Creativity as a miniature of a boundary situation

Petar Radoev Dimkov

1. Introduction

Research in the field of psychology of creativity is flourishing, whereas research in the field of philosophy of creativity is scarce even nowadays. In the current article, I make a connection among three concepts in order to elucidate both the philosophy and psychology of creativity in their intimate interrelationship, namely: 1) the concept of a third thought process, 2) the concept of flow and 3) the concept of a miniature of a boundary situation. The first two are psychological concepts, whereas the third as a synthesis of the first two is a philosophical concept. The concept of a third thought process is derived from the Freudian dichotomy of a primary and secondary thought processes, whereas the concept of a miniature of a boundary situation is derived from the concept of boundary situations (Grenzsituationen) of Karl Jaspers. The concept of flow is part of the psychology of creativity, but it has a phenomenological aspect as well.

2. The Existenzphilosophie of Karl Jaspers

Karl Jaspers developed his Existenzphilosophie firstly in his monograph on psychopathology “General Psychopathology” (Jaspers, 1959/1997). The notion of “Existenz” plays a major role in his philosophy. Existenz is defined as “One of the four modes of the Being we are; a being suspended between itself and Transcendence, from which it derives its being and on which is based; what never becomes an object, the origin, from which issues my thinking and acting” (Lefebre, 1957, p. XIX). Existenz cannot be formally defined, but one can think about it. Existenz has a relation to freedom and the freedom of choice. Existenz is the Kantian Ding-an-sich (the thing-it-itself) (Kant, 1781/1967).

In his book “Way to Wisdom: An Introduction to Philosophy” (Jaspers, 1951/1964), Jaspers speaks of unconditional imperatives, whose origin is in ourselves in comparison to the conditional imperatives, whose origin lies outside of us. The unconditional imperatives represents commands from one’s authentic self (Existenz). Those imperatives are not objects of our will, but rather they are its foundation: “Only when I live by something that can no longer be
explained by object knowledge do I live by the unconditional” (Jaspers, 1951/1964, p. 56). The unconditional is manifested in *extreme situations (boundary situations)* by guiding man on his path. It can never be objectively, but can be philosophically elucidated and interpreted. The unconditional has a reality only in a man, who follows it in his faith and awareness (Jaspers, 1951/1964, p. 57). The unconditional imperative is atemporal, thus it is eternal. Freedom cannot be an object for objective research, it has its origin in the unconditional imperative, in Existenz, in eternity, in our authentic self. In this way, “We men are never adequate to ourselves” (Jaspers, 1951/1964, p. 65). This means that we, as a Ding-an-sich or Existenz, know more than we actually know.

The more authentically one lives, the bigger is his faith in God: “A man's humanity depends on how deeply he gains guidance through this listening. To be a man is to become a man [...] *God is for me in the degree to which I authentically exist*” (Jaspers, 1951/1964, pp. 65, 73; my emphasis). The more free and aware a man is of this certainty in God, the more he is aware of Transcendence, through which he is (Existenz): “Psychologically speaking, the voice of God can be heard only in sublime moments. It is out of such moments and toward such moments that we live” (Jaspers, 1951/1964, p. 70). God works through the free actions of man. Humanity, thus, depends on the level of following the guidance of God through listening to his voice.

Man’s life is full of automatism and we rarely discover our true or authentic self or Being. Only when the vicious circle of automatism is broken, one can reach the undiscovered territories and aspects of our own identity (Dimkov, 2018, pp. 76-77). The latter is revealed and manifested only in the face of Transcendence or before the other persons. *Existential elucidations* are not intellectual, but rather they require personal investment and empathy.

*Existenzphilosophie* is sometimes defined as theological; however, here it is a question of a personal God, which Existenz represents and not of a universal one. The communication with this personal God or Existenz is performed through *chiffers*, which are always subjective, concrete and immanent, they are “signs from the Transcendent we are”. The chiffers are a form of communication between the total self (Existenz) and the world subject, that is, the concrete personality.
3. **Boundary Situations (Grenzsituationen)**

Karl Jaspers introduces the notion of a “boundary (or limit) situation” (Grenzsituation) in his monograph “The Psychology of Worldviews” (Jaspers, 1925/1960). Later he elaborates the notion in the third volume of the book “Philosophy” (Jaspers, 1932/1970) and “Way to Wisdom: An Introduction to Philosophy” (Jaspers, 1951/1964). The notion is part of the *Existenzphilosophie* of Jaspers. There is a large portion of secondary literature on the subject (Latzel, 1957; Olson, 1979; Hoffman, 1981; Ara, 1998; Miron, 2012; Fuchs, 2013; Mundt, 2014; Dimkov, 2018). Prototypical boundary or limit situations are the following ones: chance, death, suffering, struggle, anxiety, and freedom of choice.

