

Supplementary Notebook (RTEP - Brazilian academic journal, ISSN 2316-1493)

# MEANING MEDIATION OF SPACE-TIME CHARACTERISTICS OF AN EXTREME SITUATION

Olga Grigorievna Kvasova<sup>1</sup> Olga Olegovna Savina<sup>2</sup>

<sup>1</sup> Moscow State University after M.V.Lomonossov, 220163@mail.ru. <sup>2</sup> Moscow State University after M.V.Lomonossov, savindm2006@gmail.com.

**Abstract:** The present research is an empirical and theoretical revision of the classical experiments of D. DeLong and D. Bobko on the nature of space-time relations in estimating the duration of time intervals. Experiments show how the meaning orientation has a specific effect on the experience of duration. An experimentally modeled situation that is perceived as extreme gives a shift in the estimation of the time duration. The interpretation of this shift could be revised from the point of view of transforming the meaning orientation of a person, expressed in the extent of the opportunities that open up to the subject in a life situation. This allows us to interpret the perception of duration as a dynamic formation. It is transformed in the process of changing the meaning structure of the human life world in extreme conditions. The interpretation of meaning mediation of an extreme situation (in its significance for human life), which determines the subjective estimation of the short time intervals duration, is proposed. The data develop the idea of cultural mediation of spatially temporal relations (M. Bakhtin, Ukhtomsky, S. Rubinstein, V. Zinchenko, Yu. Strelkov, N. Tolstykh, M. Magomed-Eminov, etc.), develop the theory of meaningful interpretation of the perception of time (P. Fraisse, B. Tsukanov), and place the accents in the assumptions about the slowing down of the intervals filled with unpleasant experiences and the acceleration of those filled with pleasant ones. The present study develops a spherical model of time and the concept of personality work of the individual with own temporal experience as the construction of temporal identity mediated by the cultural and historical experience of a unique living person (M. S. Magomed-Eminov).

**Keywords**: semantic mediation, temporality, spatial-temporal characteristics, chronotope, extreme situation, personality work of the individual.

## INTRODUCTION

The spatial-temporal characteristics of the situation and their relationship continues to arouse interest among researchers in the field of physics, astronomy, philosophy, psychology, and linguistics; research reveal the complexity of the



phenomenon, describe attempts at interdisciplinary study of the issue and demonstrate complex and contradictory assumptions and models. According to researchers of the last five years, time can be viewed through a concept of space, which is reflected in linguistic forms. Often in European languages time is discussed in spatial terms – 'I will be back in a short while', and sometimes space is discussed in temporal terms – 'I am five minutes from your home'. Several studies reveal that these linguistic expressions reflect a deeper conceptual bridge between time and space (Zhenguang & Cai, 2015). The effect of 'conceptual congruence' (Bender & Bellerit, 2016; Santiago &, Lakens, 2015) was interpreted as evidence to the fact that ideas about abstract conceptual dimensions (for example, power, affective valence, time, number, value) are based on more specific parameters (characteristics), for example, space, brightness, weight. However, an alternative theoretical explanation based on the concept, indicating a polar connection in the field of so-called valence morality, may be associated with vertical space, symbolically denoting that, for example, good things are at the top. The Conceptual Metaphor Theory or the Asymmetric Spatial Metaphor Theory asserts that interactions between areas and spaces are manifestations of asymmetric comparisons that use representations of space to structure number and time (Winter & Marghetis, 2015).

The relationship between space and time in extreme conditions is a topical applied problem; the survival of astronauts in space flight conditions is a good example here. It touches upon predicting the nature of mental response in a limited space, as well as the actual parameters of time perspective in extreme situations (Zimbardo & Sword, 2012), and continues to raise new questions (Bender & Bellerit, 2016. Temporal aspects of extreme events are of interest to researchers both in the field of extreme stress and of personality and motivation (Kvasova, 2013). The authors use such metaphors to describe an extreme situation as: 'blocked life perspective', 'ideas about the future are uncertain', 'extreme as unexpectedness and novelty of the unfolding curvature of the process', 'interruption and/or destruction of the context', 'broken connection between the past and the future' (Magomed-Eminov, 2007). For instance, it is indicated that the temporal characteristics of the limiting/extreme 'modes of existence', of critical life situations (Vasilyuk, 1984), situations of danger to life, as well as situations with a lack of time, include the following temporal phenomena: acceleration/deceleration, reversal of time, additional temporal dimensions' (Berezina, 2003), narrowing/breakage of time perspective, or life in the absence of a future with the rejection of its planning (Kvasova, 2013).

