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DOCTORAL THESIS

SYNERGY EFFECTS ASSESSMENT IN TEAM WORK

ABSTRACT

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In ***Introduction*** we presented the research issues and we stated its purpose: **to identify and assess the synergy effects in team work in terms of behaviors exhibited by members in carrying out common tasks.**

To meet this purpose, we proposed a generic model in which we conceptualized synergy and main influence factors on the premises that ensures it (part II), after preliminary notional clarification regarding the team and its research (part I), in part III being tested and interpreted relationships anticipated by the hypotheses that compose the generic model. The paper is structured in three parts, each having two chapters.

Methodological option is predominantly emic, but also etic, as far as we resort to formal-logical component of statistical method. Research is interpretative-constructivist and falls within the functionalism since the theoretical model of synergy and the generic model containing it are built on functional equivalence between complex adaptive system and work team.

In **chapter 1**, ***Groups and teams in organizations***, we presented a brief history of groups and teams, their main approaches (psychosocial, socio-technical and behavioral), and also the main differences between them. Then, we treated them as organizational structures, we presented their typology and we proposed diverse ways of organization taking into account the teams specificity.

In **chapter 2**, ***Organizational team building and functioning***, we presented the main viewpoints on work groups development (J.L. Moreno's sociometry and K. Lewin's group dynamics), and also the main models of work group development, models belonging to B.W. Tuckman, B.M. Bass and E.C. Ryterband, G.C. Homans. We believe that the transition from the group status to team status occurs somewhere towards the end of the norming stage in Tuckman's model or, according to the model of B.M. Bass and E. C. Ryterband, in solidarity stage, or, according to M. Woodcock, in consolidation stage - when are formed and operates the rules and norms according to which members act and interact, is created that interdependence, both personally and in terms of achieving the tasks, that differentiate team from group.

Also, we pointed out the basic coordinates in team functioning: organizational context, the nature of common task, team composition and team specific rules and, in the end of the chapter, we emphasized the differences between team work and group work.

In **chapter 3**, ***Team performance and contextual performance – attaining team synergy effects***, we first conceptualized the basic pillars in the theoretical development of a generic model: performance and synergy, contextual performance and team performance.

As an axiomatic definition and according to the functionalist approach that we proposed in this research, team synergy is achieved in so far as the individual effort of members (contextual

performance in the form of process gains and process losses) is reflected in team performance in accordance with the development model of team as complex adaptive system with specific properties.

The contextual performance is given by the high frequency of behaviors that denotes process gains, respectively, by the low frequency of behaviors that denotes process losses. Situations likely to increase efforts denote „process gains" and those which can determine reduced efforts show „process losses", and they are basic premises for attaining synergy effects.

Thus, the individual team member will make additional efforts if he knows what to do and what is expected from him and from others (clarity of objectives), if the output at team level is perceived as essential (social compensation), if performance standards are high enough to stimulate him (social indispensability), if in team work very competent people with experience, true role models (interpersonal comparison), if there are values promoted in the group with which he identifies (group identity). At the opposite side, contextual performance will be given also by the avoiding of reducing efforts specific to team work in situations where the individual perceives that his contribution for group result is not important (*free-riding*), the contributions of others did not seem visible to him (*sucker effect*) and his contribution and efforts can not be evaluated (*social loafing*).

With regard to team performance, we proposed a model similar to Tuckman's model with respect to names given to stages, but we considered as qualitative performance criteria in team work several variables highlighted in the literature as having a major importance for team functioning and, in our view, for team development. Thus, team performance is given in the forming stage by the common goal establishment and common expertise, in the transition stage, by the individual responsibility and individual expertise, in the norming stage, by the adaptability and open communication, and in the functioning stage, by the autonomy and common responsibility.

On the analogy of the definition of synergism that comes from physics and refers to an intensification of actions which are exerted in the same direction or an intensification of the action of two substances through their association, reflection of contextual performance in the performance of evolving team can be assessed by a correlational design in which the ties between contextual performance and the performance of evolving team signifies the existence of synergy effects. In our theoretical model, these relationships are getting stronger as the group work evolves, respectively the process gains increasing and process losses decreasing will increase the performance of evolving team process, i.e. the synergy effects will be attained (hypothesis H1 and, respectively, H2).

The most important factors influencing the performance both at individual and team level, are motivation, social capital and leadership, and they are discussed in **chapter 4**, ***The role of social capital, the importance of motivation and the impact of leadership in attaining the synergy effects***. According to the proposed conceptualizations, we developed the hypotheses H3, H5 and H7 involving the existence of positive correlations between process gains, on one hand, and the dimensions of social capital (structural, relational and cognitive), motivation for team work (intrinsic and extrinsic) and team leadership (transformational, transactional and shared), on the other hand, and the hypotheses H4, H6 and H8 assuming the existence of negative correlation between process losses and the above mentioned factors. We also suppose the positive ties between team performance and the same factors (hypotheses H9, H10 and H11).