Jaspers elaborates the notion of a “boundary”, discussed by Immanuel Kant (Kant, 1781/1967). According to Jaspers, the mere presence of a boundary includes a realm outside this very boundary. This realm is the Transcendence (Transcendenz), which man continuously strives to reach. In boundary situations, man reaches the boundary, they cannot cross it, cannot go outside it. Only through chiffers one acquires an indication for the existence of the Transcendent. Boundary situations are psychotraumas per se. They cannot be merely assimilated, even with preliminary preparation or via the use of heuristics methods. The situation can be understood only from within, through an empathic subjective experience. The boundary situation pierces through the comfort zone of the personality, only to allow it to forge a new and more stable Weltanschauung. The boundary situation represents the situation of man in general. Boundary situations are experience of Being itself and thus they reveal the authenticity of the individual maximally.

In the struggle with boundary situations man is forced to adopt a new Weltanschauung (or worldview) or to experience a “retreat into an illness” (existential anxiety, neurosis, psychosis) (Olson, 1979, p. 21). Creativity thus represents a central moment, because it is required for the forging of the new Weltanschauung or the change of the values in the person’s value system (the system of axiaticy). Therefore, the more creative a given individual is, the more successfully they will battle the boundary situations (Dimkov, 2018). However, a stabilization of the “existential homeostasis” is never reached (Mechkov, 1970, p. 103; 1993, p. 16; 1995, p. 27), which means that the process of improvement of the actual Weltanschauung or value system is a continuous, never-ending process, which continues until the end of personal
life. The established or actual Weltanschauung is under pressure \textit{face en face} with the different types of boundary situations, which affect the personality on its basic level.

Psychologically, the change of the Weltanschauungen or the value system (axiaticy) means that consciousness has to disorganize and reorganize the actual values in the value system or to organize a brand new value system (Milev, & Mechkov, 1985, p. 10; Mechkov, 1993, pp. 145, 153-154, 164; 1995, p. 236), which is supposed to be better than the previous one, and thus it will be sublated in it (Hegelian \textit{Aufhebung}). The organization and the reorganization of the new values in the new value system (axiaticy), which have to be stabilized, require the personal capacity and characteristics of creativity. The more creative persons/individuals are more sophisticated in changing their Weltanschauung, because they are more flexible in the structuring and organization of a new one, which, in turn, is stabilized and crystalized into a new, quasi-stable Weltanschauung (Dimkov, 2018, pp. 76-77).

4. \textbf{Third Thought Process, Flow and Creativity: The Role of Stress}

I have introduced the notion of a “third thought process”, an intermediary between the primary and the secondary thought process of Sigmund Freud’s metapsychology and psychoanalysis (Dimkov, 2015, pp. 46-48, 2016, 2018, p. 77). The dichotomy of primary and secondary thought processes can be defined as follows: “The \textit{primary process} is primitive, irrational, illogical, preverbal, pleasure-oriented. The \textit{secondary process} is advanced, rational, logical, verbal, reality-oriented. The primary process is known also as ideation, the secondary process is known as thinking” (Dimkov, 2015, pp. 46-48; 2016, pp. 187-188; 2018, p. 77; emphases are mine). By definition, the third thought process represents a “Boundary process of a concrete and imaginative representation of abstract notions, which is subjected to modifications of volition. It represents a regress in the name of the ego. The third process reveals itself as an invaluable means to creative thought which is flexible, open and elastic: features classified as ones of utmost importance to the process of creativity” (Dimkov, 2018, p. 77).

According to my research, psychotomimetic drug, such as 2-CB (2,5-dimethoxy-4-bromophenethylamine) as well as the classical psychedelic drugs (LSD-25, psilocybin, mescaline and DMT), can artificially induce a state of third thought process thinking (Dimkov, 2018, pp.
It represents a state of a *dream-like experience*: “[...]* vivid sensorimotor imagery, alterations in thought processes, disinhibition of basic emotions and needs and changes in the feeling and control of the self [...] the experience of facilitated access to memories of the past and fantasies about the future*” (Kraehenmann et al., 2017, p. 2032).

