

# Steering Creativity in Design Teams: An explorative study about the relationship between leadership and autonomy of professional designers

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# **Steering creativity in design teams: An explorative study about the relationship between leadership and autonomy of professional designers**



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## **KEYWORDS**

creativity, leadership, designing professionals, autonomy

## **Abstract**

In this paper we explore the area of creativity that is particular to the complex setting of project organizations as faced by professional designers. These specialist designers can be characterized as being creative, visionary, spatially aware and abstract thinking practitioners with a high level of technical knowledge and experience (Schön, 1987). These professionals are usually designers who also hold management functions in their own mother organization. Since knowledge about the design exists on a cognitive level of the design team members, it is particularly important to have a better view on the ways cognitive processes can be steered. Any negative occurrences during a project can surely be transferred back to the mother organizations of the designers, which could cause a snowball-effect.

Research in the area of creativity encompasses a substantial body of empirical evidence concerning the processes that people use to think and to solve problems, which allows us to examine and apply this information to different kinds of social settings. This empirical research has expanded the Componential Model of Creativity defined by Amabile (1983) and has therefore considerably contributed to our academic and practical knowledge concerning this widely used concept. Various leadership styles and the influences thereof on the autonomy of designing professionals were investigated. The importance of this relationship is conveyed in its consequence. Perceived autonomy of designers consequently influences their intrinsic motivation, which in turn influences the creativity of professionals. This phenomenon was studied in two conditions, namely low and high time pressure. Results have shown that autocratic leadership negatively influences the level of autonomy in both conditions, but this relationship is moderated by the setting of clear goals and responsibilities. Democratic leaders are susceptible to change to autocratic leadership during high time pressure. Negative influences thereof on the perceived autonomy are moderated by early creation of a positive environment. Further knowledge on this matter could offer project leaders interesting insights for enhancing creativity within a project organization, and could consequently enhance the performance of designing teams within mother organizations.

## **Introduction**

Developments like intensified competition, globalization and technological developments imply an increasing degree of blurring of organizational boundaries. Design teams are confronted with new

organizational forms, new associations of organizations and new trade-offs between make, buy and co-operation not only at the level of an individual organization, but also with respect to inter-firm relationships, industry structure and regional clustering of organizations. These organizational breakthroughs that blur traditional organizational boundaries tend to evolve into network and project based forms of organizing.

Professionals engaged in some sort of designing activity, such as product design, building design, R&D specialists etc. often work in a project based organization. A project organization is a temporary organization created for the realization of a common purpose (Boddeke et al., 2002). Different actors usually have to work together on a specific design. The design stage is therefore a crucial stage that must be elaborated carefully in order to increase the level of creativity in the design team. Research indicated that poor design has amongst others a very strong impact on the level of efficiency during the production stage (Ferguson, 1986). Since architectural designing, and especially nowadays, is actually a people's business, it is of great importance for academics to further investigate the different kinds of socio-psychological mechanisms occurring in this particularly creative phase. This might greatly enhance the quality of the design and consequently also the end product.

The field of creativity has made progress in understanding what types of climates support creative productivity. Evidence is found that leadership influences the employees' feeling of autonomy, which in turn influences the employees' intrinsic motivation, and consequently employees' creativity (Amabile, 1983). Research also showed that sufficient time is needed in order to produce creative outcomes (Amabile, 1983; Csikszentmihalyi, 1994). However, most groups or teams are formed with specific goals in mind; often involve imposing a deadline for their completion (Boddeke et al., 2002). Time pressure is thus a common and necessary condition under which groups operate. The concept of time pressure seems to be contradicting the notion of "sufficient time" needed to enhance ones' creative capabilities, as often portrayed in creativity studies. Since the project leader is the one coordinating the project, he must make sure the goals and quality of the design are being attained within a certain time-frame and budget. The project leader is thus embroiled in some sort of dilemma, since he should give the employees a minimum of disturbance, while making sure the deadline will be attained. So how does this concept of time pressure relate to the concepts of leadership and autonomy and how can we link this to the concept of creativity in project organizations?