Studies of temporal experience in extreme situations are also of interest. The research carried out at the Department of Extreme Psychology and Psychological Aid of Moscow State University (based on the stories of subjects who survived traumatic events or catastrophes) showed that people relive time (as duration) in such situations as 'stretched', lasting as in 'frame-by-frame viewing' or in 'slow motion', 'a second seemed as long as a minute' 'time stretched out in anticipation'. The more traumatic the event, the more the effect of time stretching approaches its almost complete stop: 'time dragged on for an eternity', 'time stood still', 'time slowed down', 'everything happened as if in a fog', 'I don't know how long has passed' (Kvasova, 2012, 2013). With this trend, there is also a receding perspective of the future when it seems distant and unreal, or, on the contrary, too near: 'the future has come very close'. Such effects are consistent, in this case, with the widespread notions of a 'life overview' and 'panoramic memories' (Lommel, 2006; Noyes, Kletti, 1977) which indicate that an instantaneous process is experienced as extremely extended, when a person reproduces almost simultaneously



an integral process of a whole life, either in the form of a rapid retrospective, or, conversely, in a chronological sequence. The phenomena of rupture and 'timelessness', 'observation of what is happening as if from the outside' are also of interest; these are described as dissociative phenomena of derealization and numbness, that is, as protective processes in the context of mental trauma (Herman, 1977).

The present experimental study of the spatial-temporal parameters of an extreme situation aimed at checking the assumption that semantic determination of the perception of duration is a key characteristic of time in various spatial parameters, and at testing competing hypotheses about the linear movement of time, about linguistic models of perception of temporal-spatial relations, and about cognitive determinants. The authors of the present research based their assumptions on the classical ideas of P. Fraisse (Fraisse, 1963) on the perception of duration depending on the degree of experienced pleasure, on the content characteristics in perceiving discreteness of time intervals by S.L. Rubinstein (1998), A.A. Ukhtomsky (2002); M.M. Bakhtin (1975) and on the views of modern authors developing these ideas. For instance, a study of the theory of serial Self revealed how symbolic mediation by culture and the duality of critical events become an important component of the dynamics of time perceived by the dialogic self (Raggatt Peter, 2014).

The idea of the unity of space and time in a chronotope was developed in one way or another in the works of V.P. Zinchenko (2002), Yu.K. Strelkov (2010), A. Bolotova (2012), N. Tolstykh (2018) and other authors postulating provisions on the unity of space and time, as well as on motivational and personal mediation in the perception of time intervals (Gusev & Utochkin, 2011), which concretizes our assumptions. Modern authors note the need to clarify the ideas of how culture forms temporal-spatial relations and perceptions, pointing to cultural codes in the perception of temporal-spatial relationships. For example, the sociological theories of J. Simmel (Sullivan, Stewart & Diefendorf, 2016) have attracted the attention of researchers in environmental psychology and in integration of time and space in the context of temporal and target orientation (collectivist and individualistic values).

The present research aimed at testing cognitive assumptions about the relationship of temporal-spatial parameters in a situation unusual for a person, based on works on the perception of time intervals depending on fullness and emptiness (Kvasova, 2013). DeLong experimentally demonstrated the phenomenon of connectivity of space-time characteristics and their dependence on the size of the operated objects (DeLong, 1981), and demonstrated experimental results showing that screen size mediated the perception of time interval duration (D. Bobko, P. Bobko & Davis, 1986). In a well-known study on the relationship between the perception of time and the size of the surrounding space, A.J. DeLong suggested the existence of a connection between space and time – the empirical relativity of space and time – according to which space and time are related and are psychological manifestations of the same phenomenon (DeLong, 1981). In accordance with DeLong's idea, a person's perception of time depends on the size of the objects with which this person interacts. Experimental verification of this assumption was performed as follows: groups of subjects worked with visual displays of different sizes and then estimated the time spent on this (Bobko, 1986). Television screens with diagonals of 0.13, 0.28 and 0.58 m were used as visual displays. The subjects played a video game, the duration of which was 55 seconds, with different groups playing on different monitors. The game itself was the same for all subjects, but the size of the images was different depending on the size of the television



screen. It turned out that the subjects' verbal estimations of the duration of the game were determined by the screen size. It seems to a person (according to Bobko) that more time has passed than in reality if the external environment perceived by them is compressed...