Psychopharmacologically, this state is related to the activation of the *serotonergic 5-HT$_{2A}$ receptor* and to the activation of the *mesolimbic and mesocortical dopaminergic brain systems* via the *dopaminergic D$_{1}$ and D$_{2}$ receptors* (Dimkov, 2018, pp. 77-79). It is also related to the joined functioning of a three large-scale brain networks, namely the Central executive network (CEN), the Salience network (SN) and the Default-mode network (DMN) (Dimkov, 2018, p. 76). In particular, creativity as a third thought process engages both CEN and DMN, while SN is performing the switching between the two networks and their joined involvement in the process of creativity and the third thought process (Dimkov, 2018, p. 76). *Interest* as a feature of creativity is a subjective apprehension of an object through an attribution of a value. Interest can be defined as a *selective or an unselective arousal* purposing a mental penetration into things, with the goal of receiving or discovering a reward. Thus, interest is an individual trait, a part of the value system of a person. Interest is driven by the *mood of curiosity* (Dimkov, 2018).

Thus, creativity as a manifestation of the third thought process is related to the phenomenon of “flow experience”, a “pleasant state of absorption of a person during an optimally challenging activity” and a state characterized by: “(a) intensely focused concentration on the activity, (b) loss of reflective self-consciousness, (c) deep sense of control, (d) distorted temporal experience (hours seem like seconds) and (e) the activity feels inherently rewarding (Csikszentmihalyi, 2002; Keller, 2011, p. 849; Peifer et al., 2014, p. 1; see Nakamura, & Csikszentmihalyi, 2002). Csikszentmihalyi defines this state as “the flow of creativity” (Csikszentmihaly, 2013, p. 107).

Flow-theory has been related to stress-theory (Tozman, & Peifer, 2016, p. 329). Kaufman states, however, that “everyday creative people are less stressed, happier, more successful, and more satisfied with their jobs” (Kaufman, 2018, p. 1; emphasis added). Nonetheless, flow experience is correlated to moderate levels of stress which functions as an adaptive response or reaction (Dimkov, 2018, p. 76). To be noted, “stress could be transformed into flow when it is interpreted as challenge” (Kaufmann, quoted in: Peifer et al., 2014, p. 2). Furthermore, it has
been reported that “the relation of flow-experience with arousal on the two stress systems describes an inverted u-function” [...] “flow-experience comes along with moderate physiological arousal” [...] “moderately elevated cortisol levels in a potentially stressful situation were associated with absorption is consistent with cortisol effects reported in the literature” [...] “flow-experience is characterized by a moderate level of arousal, as reflected through sympathetic and HPA-axis-activation” [...] “above a moderate level, more arousal is associated with lower flow” (Peifer et al., 2014, pp. 2, 5). Additionally, it has been reported that “moderate “stressors”—or rather “activators”—might facilitate flow-experience, whereas severe or enduring stressors hinder flow-experience” (Peifer et al., 2015, p. 1170).

| “Shallow” Flow | “Deep” Flow |
|----------------|-------------|
| • “My mind isn’t wandering. I am totally involved in what I am doing and I am not thinking of anything else. My body feels good… the world seems to be cut off from me… I am less aware of myself and my problems.” | • “I am really quite oblivious to my surroundings after I really get doing in this activity.” |
| • “My concentration is like breathing… I never think of it… When I start, I really do shut out the world.” | • “I think that the phone could ring, and the doorbell could ring or the house burn down or something like that…” |
| • “I am so involved in what I am doing… I don’t see myself as separate from what I am doing.” | • “Once I stop I can let it back in again.” |

Table 1. “Shallow” and “Deep” Flow (Moneta, 2012, p. 28).

5. A Miniature of a Boundary Situation: A Synopsis

The flow of creativity can be explained by the dynamic of the third thought process (an intermediate thought process between the Freudian primary and secondary thought processes) (Dimkov, 2015, 2016). It essentially represents a regression in the name of the ego, where for short time there is a regression, but after it, there is a return to the normal functioning of the ego as secondary thought process (Kris, 1952; Silverman, 1965; Bush, 1969; Suler, 1980; Joffe, & Peterson, 1981; Knafo, 2002; Martindale, 1999; Dimkov, 2015, 2016).