## **Creativity**

Creativity can generally be defined as the ability of people to combine ideas in a unique way or to make unusual associations between ideas (Amabile, 1996; Reiter-Palmon & Illies, 2004).

Domain relevant skills are the basis for performance in a certain field. According to Amabile (1996) there is a high correlation between creativity and proficiency in domain relevant skills. However, a great deal of domain skill knowledge does not insure creativity. Creativity relevant skills are the skills that make creativity possible. Some of these skills are personality traits and some can be learned. Examples such as flexibility, risk-taking, originality and playful exploration may respond favorably to training and can therefore be improved or enhanced. The motivational variables determine an individual's approach to a given task. Previous research has shown that intrinsic motivation is crucial for creativity, while extrinsic motivation being detrimental for creativity (Amabile, 1983; Torrance, 1987; Oldham and Cummings, 1996). In other words, people will be more creative when they are primarily motivated by interest, enjoyment, satisfaction and challenge of the work itself, and not by external pressures such as the expectation of evaluation, or even by reward or the lack of choice regarding their own engagement. These psychological needs, providing some sort of desire or sense of worth for people's actions and thoughts, can thus influence the concept of creativity.

Five stages of creative performance can be determined: 1) external or internal stimulus 2) building up and/or reactivating store of relevant information and response algorithms 3) search memory and immediate environment to generate response possibility 4) test response possibility against factual knowledge and other criteria 5) complete attainment of goals or progress towards goals or failure.

Figure 1 relates the three components of creative performances with these five stages. The model focuses on the judgment of success and failure aspects. If some progress is made towards the goal there will be a reengagement to the problem or task, and so to speak a return to stage one will be most probable.

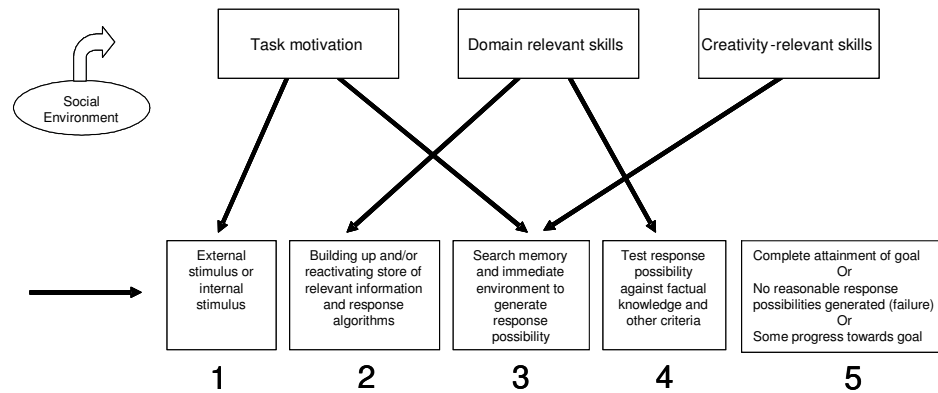


Figure 1 The componential model of creativity (Amabile, 1996).

### Conceptual Model

Contextual variables like time pressure, autonomy and leadership have all been found (Torrance, 1987; Amabile et al., 2002) to somehow influence the intrinsic motivation of people and also the cognitive processes involved in producing creative outcomes. For example Amabile’s study (1996) concerning the influence of time pressure on employees’ intrinsic motivation and creative cognitive processes showed that although time pressure led people to work harder, it brought about less creative cognitive processing. This finding is consistent with other creativity researchers’ findings, like for example Wallace (1926), Campbell (1960) and Simonton (1999), whom had stressed the importance of “incubation time” in the creative process.

A finer-grained analysis of the impact of environmental mechanisms in the componential theory might lead to a systematic distinction between the aspects of the work environment that are likely to work through motivational mechanisms and others, such as time and resources, that are likely to operate through more direct means” (Amabile, 2002, pp. 17-18).