#### **METHODS**

To study the relationship between the estimation of the time interval duration and the semantic intentionality, an experimental procedure was modeled. Semantic intentionality was set by two types of instructions and three types of situations created for conducting an experiment in the same room. Three situations, constituted in the spatial organization, are interpreted as life situations from the point of view of semantic intentionality, and are also expressed in the measure of freedom and the possibility contained in them for the implementation of the life of the individual ('situation potency' in K. Lewin's terms). The competing hypothesis is the spatial mediation of the experience of duration (DeLong, 1974; Bobko, 1986) as well as classical approaches to assessing time duration S.L. Rubinshtein (1998), P. Fress (1963), D.G. Elkin, B.I., Tsukanov (2000). The instructions set a different degree of freedom of action in three experimental situations, that is, they also relate to the factor of opportunity that opens up in an activity in which meaning intentionality is expressed. In this way, the study assessed the duration of time intervals (by analogy with the classical experiments of B. Tsukanov to assess the experience of short time intervals duration) (Tsukanov, 2000). The experimentally set variables were: 1) spatial restrictions and 2) the degree of freedom in the temporal division of intervals (one of the characteristics of temporal perspective), determined by the person (subjects) themselves or created by another person (experimenter) in the mode of unexpected interruption of being free in a particular space).

The study involved 36 people (16 men, 20 women) aged 22-34, graduates of universities of various professions. Previously, a semi-structured interview was conducted with the subjects to identify three significant traumatic situations that occurred to each of them. According to the results of the experts' assessment, the group included those people for whom significant extreme situations were not diagnosed as post-traumatic, which did not create stable maladjustment and did not correspond to the categories of post-traumatic stress (Herman, 1997). It testified these were ordinary people placed in unusual conditions (spatial: due to the restriction or freedom of manipulating space for action, and temporal: free determination of the boundaries of the time interval or an unexpected, unpredictable time limit for the experimenter to act). The authors believed it could change the perception of subjective meaning of situations in people, change their behavior and their experience and estimation of short time intervals duration. The subjects were asked to move around the room: (1) freely, (2) in the space bounded by a narrow corridor, (3) in the space of 1 m<sup>2</sup>. The subjects were active in three different situations according to two instructions - Instruction 1 (the subjects themselves interrupted the activity after a minute, based on their own experience of duration), and Instruction 2 (the subject's activity was interrupted by the experimenter after one minute without prior warning). The subjects were asked to estimate the duration of the time interval of their activity in the corresponding situation. The estimated time interval was one minute. After each series, the subjects wrote a selfreport, answering two questions:



- 1) What did you think, feel, or what were you worried about?
- 2) What do you associate this situation with?

At the end of the self-report, the subjects were asked to rate their condition according to a self-selected criterion on a seven-point scale. The instructions were structured so that the subjects could estimate either the end of the time interval of 1 minute (Instruction 1), or the interval that was not known to the subject but measured by the experimenter (Instruction 2).

The authors of the present research measured the categories of limited potency and freedom restrictions using content analysis and expert assessments of self-reports of the subjects. The qualitative method involves the consideration of psychological facts first in vivo, in a living temporality, then in the dynamics of the process and transformation, that is, in the historicity of the process of life, and afterwards, in the meaning work of the individual. Then, the composition of spatial and temporal forms is mediated by the constructive semantic work of the individual (Magomed-Eminov, 2007). Operationalization of the category 'limitation of opportunities' was made according to the criteria: a) limitation (presence of a border, limits, restrictions, lack of freedom) in contrast to freedom; b) negative perception of the situation (refusal to act, destruction, disorganization, negative emotions, disappearance, loss of something) in contrast to positivity; c) static state (immobility, stiffness, restraint), in contrast to ecstatic state (flight, freedom, self-expression); d) way out of the situation (avoidance) as opposed to involvement; e) passive observation and staying in the situation as opposed to active action, overcoming, which turned out to be significantly higher in the subjects who received the instruction to freely move in space, in contrast to the subjects who moved along a certain limited space of the square.