As regards the leadership, we proposed a model in which we theorize the different importance of diverse leadership behaviors in the four stages of team development. The last hypothesis, H12, is based on functional analogy between complex adaptive system and the team: shared leadership gives the measure of team self-organization as complex adaptive system which produces synergy effects naturally. In other words, the more frequently are shared leadership behaviors, the stronger will be synergy effects. At the end of the chapter we drafted graphically the generic model of our research comprising the 14 variables, respectively, the 12 hypotheses considered.

In **chapter 5**, ***The procedure of empirical research for the assessment of synergy effects in team work***, we described the research context (consultancy market and consultancy team task) and we proposed a theoretical model of overlapping project development stages to team evolution stages. Then, we detailed the way in which the questionnaire was build and applied, as basic instrument of empirical research, as well the modality in which we delineated the variables for theoretical model testing (through factor analysis) and analyzed data (treatment of outliers).

In **chapter 6**, ***Applying the generic model for synergy effects assessment in team work in the case of small and medium entreprises operating in the field of bussines and management consultancy***, we tested and interpreted the 12 hypotheses developed in part II.

To test hypotheses H1-H11, we used correlation analysis in SPSS having as basis of assessment of relationship between variable the Pearson coefficient and for testing hypothesis H12, we used ModGraph application that is based on the procedure of Aiken and West to assess the effect of moderation. In addition, for results interpretation, we have considered initial variables that contributed to the consolidation of latent variables (composite variables).

In summary, the outcomes obtained as a result of hypotheses testing are:

- Hypothesis H1 is supported almost entirely since all ties are positive and statistically significant, only the condition of ascendancy in correlations size is not fully respected. Hypothesis H2 is supported only about one tie statistically significant, but the correlations condition of ascendancy, with one exception, is respected. Positive association between real process gains and team performance in team evolving model follows, except performance in forming phase, the increasing trend suggested by theoretical case of synergy.

- Hypotheses H3 and H4 were fully confirmed. Cognitive dimension shows the strongest relation with process gains compared to other dimensions, and relational capital shows the largest negative correlation with process losses.

- Hypothesis H5 is confirmed, but hypothesis H6 is not. Intrinsic motivation can lead to significant increases in efforts made by members of consultancy team.

- Hypothesis H7 is confirmed entirely and hypothesis H8 partially. Ties between process gains and both transformational leadership behaviors as well as transactional ones are almost equally strong.

- Hypothesis H9 is fully confirmed. Cognitive capital present the highest correlations with performance variables compared to other dimensions, except norming, in which, however, shows the highest correlation compared to other stages.

- Hypothesis H10 is confirmed only partially. Material reward does not increase performance, whether it is about individual or group performance.

- Hypothesis H11 is entirely confirmed. Empirical results regarding the ties between leadership behaviors and performance in team evolutive model are generally consistent with the theoretical model we proposed in chapter 4.

And then hypothesis H12 is confirmed: shared leadership potentiates relationship between process gains and team performance, respectively, amplifies the synergy effects. Moreover, it is also respected the magnitude order of increasing correlations size from one stage to another according to real synergy model. Catalytic effects of synergy enhance the other types of synergy effects (additive, emergent or functional type). Given the confirmation of hypothesis H12, the catalytic role is fulfilled by shared leadership because it potentiates the relationship between contextual performance and team performance, respectively maximizes synergy effects specific to stages of small group work development.

In ***Conclusions*** we pointed out the major implications (theoretical, methodological, and practical) of our research, and also some final considerations, contributions, perspectives and limitations.

Thus, for reaching the objectives of present research, from classic Tuckman's model we have developed a different model in which we focused on qualitative performance criteria that mark the team development and we treat them as emergent properties of team viewed as complex adaptive system: the eight initial variables, grouped into four team performance variables, are characteristics of the „whole" evolving. „On" this model was possible to adapt the typology of synergy effects, following closely the meaning given by their author, P.A. Corning, a complex systems theorist. Also according to evolutionary direction of team performance, we depicted the theoretical model of synergy, as a basis for comparison, only with orientative power, for real synergy effects.

Thus, before we stated the hypotheses that compose the generic model for synergy effects assessment in team work, we tried to clarify the variables considered in this research:

- Team social capital is „social" because this is the context of collective work, which does not mean it can be addressed simply and solely in terms of social relations in the workplace.

- In the context of collective work, the needs satisfaction of each member must be considered as an *ab initio* prerequisite for any effort required from members, and especially when it is studied contextual performance.

- Leadership behaviors, although theoretically belonging to different styles, are needed at different moments in which team is found; furthermore, we believe that they can be manifested by any member on the basis that emergency situations, for example, create their own leader.