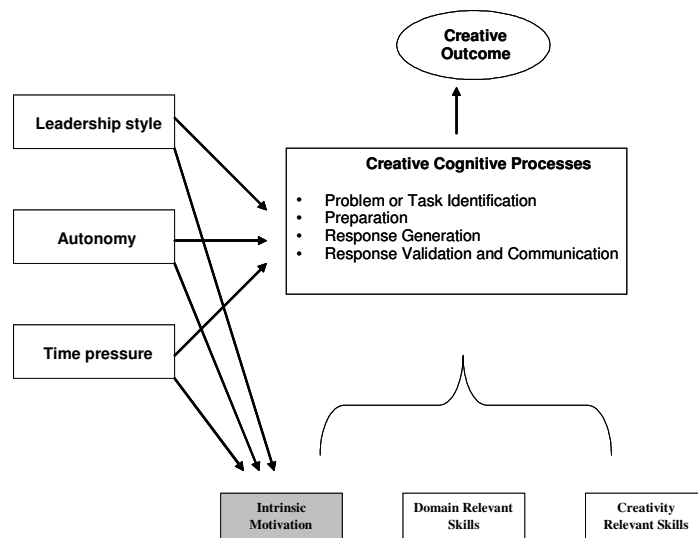
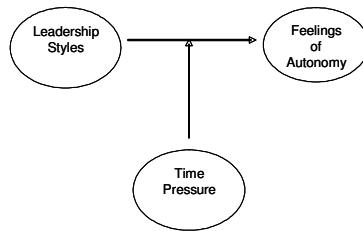


Figure 2 Modified view of Componential Theory of Creativity

As described above leadership is of great influence on employees' autonomy in organizations. In trying to link time pressure to these two variables you must think of two conditions, namely that time pressure could directly influence leadership by asking for different types of leadership in different levels of time pressure; and that time pressure could influence employees' autonomy by making them feel less autonomous when involved in tasks under high time pressure. The latter condition might cause people to feel as if they are controlled by the environment. It is therefore plausible to assume a moderating effect of time pressure on the relation between leadership and autonomy. The exploring nature of this research has led to formulations of various hypotheses, which should then be subjected to further examination. The following figure depicts the conceptual model of this research:



**Figure 5** The conceptual model

## Research Approach

A series of semi-structured interviews had been conducted. Interviews have been recorded and written down into transcripts to preserve their quality. These transcripts have consequently undergone further investigation. Data obtained by semi-structured interviews had been investigated for patterns that seem to serve changes in the variables across several observations. This analysis aims to understand a particular case or several cases by looking closely at the details of each (Miles and Huberman, 1994). In this research we employ a variable-oriented analysis, because our focus lies on the interrelations amongst variables, and the people observed are primarily the carriers of these variables, namely leadership and feelings of autonomy. Time pressure is a variable dependant upon the requirements of the environment.

The manner at which one encompasses a certain coding-system in the research can differ amongst researchers and as stated earlier, depends on the theoretical and epistemological orientations of the research in question. In this research there has been an incorporation of systematic coding. The coding was oriented around the topic in question in order to represent the interplay of subjects' perceptions of the nature and dimensions of the phenomenon in question. This research therefore made use of content analysis. Content analysis is a research method used to quantify and analyze the words, concepts, and relationships within certain passages. This technique is beneficial for understanding social communication and interaction, and allows for an unobtrusive means of analyzing these interactions and relationships. The indicators of the independent variables have therefore been bestowed with codes. These codes have then again been placed to certain pieces of text, acquired from the written transcripts. In order to arrange the analysis of the interview data in an efficient manner, Miles and Huberman's "Monster matrix" was used. Each participant had its own matrix with the various leadership styles on the vertical axis, and the two conditions, namely low and high time pressure, on the horizontal axis. By examining the transcripts, narrative extracts from the interviews that best fit the identified indicators are selected and consequently listed on the matrix.

## Findings

The findings of the project show that different leadership styles do bring about variations in the levels of autonomy as perceived by architects. Although the conceptual model of this research presumed a moderating effect of the concept of time pressure on this relationship, this was not found. Time pressure seems to directly influence the leadership style employed by the project leader.