In essence, “A “miniature” of a boundary situation thus would amount to a situation which is qualitatively, but not quantitatively, similar to a genuine boundary situation, being a nuance of it. In the miniature, which simplistically represents a problem-solving situation, one is allowed to be creative through the third thought process as the feature of “boundary” is preserved: it represents an “intellectualizing the miniature of a boundary situation, that is,
performing a creative act of sublimation” (Dimkov, 2018, p. 88; emphasis added). The latter, which can be illuminated only from within, stands on the same ground in this aspect as the third thought process, which can be only experienced internally, and cannot be subjected to any objective and universal testing and measurement” (Dimkov, 2018, pp. 87-88; see Holt, 2002, p. 461). In this way, a single continuum of the phenomenology of boundary situations and related creativity scores can be established.

Creativity as a subjective phenomenon of consciousness has not been researched in depth. This is an issue for the phenomenological philosophy. There is a multitude of questions that are raised, namely: What is to be creative? How is the creativity represented within subjective consciousness? How does man, as a free agent, act when he or she is creative? Can we induce creativity by subjective and objective means? Why is man creative? Can creativity be learned? What is the role of creativity in one’s life?

The subjective phenomenological side of creativity can be researched, not so much by studying the history of geniuses, but rather through a study of the basis of creativity and its relation to adaptation to the changing circumstances in the objective world. Thus, adaptation is creative in definition. The creative thinking bears a likeness to the practical or active thinking. Creativity can be studied in two ways: 1) as a specific adaptational syndrome and 2) as a partially controlled behavioral reaction and behavior in general.

Third thought process and the miniature of a boundary situation are represented by the immersion in a concrete situation, in which the concrete individual constructs a concrete creative product. To be noted, “If genuine boundary situations are coupled to extreme negative emotions, to emotional stress, then stress in principle includes an aspect of the boundary situation in itself” (Dimkov, 2018, p. 88). According to the concept of Hegelian Aufhebung or sublation, quantitative accumulations lead via leaps or jumps to qualitative transformations or changes (Vekilov, 1982). Stress can possess an adaptive role and it is subjected to U-inverted curve effects, where the optimum is placed on the top. When stress levels are moved towards the end of the curve, then a genuine boundary situation occurs. Creativity can be viewed as intellectual disinhibition, partially controlled, a feature of the third thought process (Dimkov, 2016). In neurobiological terms it is related to the level of entropy, randomness and probability; in
existential terms it is related to authenticity and uniqueness; in philosophical terms it is related to ethics and freedom.

6. Conclusion

The concepts of a third thought process, the miniature of a boundary situation and the phenomenon of flow represent the process of creativity per se. Both the third thought process and the miniature of a boundary situation are subjective phenomena, which require an immersion into experience or consciousness, represented by the phenomenon of flow. The latter can be viewed as an adaptational syndrome, which is related to moderate levels of stress. Thus, creativity is defined as a problem-solving strategy and a coping with miniatures of a boundary situation via a partial disinhibition of the intellect (third thought process). If the process of creativity and its products are creative enough, then one has successfully coped with a concrete miniature of a boundary situation. All this allows one to position creativity scores and the success of dealing with a miniature of a boundary situation in a single phenomenological continuum, where there are quantitative changes and, sometimes, qualitative ones.

Acknowledgements

This article is devoted to Dijana V. Taushanska. I would like to thank her for the proof reading the article.

References

Ara, R. (1998). An Elucidation of Jaspers’ Concept of Existenz in the Boundary Situations. Ph.D. Thesis for Doctor of Philosophy in Philosophy, Department of Philosophy at the Aligarh Muslim University. Aligarh, India.

Bush, M. (1969). Psychoanalysis and Scientific Creativity: With Special Reference to Regression in the Service of the Ego. Journal of the American Psychoanalytic Association, Vol. 17, 1, pp. 136-190. https://doi.org/10.1177/000306516901700108.

Csikszentmihalyi, M. (2013). Creativity: Flow and the Psychology of Discovery and Invention. New York: Harper Perennial, Modern Classics.
Dimkov, P. (2015). A Philosophical Study of Freudian Primary and Secondary Thought Processes: Parallels of Acute Schizophrenic Psychosis, Psychedelic State, and Mystical Experience. MSc Thesis, unpublished. Osnabrück, Germany: Universität Osnabrück, FB 8 Humanwissenschaften, Institut für Kognitionswissenschaft (IKW).

Dimkov, P. (2016). Third Thought Process at the Intersection of Metapsychology, Cognitive Science and Neuroscience. Philosophy Journal, Vol. 25, Nr. 2, pp. 186-202. [Димков, П. (2016). Третичния мисловен процес на кръстопътя на метапсихологията, когнитивната наука и невронauката. Философия, Vol. 25, No. 2, cc. 186-202].