For the meaning determination of the nature of instructions, the authors consider two important aspects that introduce meaning intentionality. First, meaning intentionality is introduced through the experience of the connection between what a person does and the final result of their work in a situation. In one case, this connection is set by the dynamic relationship between the act of working to estimate the duration of 1 minute; and in the other case, the absence of a stable temporal relationship between the actual action and the final result. Semantic intentionality is defined in terms of discrete and continual perspectives, respectively. Second, meaning intentionality is determined through something that is expressed in the course of life and modelled in a given situation. The authors consider the thing that is realized in a situation in the broadest sense - as a potential, the possibility of living. In this regard, the implementation of life in a certain situation can be concretized in some tasks, defined in a broader framework – in a temporal form that limits opportunities, and in a form that does not set a special limitation of opportunities. Thus, in order to constitute the variable 'meaning intentionality', the difference between the two instructions (1 and 2) by the meaningfulness of tasks or situations is checked. Thus, semantic intentionality is operationalized by specific empirical features. Semantic intentionality, determined through its manifestations, cannot be registered without going through the experiences of a person and the personality work.

## **RESULTS**

Data was processed by quantitative and qualitative methods. In the course of the study, content analysis (Magomed-Eminov, 2009) and the method of expert assessment



were used, with the help of which a content-analysis of the written self-reports of the subjects was carried out, aimed at assessing the meaning intentionality of the personality and the nature of the experiences (including limitations or unlimited possibilities, ecstatic or static state, being involved in the situation or not, positivity or negativity, passive or active work, as well as criticality, extremeness, imaginative sphere, actualization of past experience in each situation, etc.).

To assess the significance of differences in the estimations of the time interval, the Mann-Whitney and chi-square tests were used. Preliminary research results: Meaning intentionality was determined by qualitative analysis based on the self-reports of the subjects. With the help of an expert assessment, five categories were identified, in which meaning intentionality is manifested: 1) limitations/absence of limitations; 2) positive/negative; 3) stasis/ecstasy; 4) involvement/non-involvement in the situation; 5) contemplation/action.

- 1. The empirical criteria are the presence or absence of boundaries or limits for the implementation of activities, the feeling of restriction, lack of freedom, discreteness as the ratio of what a person does to the result, or continuity as the absence of finitude. Empirical referents of unlimitedness were, for example, the following: "Feeling of lightness in the body", "I noticed that the ceiling is high and there is a lot of air", "I looked out the window. Cars were passing by; it was a cozy and calm evening", "I wanted to walk straight; stretch my back and straighten my shoulders (which I did). I was in a really relaxed state". The empirical referents of limitations were, for example, the following: "For some reason, at the first moment I thought about a labyrinth, but this association quickly passed", "After that I tried not to think about anything and just noted the peculiarities of the arrangement of furniture in space". For a short time, a joking thought flashed through my mind: "This is a conspiracy!", "In general, since there was an instruction to relax, I tried to calm myself down by counting to 100".
- 2. The empirical criteria of positivity are: constructiveness, creation, preserving some phenomenon, positive feelings; the criteria of negativity are: negation, rejection of something, destruction, disorganization of activity, negative experiences, loss, violation, disappearance. Both criteria relate to temporality, since, on the one hand, temporality deprives of duration, on the other hand, creates it (according to the ancients, there are Chronos and Caerus, creating and 'devouring' time). Some of the subjects' statements were ambivalent, containing a transition from negative to positive. Empirical referents of positivity were, for example, the following: "Now I felt calmer, more attuned", "I understood more what was required of me, and the fact that I could use the auditory analyzer to help myself", "My steps counted the seconds, and I heard that this time my internal clock was running more accurately". The empirical referents of negativity were, for example, the following: "The feeling of being locked in on something. Immediately I remember certain difficulties in life that were temporarily frozen".
- 3. Sensations of flight, freedom, movement, and dynamics are considered as criteria for ecstasy; in turn, stasis is what creates immobility, stiffness, and other external and internal factors that restrain activity. Empirical referents of ecstasy were, for example: "The intention to relax, the feeling of relaxation, lightness, arms outstretched". Empirical referents of stasis were, for example: "I felt tight and restricted".
- 4. An example of involvement in the situation: "I was interested in what would happen", "my attention was attracted by the dust on the far desk, I wanted to



brush it off". An example of not being involved: "It seems to me that I am in a small house in the village, it's warm, sunny", "I really wanted to go out, so I left the corridor".

5. Contemplation was understood as passive work-observation, and action as active work, including both physical actions in a situation (walking, exercise, manipulation) and internal work (overcoming states, changing images, encouraging oneself to do something, searching for meaning, goal-setting), which the authors identified in the subcategory of active work. For example, "I thought about the purpose of my actions, tried to understand the meaning of the task I was doing," "This is a test and I want to pass it".

