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**Dispositional and situational premises of decision-making  
under uncertainty (the prisoner's dilemma task)**

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## **PUBLICATIONS**

The main provisions of the study are reflected in 3 published scientific publications:

1. Kuzmicheva Zh. Personal and situational factors of decision-making under trust-distrust (the prisoner's dilemma model) // Psychology. Journal of the Higher School of Economics. 2020. Vol.17. N1. p.118-134.
2. Kuzmicheva Zh., Khachaturova M. Factors of organizational decision-making about the choice of interaction strategies under conditions of uncertainty // Organizational psychology. 2017. Vol. 7. No 2. p.102-125.
3. Khachaturova M., Kuzmicheva Zh. Influence of affective, cognitive and situational factors on decision-making in the negotiations (on the example of "prisoners' dilemma") // Psychological Science and Education. 2015. vol. 20. No 1. p.38-48.

## GENERAL DESCRIPTION

The study of the decision-making process, in the context of interpersonal interaction, is becoming increasingly popular in psychology. Specifically, the question of interaction strategies choice holds a special place in the study of decision-making. The choice of a certain interaction strategy such as cooperation and confrontation can be determined by a number of factors and conditions.

Non-psychological and psychological models have been described in context of studying the decision-making process. The main criterion for the difference between psychological and non-psychological models is the identification of the subject as active, which allows to consider a number of important subjective parameters (for example, cognitive activity, individual-personality properties, value-sense guidelines). Non-psychological it is common to refer the model of expected utility of D.Bernali and P.Laplas, which formed the basis for the development of the theory of economic behavior of J. von Neiman and O.Morgenstern for the possible assessment of the rationality of behavior in risk conditions (Kornilova, 2003, Leontiev, 2014).

The decision-making process within psychological models has been in focus for a long period time (Agor, 1986; Crocket, 2013; Goldstein, Hogarth, 1997; Kahneman, Tversky, 1979; Derner, 1997; Kahneman, 2013; Kaneman, Slovik, Tverski, 2005; Kozeletsky, 1979; Karpov, 1991; Karpov A.V., Karpov A.A., Markova, 2016; Karas`, 1996; Kornilova, 2003; Lomov, 1981; Podd`yakov, 2002; Tikhomirov 1976; Shadrikov, 2007, 2013). The vector of decision-making study in the context of implementation of psychological processes both cognitive and regulatory remains important. A number of researchers considered decision-making in terms of consciousness, will, targeting and motivational processes involved in the regulation of choice and its implementation (Mariten, 2006; Kozeletsky, 1979).

There is also an important approach to studying decision-making in terms of risk conditions, where choices are made among the initially known alternatives,

but the likelihood of developing the situation with the choice of the most favorable outcome may change. Along with risk conditions, researchers focus on examining the decision-making process in conditions of uncertainty where choice is complicated by a lack of sufficient information about possible alternatives (Kaneman, 2013; Kaneman, Slovik, Tverski, 2005; Kornilova, 2003; Tversky, Kahneman, 1979).

By the term "decision-making" the authors also regard choice among alternatives as an informed act (Karpov, 1991; Kornilova, 2003; Tikhomirov, 1976; Shadrikov, 2013). A number of other researchers consider the decision-making process in the context of the structure of the activity, including professional and managerial (Karpov, 1991; Lomov, 1981, Shadrikov, 2007). From the perspective of the activity approach, the question arises of the need to study mental processes as processes of anticipation and prediction of choice (Brushlinsky, Tikhomirov, 2013). A *prognostic decision* can be understood as a decision that is based on a mental anticipation of the situation development where an important process is forecasting the desired result (Brushlinsky, 1979).

The relationship between "decision-making" and "choice" remains important. D.A. Leontiev defines a number of essential parameters by which these processes cannot be reduced to a common understanding (Leontiev, 2014).

Among the psychological models of studying the decision-making process the neurobiological approach has become an alternative approach, in which the authors raise the question of the influence of certain brain neuronal systems on the adoption of both rational and irrational decisions. In particular, aspects of social interaction, as well as the impact of punishment on the decision-making process are discussed (Greene, Nystrom, Engell, Darley, Cohen, 2004; Colosio, Rybina, Shestakova, Klucharev, 2018; Zinchenko, 2019; Klyucharev, Schmids, Shestakova, 2011).