Dimkov, P. (2018). The Genius of Creativity and the Creativity of Genius: The Neuro-Dynamics of Creativity in Karl Jaspers and Sigmund Freud. Journal of Genius and Eminence, 3, (1), pp. 83-92. http://dx.doi.org/10.18536/jge.2018.04.3.1.06.

Fuchs, T. (2013). Existential Vulnerability: Toward a Psychopathology of Limit Situation. Psychopathology, 46, pp. 301-308. https://doi.org/10.1159/000351838.

Hoffman, K. (1981). The Basic Concepts of Jaspers’ Philosophy. In: Paul A. Schilpp (Ed.), The Philosophy of Karl Jaspers, pp. 95-112. New York: Tudor Publishing Company.

Jaspers, K. (1925/1960). Psychologie der Weltanschauungen. Berlin: Springer.

Jaspers, K. (1932/1970). Philosophy, Vol. 2: Existential Elucidation, E. Ashton (Trans.). Chicago, London: The University of Chicago Press.

Jaspers, K. (1951/1964). Way to Wisdom: An Introduction to Philosophy, Ralph Manheim (Trans.). New Haven, London: Yale University Press.

Jaspers, K. (1959/1997). General Psychopathology, J. Hoenig & Marian W. Hamilton (Trans.). London: The John Hopkins University Press.

Joffe, J., & Peterson, C. (1981). Cognitive style and literary regression: A study of student writers. Journal of Personality, Vol. 49, Iss. 3, pp. 337–348. https://doi.org/10.1111/j.1467-6494.1981.tb00941.x.

Kant, I. (1781/1967). Critique of Pure Reason, Tseko Torbov (Trans.). Sofia: Bulgarian Academy of Sciences Press [Кант, И. (1781/1967). Критика на чистия разум, Цeko Торбов (прев.). София, България: Издателство при Българската академия на науки (БАН)].

Kaufman, J. (2018). Finding Meaning With Creativity in the Past, Present, and Future. Perspectives on Psychological Science, Vol. 13, Issue 6, pp. 734-749. https://doi.org/10.1177/1745691618771981.

Keller, J., Bless, H., Blomann, F., & Kleinböhl, D. (2011). Physiological aspects of flow experiences: Skills-demand-compatibility effects on heart rate variability and salivary cortisol. Journal of Experimental Social Psychology, 47, pp. 849–852. https://doi.org/10.1016/j.jesp.2011.02.004.
Knafo, D. (2002). Revisiting Ernst Kris’s Concept of Regression in the Service of the Ego in Art. *Psychoanalytic Psychology*, Vol. 19, No. 1, pp. 24-49. [http://dx.doi.org/10.1037/0736-9735.19.1.24](http://dx.doi.org/10.1037/0736-9735.19.1.24).

Kraehenmann, R., Pokorny, D., Vollenweider, L., Preller, K. H., Pokorny, T., Seifritz, E., & Vollenweider, F. X. (2017). Dreamlike effects of LSD on waking imagery in humans depend on serotonin 2A receptor activation. *Psychopharmacology (Berl)*, 234, (13), pp. 2031-2046. [https://doi.org/10.1007/s00213-017-4610-0](https://doi.org/10.1007/s00213-017-4610-0).

Kris, E. (1952). *Psychoanalytic Explorations in Art*. New York: International Universities Press.

Latzel, E. (1957). The Concept of ‘Ultimate Situation’ in Jaspers’ Philosophy. In: Paul A. Schilpp (Ed.), *The Philosophy of Karl Jaspers*, pp. 177-208. New York: Tudor Publishing Company.

Lefebre, L. (1957). GLOSSARY, Translations and Definitions of Terms used by Karl Jaspers. In: *The Philosophy of Karl Jaspers*, P. A. Schilpp (Ed.), pp. XVI-XXIV. New York: Tudor Publishing Company.

Martindale, C. (1999). Biological bases of creativity. In: R. Sternberg (Ed.), *Handbook of Creativity*, pp. 137–152. Cambridge: Cambridge University Press.

Mechkov, K. (1970). Some Basic Principles of Psychogenesis. In: *Philosophical Questions of Biology and Medicine* Vol. 4, G. Vekilov & G. Grginov (Eds.), pp. 94-116. Sofia: Meditsina i fizkultura. [Мечков, К. (1970). Някои основни принципи на психогенезата. В: Философски въпроси на биологията и медицината Том 4, Г. Векилов и Г. Гиргинов (ред.), сс. 94-116. София: Медицина и физкултура].