The two instructions differ in the following parameters: actualization of ideas about limitations or unlimited possibilities in a situation, manifestations of ecstasy, positivity/negativity; involvement/non-involvement in the situation; contemplation/action in situations of free movement (Situation 1) and being in the "square" (Situation 3). These signs correspond to the understanding of semantic intentionality, therefore, in addition to the empirical validity, they have construct validity. According to the logic of theoretical analysis, the key to the search for the psychological meaning of three conditions (free space, corridor, square) is the provision on the composition of space and time, which is determined by the factor of the possibilities (in a situation) they represent for the implementation of life. The authors already clarified the constructive validity of this provision (Kvasova, 2013).

Now we are conducting a special empirical test to determine those signs of semantic orientation that are involved in three situations. It is, in fact, about justifying the validity of the empirical model and determining the empirical variable. To solve this problem, a qualitative analysis of the written self-reports of the subjects and expert assessment were employed. When comparing three spatial situations - free movement (Situation 1), movement in the corridor (Situation 2) and being in a square (Situation 3), the following results were obtained. In Situation 1, using the  $\chi^2$  criterion, significant differences were revealed among the characteristics of meaning intentionality of subjects with different types of instructions: limitation and absence of limitation of possibilities (positive, negative and ambivalent); non-involvement; action and work of the individual.

In a situation of limited space ("square"), significant differences were revealed among the characteristics of the semantic intentionality of subjects with different types of instructions: ecstasy; positive and negative; (non)involvement in the situation; action. Here are the results of the main part of the study – the relationship between the manifestation of meaning orientation and the experience of duration. The time interval estimation in Instruction 1 was characterized by the following tendencies: in a situation of free movement around the room, the subjects as a whole estimated the time interval quite adequately (the subjective estimation is comparable with the actual duration of a minute – Me1 = 68.5 sec); in a situation of movement along the corridor, the duration of the time interval increased in comparison with free movement; the same feature was observed in the situation of being in the square. In other words, in Situations 2 and 3, a distortion of the estimation of the time interval towards its increase was characteristic (Me2 = 80 s; Me3 = 97s).

Comparison of the frequency of the meaning intentionality characteristics manifestations in the subjects in Instructions 1 and 2 showed significant differences in the following categories: the limitations of capabilities are more pronounced in the subjects who controlled the time themselves (Instruction 1) in a situation of free



movement, compared with the subjects without tasks of controlling time (Instruction 2). Thus, for a group with Instruction 1, the duration of a minute increases depend-ing on the degree of freedom: when the place is limited, the duration increases. There are significant differences according to the Mann-Whitney criterion between Situations 1 and 2 (p = 0.045), and between Situations 1 and 3 according to the criteria of 'free movement' and 'limited space' through which the subjects were forced to move (differences at the level of significance p < .059); unlimited possibilities (p < .000); ecstasy (p < .000); negative perception of the situation (p < .025), positive perception (p < .000); involvement in the situation (p < .000) and non-involvement (p < .000); passive contemplation (p < .000) and active action (p < .000).

In Instruction 2, the subjects estimated the time interval for free movement (Situation 1) as longer, and the subjective estimation of duration was often 2 or even 3 times higher than the real one (Me1 = 2 minutes). In Situation 2 (corridor) and 3 (square) with limited space they estimated the time interval as shorter. Significant differences were also found between Situations 1 and 2 (p = 0.037) and 1 and 3 (p =0.037). Significant differences were found between the groups performing Instructions 1 and 2 for Situation 1 - free movement (p = 0.022). Differences between the two groups with different instructions for Situations 2 and 3, however, do not reach a significant level. In subjects who counted the time of the interval themselves, the estimations of duration were violated in the direction of elongation under spatial restrictions, and when the time interval was counted by the experimenter, the estimation was shortened when the space was limited. For subjects who, according to the instructions, did not stipulate time control, and the experimenter stopped movement in space with a chronometer, the parameters of assessing the meaning of the event in two situations: free movement and square' differed considerably by the following categories: limitation of opportunities and no restrictions (p <.000); negative (p <.025) and positive perception of the situation (p < .000); passive contemplation (p < .025) and active action (p <.000). The results obtained from the preliminary data suggest that where the potential for free action disappeared and time constraints were imposed on the subject (and the experimenter became the constraint, that is, another stranger performing a symbolic function), the perception of the length of the time interval changed with changing the possibilities of being free in space.

