using the transfer intervention within the outlined context. The identified mechanisms may lead to better results in another context.

Study 4: KPN-RZW

Research was done at telecom company KPN Region South West (KPN-RZW) from November 2005 through August 2008. The mechanic's invoicing activities were central to the analysis.

This was translated, within the analysis, to the amount of the invoice charged to clients in proportion to the expected invoiced amount. The target behavior was increasing the invoiced amounts or more specifically: lowering the discrepancy between the possible amount to be invoiced and the amount actually invoiced per order.

Past experience within the organization taught that, in many cases, the mechanics in the field charged customers too little for solving technical difficulties.

A field experiment was set up in which mechanics were stimulated, over a twelve week period, to invoice adequately by means of a change in the work orders and procedure for drawing up an account for customers after repairs.

Developing a relatively simple BDSI within KPN-RZW went smoothly. However many things went wrong during the implementation. Yet the things which are considered random noise or disturbances in such an analysis may very well be the order of the day in a large organization that has to deal with internal and external change and unexpected incidents all the time. These are the things ordinary managers and employees have to deal with every day when making and implementing plans.

The analysis results in a negative outcome with relation to the question whether or not BSDI's are applicable. There appears to be no support for hypothesis 1.

In the end, the data set was too minimal because of the disturbances. Based on the results available hypothesis 2 two must be thrown out. There is none of the expected difference.

The realistic evaluation suggests that, within the outlined context, the various mechanisms that lead to proper invoicing activities are no match for the mechanisms that lead to less accurate invoicing and administration. It is possible that the chosen intervention would have been more effective within another context.

Conclusion

Most viable seemed the approach chosen with Black Box and Bosch Rexroth: a behavior directed distance coaching intervention.
Next to that viability and effectiveness seemed to be influenced most by the selection method and the substance of the target behavior.

The following conditions apply for optimal target behavior:
- the employee chooses the target behavior himself
- the employee has had positive experiences with the target behavior in the past
- the target behavior leads to short term benefits for the employee
- the target behavior is compatible with / doesn't compete with other important tasks
- the target behavior can differ for each individual

Along with target behavior the following elements play a part:
- Past experiences with interventions: negative experiences with past interventions are an obstacle when it comes to applicability
- The stimuli being utilised: if others evaluate the target behavior this is beneficial to the effectiveness of an intervention. The social stimuli and other tactics utilised during an intervention must be strong enough.
- The implementation of the intervention: the more parties involved the more sluggish the implementation. This is especially so when these parties do not directly profit from the intervention. It is better when motivated, involved (external) researchers or coaches lead the intervention.
- The type of organization: machine bureaucracies inhibit the applicability and effectiveness of BDSI's. Smaller units promote the effectiveness of BDSI's. Poor employer-employee relationships are detrimental to the applicability.

A brief summary of the conclusions for practical use within organizations:
Choose interventions in which the participants can (a) select their own target behavior, one which they have had (b) positive experience with, that (c) leads to results for themselves in the short term and that (d) doesn't conflict with other important tasks. Make sure these interventions are (e) simple and (f) powerful enough to rise above the 'background noise' in organizations.

Although this seems like a short list of simple recommendations, in three of the four case studies it was not possible to implement such an intervention in cooperation with the respective managers. The study makes a case for simple bottom up, positive, solution-focused interventions aimed at changing behavior in organizations.