UNIVERSITÄT MANNHEIM

UNIVERSITY OF MANNHEIM

Organisational and Industrial Psychology PhD study

STRESS: MOTHER or MURDERER of CREATIVITY?

NEEPS

An Evolutionary Theory of Creativity:

0) **CREATIVITY** is commonly defined as: the ability to create something both NEW and - in a given social context - USEFUL. However, from the individual's perspective

1) creativity is also **COSTLY**: it implies an uncertain investment, substantial opportunity costs and, among others, the danger of intellectual theft, envy and social sanctions.

2) Thus, there should be an evolutionary **REASON** for creativity, probably linked to the survival-related benefits, the creative individual is generating for his related group, but

3) how has this group benefit be motivationally **MANIFESTED** within the individual so he will also be creative in the sense of „useful in the actually given social context"?

4) Humans are presumably already by nature „**RECEPTIVE**" for unfulfilled social needs: their influence ranges from a slight motivational inspiration to actually felt stress.

- presumption -

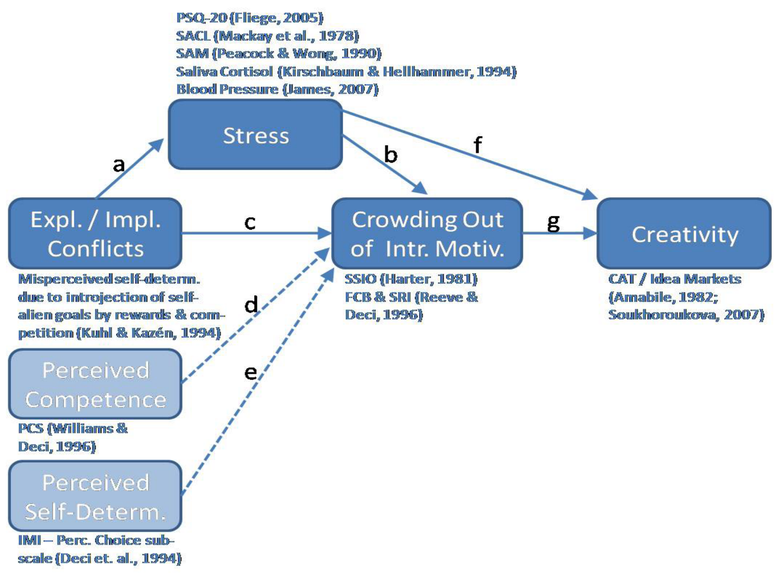
5) The human **STRESS** system serves as motivational control to individual creativity.

Biological Aspects of Stress:

Stress is biologically manifested in the human body via the hypothalamic pituitary adrenal (HPA) endocrine axis. Its activity can be monitored by measuring the level of cortisol in body fluids (blood, saliva). The general HPA stress response is calibrated in childhood.

Theory Applied:

Application of the above described Evolutionary Theory of Creativity to a well-known and extensively documented Creativity-Phenomenon: The Crowding-Effect of Creativity.



The crowding-effect refers to a systematic decrease of creativity due to external influences such as rewards, surveillance or competition. According to our theory of creativity in synthesis with self-regulation theory (Ryan et.al.,1997) and the compensatory model of motivation and volition (Kehr, 2004) it is proposed that stress caused by conflicts between implicit and explicit motives fully mediates the crowding effects on intrinsic motivation and its resulting attenuation of creative performance.

Theory Tested:

Testing the Evolutionary Theory of Creativity in a controlled Creativity Experiment with four experimental Groups, each with different stress-inducing Settings.

246 Participants
equally allotted to 4 different conditions

	Condition 1: **REWARD**	Condition 2: **STRESS**	Condition 3: **STRESS & REWARD**	Condition 4: **CONTROL GROUP**
1	Measuring Cortisol Base Level (first saliva sample)			
2		Timed Unsolvable Questions		
3	Announcing a Reward		Announcing a Reward	
4	Creativity Questionnaire (modified E-Scale of BIST)			
5	Perceived Stress Questionnaire (PSQ-20)			
6	Measuring Cortisol Experimental Level (second saliva sample)			
7	Intrinsic Motivation Inventory (IMI)			

In order to test our theory, a creativity experiment with 246 subjects has been conducted. The subjects have been randomly alloted to four different conditions with varying levels of stress. Stress has been induced by rewards, timed unsolvable questions and general time pressure. Until now, the results have not been fully analyzed, as the data presents difficulties as far as

* the measure of creativity has to be objective.
* a consolidated objective stress measure has to be formed (change in cortisol level).
* an unambiguous evolutionary interpretation frameework has to be set up.

Contact: Dipl. Psych. Thomas Hirschmann
Clemensstr. 81, D-80796 Munich
Deutschland / Germany
E-Mail: news@thomashirschmann.de
Website: www.thomashirschmann.de

Academic Advisors: Prof. Dr. Karsten Müller
University of Mannheim
Schloss Ehrenhof Ost 245
D-68131 Mannheim
Deutschland / Germany

Prof. Dr. Wulf Schiefenhövel
Max-Planck-Institute for Human Ethology
Von-der-Tann-Str. 3
D-82346 Andechs
Deutschland / Germany