Mechkov, K. (1993). *Psyche: Essence, structure, organization, disorganization*. Veliko Tarnovo: Izdatelstvo “Pik” [Мечков, К. (1993). Психиката: Същност, структура, организация, дезорганизация. Велико Търново: Издателство „Пик“].

Mechkov, K. (1995). *Medical Psychology*. Veliko Tarnovo: Izdatelstvo “Pik” [Мечков, К. (1995). Медицинска психология. Велико Търново: Издателство „Пик“].

Milev, V., & Mechkov, K. (1985). Medical Psychology. Sofia: Meditsina i Fizkultura. [Милев, В. & Мечков, К. (1985). Медицинска психология. София: Медицина и физкултура].

Miron, R. (2012). *Karl Jaspers: From Selfhood to Being*. Amsterdam, New York: Value Inquiry Book Series, Rodopi. [https://doi.org/10.1163/9789401208062](https://doi.org/10.1163/9789401208062).

Moneta, G. (2012). On the measurement and conceptualization of flow. In: *Advances in Flow Research*, Stefan Engeser (Ed.), pp. 23-50. New York: Springer. [https://doi.org/10.1007/978-1-4614-2359-1_2](https://doi.org/10.1007/978-1-4614-2359-1_2).

Mundt, C. (2014). Jaspers’ Concept of “Limit Situation”: Extensions and Therapeutic Applications. In: Thomas Fuchs et al. (Eds.), *Karl Jaspers’ Philosophy and Psychopathology*, pp. 169-178. New York, Heidelberg, Dordrecht, London: Springer Verlag. [https://doi.org/10.1007/978-1-4614-8878-1_11](https://doi.org/10.1007/978-1-4614-8878-1_11).
Nakamura, J., & Csikszentmihalyi, M. (2002). The Concept of Flow. In: C. Snyder, & S. Lopez (Eds.), *Handbook of Positive Psychology*, pp. 89-105. New York: Oxford University Press.

Olson, A. (1979). *Transcendence and Hermeneutics: An Interpretation of the Philosophy of Karl Jaspers*. The Hague, Boston, London: Martinus Nijhoff Publishers. [https://doi.org/10.1007/978-94-009-9270-2](https://doi.org/10.1007/978-94-009-9270-2).

Peifer, C., Schulzb, A., Schächingerb, H., Baumannd, N., & Antonia, C. H. (2014). The relation of flow-experience and physiological arousal under stress — Can u shape it? *Journal of Experimental Social Psychology*, Vol. 53, pp. 62–69. [https://doi.org/10.1016/j.jesp.2014.01.009](https://doi.org/10.1016/j.jesp.2014.01.009).

Peifer, C., Schächinger, H., Engeser, S., & Antoni, C. H. (2015). Cortisol effects on flow-experience. *Psychopharmacology (Berl)*, 232, (6), pp. 1165-1173. [https://doi.org/10.1007/s00213-014-3753-5](https://doi.org/10.1007/s00213-014-3753-5).

Silverman, L. (1965). Regression in the Service of the Ego: A Case Study. *Journal of Projective Techniques and Personality Assessment*, Vol. 29, Iss. 2, pp. 232-244. [http://dx.doi.org/10.1080/0091651X.1965.10120202](http://dx.doi.org/10.1080/0091651X.1965.10120202).

Suler, J. (1980). Primary process thinking and creativity. *Psychological Bulletin*, Vol. 88, (1), pp. 144-165. [http://dx.doi.org/10.1037/0033-2909.88.1.144](http://dx.doi.org/10.1037/0033-2909.88.1.144).

Tozman, T., & Peifer, C. (2016). Experimental Paradigms to Investigate Flow-Experience and Its Psychophysiology: Inspired from Stress Theory and Research. In: Harmat L., Ørsted Andersen F., Ullén F., Wright J. & Sadlo G. (Eds), *Flow Experience*, pp. 329-350. Springer, Cham. [https://doi.org/10.1007/978-3-319-28634-1_20](https://doi.org/10.1007/978-3-319-28634-1_20).

Vekilov, G. (1982). Dialectical Materialism. Sofia: Meditsina i Fizkultura. [Векилов, Г. (1982). Диалектически материализъм. София: Медицина и физкултура].