## **CONCLUSION**

The obtained results allow believing there is the meaning of the situation that determines the experience of temporality and duration, and not a direct connection between spatial characteristics and the estimation of short time intervals. Here lies a contrast to the data of D. Bobko and DeLong, in whose experiments the temporal estimation depends on the size of the space and increases the subjective perception of duration with a decrease in the spatial dimensions. In the present research, spatial characteristics acted only as a symbolic representative of limited potencies for self-realization in a situation perceived as negative, stressful, and/or extreme. Interpreting time and temporal perspective in space-time relations, the authors wanted to show that duration itself is the central characteristic of time, depending on meaning intentionality. Usually, duration is considered as a quantitative characteristic of time perception and is subjected to measurements (the tradition of research by P. Fress, S. Stevens), or the



scientists take the position of its meaningful estimation and measurement and consideration of the structure of time, based on values, life events, etc.

To explain the results obtained, the authors of the present research believe it expedient to use new approaches to the problem of space-time parameters of an extreme situation, proposed in the works of M.Sh. Magomed-Eminov, which distinguish: a certain temporal organization, form and temporal work in which the temporal structure is constructed as its product (Rubinstein, 1998). In the concept of temporal transformation of personality in an extreme situation, on which the authors of the present research base their ideas (Magomed-Eminov, 2009; Rubinstein, 1998), the phenomena of 'rupture' or connectedness of experience depend on the temporal work of the individual, that is, the work of linking the past, present and the future torn apart by the trauma/catastrophe itself. The meaning temporal personality work allows a person to give meaning to the present, to rethink the future, to relate to the future in a new way while simultaneously losing the meanings that have lost their conventionality, those meanings that made it possible to survive during a disaster at any cost and which must be lost in order to construct new ones (Magomed-Eminov, 1997).

One of the goals of the present work was to consider the temporal perspective of a personality in the context of extremeness and the fact whether it really transforms in an extreme situation, which was shown by the analysis of the directions (singled out by the authors) for studying time in a situation of ordinary normative existence, and by the facts or interpretation of various phenomena of experience, estimation, perception and measuring time in situations of crisis/catastrophes; these directions are just a byproduct of research data and are replete with conflicting data. A similar picture is observed in the analysis of the phenomena of extremity, trauma, difficult life situations, in which time and unusual characteristics of experience appeared to be indirect data that have not been subjected to special study. Thus, the present research shows that the relationship between space and time is not a formal connection of the characteristics of perception but a manifestation of the active personality work on the construction of their life relationships and meanings Magomed-Eminov, 2007, 2009). The experiment served as a model for understanding the experience of time in an extreme situation. A simulated extreme situation has all the characteristics of a real one, such as the final written state exam for schoolchildren. It also corresponds to the criteria of a real traumatic situation in terms of:

- 1) uncertainty due to limitation of time and space (thereby, of opportunities and potentials for self-realization), to limitation of freedom (albeit symbolic), and to the ambiguity of the criteria for tasks and behavior;
  - 2) unexpected consequences and stress factors of the situation,
- 3) sometimes a threat (failure, collapse of life prospects), physical or moral frustration, including taking away personal necessary things, etc.;
- 4) narrowing, shortening or slowing down of the time perspective, distortion, deformity, the perception of an event in accordance with the meaning that it carries for a person at a given moment.

This pilot study can be used to develop effective methods of psychological work in the field of time management in conditions of all kinds of restrictions in special activity, in confined spaces (pilots, astronauts, ships, other expeditions) and to provide psychological assistance to people in extreme situations of various nature. In further experiments, the authors plan to check which personal parameters and stable motivational and personal dispositions can also mediate the perception of duration in an



extreme situation. The characteristic of space limitation also needs to be checked. Thus, the symbolic restriction of freedom of movement for the subjects in the form of a square gave significant differences in the subjects' estimation of the meaning of the situation as negative and restricting potential opportunities for action; however, restricting movement in the form of a narrow corridor did not produce the same effect. The authors can only assume that the corridor, in contrast to the square, retained the parameter of symbolic 'perspective', while the square did not even have this minimal degree of freedom. Preliminary conclusions allow clarifying the parameters of the situation that can be controlled in extreme conditions and during life trials, as well as used in planning tactics and strategies of psychological assistance to people experiencing loss, grief, and other psychological consequences of extreme life situations.