This change in leadership style could then again influence the architects' feelings of autonomy. No indications of time pressure were found to directly influence professionals' feelings of autonomy, and therefore the assumption in the conceptual model of its moderating position is refuted. We did find other moderating variables, namely *clear responsibilities and goals* and the *setting of a positive environment*. These variables could both moderate the influence that leadership styles have on the levels of autonomy as perceived by architects. More specific, autocratic leadership will negatively influence the feelings of autonomy as experienced by designing professionals during low time pressure, and consequently also during high time pressure, but this relationship is moderated by the distribution of clear responsibilities and goals. Democratic leadership will positively influence the feelings of autonomy as experienced by designing professionals during both low and high time pressure, but this form of leadership is very susceptible to change to autocratic leadership during high time pressure, which does not alter its effect on autonomy unless managed untactful. Transformational leadership positively influences the feelings of autonomy as experienced by designing professionals during both low and high time pressure. Certain characteristics of transactional leaders (management-by-exception active) negatively influence the feelings of autonomy as experienced by designing professionals, while others (management-by-exception passive) positively influence the perceived level of autonomy during low time pressure, however transactional leaders in general mainly display autocratic characteristics during high time pressure, which does not negatively influence the level of autonomy if clear goals and responsibilities have been distributed.

## **Conclusion**

The results of the investigation have practical implications for the communication in design teams of construction projects. It shows that different leaders can positively or negatively influence the much needed autonomy of design professionals during face to face contact. For example dialogues, informal- and team meetings, but also through on distance communication by telephone, instant messaging, tele- and video conferencing and email. This accentuates the importance of well developed communicating techniques by the group leader, which could be enhanced by means of training. It has also been mentioned that perceived low levels of autonomy have detrimental consequences for designing professionals. It might cause low intrinsic motivation and thus diminishes the creativity of designers. Another consequence of perceived low autonomy could be less willingness of designers to communicate key knowledge to other team members; or inefficient documenting of the progress of the design team in projects that are characterized by continuous change processes. These issues can be translated also to other projects in the mother organization of the designers. That is to say that many designers holding a management position in their mother organization transcend these negative 'experiences' acquired during a project to other design teams they lead. Time pressure has been observed to change the leadership style of most leaders, except the style of the transformational leader. The latter has the capacity or charisma to transfer the situation to the professionals themselves making them feel as if they lead the project. This can be very fruitful to improve the team's level of creativity. Other leaders can make use of different techniques, such as providing clear responsibilities and goals or by setting a positive design environment, in order to minimize the negative effects of their leadership style.

So it can be said that designing professionals are very much in need of appropriate leadership behavior throughout an entire project. The fact that they are experts in their field does not take away their need for inspirational coordination by a team leader. Especially during high time pressure this leader should be able to adapt himself to a situation and strategically lead the creative process by not only focusing on the constraints, but also ensuring the vision is not lost by the team members.

## **Discussion**

Our findings question the existence of a causal relationship between intrinsic motivation and the creative cognitive processes as depicted by Amabile's Componential Model of Creativity. If time pressure has an influence on the leadership style employed, which could then influence the perceived autonomy, and the latter could be moderated by clear goals and responsibilities (first stage of the creative cognitive processes), it would be possible for the creative cognitive processes

to directly and indirectly influence the intrinsic motivation of architects or any other professional designer. It seemed that if a deadline is in any way endogenous to the task itself, this should lessen the controlling aspect of the time pressure and, as a result, may serve to get participants more deeply involved with their work and heighten their sense of positive challenge in it as Amabile research showed (2002). This reasoning is very interesting compared to the findings of this research. The findings show that leadership styles serve as an intervening variable between the influence of time pressure and the perceived level of autonomy. So it could be said that time pressure influences the leadership style employed. This leadership style then again influences the perceived autonomy, which is actually affected by the controlling aspect of time pressure as endorsed by such type of leaders.

Future research should focus on expanding our knowledge on the various relations between autonomy, leadership and time pressure on the one hand and intrinsic motivation on the other hand. It is also very necessary to study the various manners at which different leaders behave when communicating through different channels. This would enhance our knowledge on the effectiveness of different communication skills of the different leaders.

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