Taking into account the overall results of the correlation analysis carried out in part III of this research, emerges a seemingly paradoxical conclusion: competition is beneficial to functionality of project team from small and medium entreprises (SMEs) operating in the field of bussines and management consultancy in Romania and implicitly, to attaining synergy effects. But it is a constructive competition as long as it is beneficial to improve performance at team level: awareness of members own contribution, but also of others' contribution in common task accomplishment can only emphasize primarily a competition with their own persons which leads to self-actualization and development.

As demonstrated by confirmation of hypotheses H7 and H12, shared leadership behaviors are always present in all stages of team development, and moreover, through the effect on process gains they lead to intensification of synergy effects.

The motivation for team work in terms of intrinsic motivation (at individual level) has about the same influence on team performance as process gains. Then, in stage of actual team functioning, the last stage in our model, process gains have approximately the same ties with team performance as the other influencing factors.

Therefore the performance of mature team will be affected mainly by extra efforts made by members as well as by transformational leadership behaviors, the influence of other variables being much more reduced compared to the norming stage.

Given the results of our empirical research, it can be draw some courses of action for management of consulting SMEs from Romania:

- to create contexts in which employees are willing to make additional efforts, respectively circumstances aiming to stress the importance granted to group task and individual subtasks, strengthening the body of values accepted at team level, including in project team of some people highly appreciated by others from a professional view, setting clear objectives both at individual as well as at team level;

- to maintain their transformational leadership behaviors but also transactional ones since they are beneficial both for team performance and for ensuring the premises for attaining positive synergy effects; especially there must exist transformational leadership behaviors because their decreasing frequencies lead to process losses;

- to promote an open climate in which members can exchange information and knowledge based on which they can form common mental models that will facilitate collaborative efforts, and more, they can to contribute as much as possible to transactive memory formation since the cognitive dimension is the most important in releasing the individual efforts, as compared with the other dimensions;

- to give as much as possible freedom of movement to employees, respectively to leave teams to manage themselves; when they will encounter difficulties, these will be known and communicated to *linking pin* (project or company manager), but until there, shared leadership behaviors proved to be the catalyst for other synergy effects in consulting teams activity.

Our model for assessing synergy effects may prove useful to the extent that members of researched teams are competent and involved persons so that their more or less efforts are very important for the outcome at team level, both through direct contribution, as well as through the effect on other team members.

Although our research has socio-psychological origins, we sought to translate "borrowed" concepts and theories in the reality of organizational teams to the extent that they can represent a theoretical and practical openness for management development of organizations that use teams in carrying out their activities. Through the proposed correlational design, our work is based on comparisons and trends, but we believe it is still a step forward from the current state of knowledge regarding of both the teams functioning as well as of the topic interest: attaining the synergy effects.

We believe that our research fills the gaps in exploring the synergy effects in team work, contributing to a better understanding of the complex mechanisms involved in their attainment and we consider that the intake brought to teams research by present thesis consists of the following contributions:

- offering a different perspective on team development model by emphasizing quality characteristics which must acquire a group in order to progress toward the stage of functional team;
- conceptualization and operationalization of process gains and process losses (contextual performance) as fundamental premises for attaining the synergy effects;
- developing of a theoretical model of synergy, as a comparison basis for real synergy assessment and identification of synergy effects categories that team can attain;
- analysis and interpretation of relationships between employee behaviors that indicate additional efforts in achieving common task and specific team work variables, respectively team social capital, motivation for team work and team leadership;
- integration of leadership in team model development and highlighting the importance of leadership behaviors in different stages of team development;
- synthesizing a generic model for assessing synergy effects in team work;
- demonstrating the role of shared leadership in maximizing the synergy effects;
- justification for overlapping the team development model with the model of the project development;
- construction of the research instrument in the form of a questionnaire in order to obtain the data needed to test the model for synergy effects assessment.

Considering the entire research design proposed by the present thesis, we believe that the following future research directions are appropriate:

- developing the research instrument by evaluating variables through more items in order to increase the internal consistency of constructs;
- fathoming the proposed generic model by following its components and detailing the relationships between contextual performance and team specific variables;
- considering additionally some external factors acting upon synergy effects, either directly, by affecting contextual performance, or indirectly, by influencing factors which „put their mark” on individual performance;
- identifying other contexts which can determine increased or decreased individual efforts made in team work and, on this basis, evaluating the synergy effects starting from other conditions;

- assessment of differences made by shared leadership also in relations between other variables in generic model (e.g., dividing the sample into two groups according to the shared leadership level and comparing correlations implied by the hypotheses H1-H11 in cases of these two groups).

Finally, we believe that team work is indeed a way toward the new organization. It is not a quick or simple way, but it adds flexibility and network structures to traditional bureaucratic hierarchies and as long as organizations evolve and reinvent themselves in an environment more chaotic than ever, the challenges, struggles and rewards both in researching teams and their utilization will increase.