#### REFERENCES

- Bakhtin, M.M. (1975). Forms of time and chronotope in the novel. Essays on historical poetics. Questions of literature and aesthetics. Research over the years. Moscow: Khudozhestvennaya literatura.
- 2 Gusev A.N., Utochkin I.S. (2011). Psychological dimensions: theory. Methods. Mos-cow: Aspect-Press.
- Zinchenko, V.P. (2002). Man in the space of time. Personal Development 3: pp.23-
- 4 Kvasova, O.G. (2013). Transformation of the time perspective of an individual in an extreme situation. PhD dissertation.
- Kuznetsova, O.V. (2007). The role of time perspective in the personal and professional self-determination of adolescents. Psychological Science and Education 3: pp.5-15.
- 6 Magomed-Eminov, M.Sh. (2007). Positive human psychology. Moscow: PARF.
- 7 Magomed-Eminov, M.Sh. (2009). Meaning-φctivity approach to psychological trans-formation of personality. PhD. Moscow.
- 8 Rubinstein, S.L. (1998). Fundamentals of general psychology. SPb: Piter.
- 9 Tolstykh, N.N. (2018). Chronotope: culture and ontogeny. Moscow: AST.
- 10 Ukhtomsky, A.A. (2002) .Dominant. SPb: Piter.
- 11 Fraisse P., & Piaget, J. (1978). Perception and estimation of time. Experimental psy-chology 6: 88-130.
- Tsukanov, B.I. (2000). Time in the human psyche. Odessa: AstroPrint.
- Bender A, & Bellerit, S. (2016). Mapping spatial frames of reference onto time: A review of theoretical accounts and empirical findings.-Cognition 132, 342–382.
- Bobko, D.J., Bobko, P., & Davis, M.A. (1986). Effect of visual display scale on duration esti-mates. Human Factors, 28, 153-158.
- Bolotova, A. K. (2012). Time and Space in Interpersonal Relationships. Psychology. Journal of Higher School of Economics, 9 (3), 22-36.
- DeLong, A.J. (1981). Phenomenological space-time: Toward an experimental relativity. Science, 213, 681-683.
- 17 Fraisse, P. (1963). The psychology of time. Westport: Greenwood.
- Herman, J.L. (1997). Trauma and recovery. N.Y.: Basic books.
- 19 Karacheva, E., Magomed-Eminov, M., Kvasova, O., Savina, O., & Horoshkova, J. Concep-tual aspects of time perspective in the emergency situation. Mediterranean



- Journal of Social Sciences, MCSER-Mediterranean Center of Social and Educational research (Rome), 6,(2), (S4), 129-136 DOI.
- Kvassova, O. (2012). Time Perspective in Psychic Trauma. International Congress of Psychology. Capetown, South Africa, 22–27 July Abstracts, published under the auspices of the International Union of Psychological Science (IUPsyS), Psychology Press, 773.
- Lens, W, & Seginer, R. (2015). Future Time Perspective and Motivation International. Ency-clopedia of the Social &Behavioral Sciences (Second Edition), pp. 561–566.
- Raggatt Peter, T.F. (2014). The dialogical self as a time-space matrix: Personal chrono-topes and ambiguous signifiers. New Ideas in Psychology 32, 107–114.
- 23 Santiago, J, & Lakens, D. (2015). Can conceptual congruency effects between number, time, and space be accounted for by polarity correspondence. Acta Psychologica, 156, 179–191.
- Sullivan, D., Stewart, S. A., & Diefendorf, J. (2016). Simmel's time-space theory: Implications for experience of modernization and place\* Journal of Environmental Psychology, 41, 45-57.
- Shiffman, H.R. & Bobko, D.J. (1974). Effects of stimulus complexity on perception of brief temporal intervals. Journal of Experimental Psychology, 103, P. 156-168.
- Zhenguang, G. & Cai, L (2015). Connell Space-time interdependence: Evidence against asymmetric mapping between time and space. Cognition, 136, 268–281.
- Zimbardo, P.G., Sword, R. (2012). Overcome PTSD with new psychology of time perspec-tive therapy. N.Y.: Willey.
- Winter, B., Marghetis, T., & Matlock, T. (2015). Of magnitudes and metaphors: Explaining cognitive interactions between space, time, and number. Cortex, 64, 209-224.