Thus, in the established tradition the issue of studying decision-making regulators remains important, where the latter means not just the choice of alternative among the proposed, but the consideration of subjective perception and

understanding of the situation. One commonly accepted decision parameter that researchers highlight is making choices under conditions of uncertainty. In this case, uncertainty is understood as an objective characteristic of human life (Zinchenko, 2007; Kornilova, 2010; Kornilova, Chumakova, Kornilov, Novikova, 2010; Smirnov, Chumakova, Kornilova, 2016). According to a number of psychological model's situation uncertainty forms subjective uncertainty as a result of comparing the formed subjective image and the real situation (Kornilova, 2010). The authors pay special attention to the source of the formation of subjective uncertainty of decision-making. From this point of view, there are opposing views: on the one hand, subjective uncertainty can be determined by situational factors (external constraints), on the other - by personal dispositions, which can influence the person in making decisions, including on the choice of interaction strategies (Kornilova, 2003). A.G.Asmolov considers uncertainty as one of the possible properties of the future, the construction is considered from the point of view of the evolutionary process. He reveals these constructs through the study of setting mechanisms in the context of "pre-adaptation to uncertainty" (Asmolov, 2017).

The situation of solving dilemmas is one of the modeling situations for prognostic deciding on the interaction strategies choice (Bragger, Bragger, 1998; Gilboa, 2009; Kahneman, Tversky, 1979; Bolotova, 2007; Gordeeva, 2007, Zinchenko, 2007; Kaneman, Slovik, Tverski, 2005; Kornilova, 2003, 2010; Kornilova, Kamenev, 2002; Kornilova et al. 2010). In experimental studies there is a difference between two-dimensional and multi-dimensional dilemmas. Two-dimensional dilemmas include the prisoner's dilemma when two participants choose one of the proposed outcomes. At the same time, the situation sets provocative conditions for outcome choosing, when the opponent relies on the trust of their partner (Axelrod, Hamilton, 1981). It is important to note that the dilemma's outcomes correspond to the interaction strategies: cooperation (an outcome, when winning is the same for both opponents, but not the maximum in game), competition (an outcome, when winning is only the maximum for one opponent) (Kollock, 1998). At the same time, in such dilemmas, the choice of a

cooperation strategy is recognized as the optimal solution for both opponents. But as investigations show, the choice of a cooperation strategy is variable. Moreover, the individual behavior in similar dilemmas does not agree with the general model of rational behavior (Mason, Phillips, Redington, 1991).

Experimental models of prognostic tasks, such as the “prisoner dilemma”, allow a comprehensive assessment of the inclusion of various variables in the regulation of choice. For a psychological analysis of decision-making features, it is important to disclose the ways of both personal regulation and external situational prerequisites under condition of uncertainty, since these variables can become significant in predicting the choice of interpersonal interaction strategies.

O.K.Tikhomirov and T.V.Kornilova proposed the idea of multi-level regulation of decision-making, which includes dynamic cognitive and personal components. In turn, dynamic regulatory systems (DRS) are understood as open systems, where various variables mediating choice can take leading positions (Kornilova, 2008, 2011).

Based on the idea of dynamic regulatory systems, we can distinguish two trends of generalizations of the possible prerequisites for making prognostic decisions. On the one hand, dispositional and, on the other, situational prerequisites for making a prognostic decision can be distinguished. This division also finds confirmation in Kurt Levin's “field theory”, within the framework of which he understood behavior as a derivative function of his individual personality traits, as well as external situational premises (Zeigarnik, 1981).

For a long time, many authors investigated questions about **dispositional factors** for strategies choice in situations of the prisoner’s dilemma type (Kreps, Milgrom, Roberts, Wilson, 1982; Hirshleifer, Rasmusen, 1989; Kahn, Murnighan, 1993; Boone et al., 1999; Chen, Lee, 2003). Attention was focused on the influence of the level tolerance (Aktipis, 2011; Kurokawa, 2019); the influence of cognitive abilities (Proto, 2011), as well as intolerantness to the risk of choosing a cooperative interaction strategy (Sabater-Grande, Georgntzis, 2002).

But among the studied dispositional prerequisites authors emphasize such predictors as personality traits of the "big five," the "dark triad," as well as vigilance, avoidance, procrastination, and hypervigilance (Paulhus, Williams, 2002; Koole, Jager, Van den Berg, 2001). It is important to note that the choice of these models is due to the fact that these personality traits more reveal the issue of behavioral strategies choice in interpersonal interaction. Secondly, when situational premise appear the above-mentioned personality variables tend to change expression.

The factors for interaction strategies choice can be personal traits included in the "big five" model: extroversion, openness to experience, self-control, emotional instability and agreeableness (Digman, 1990; Costa, McCrae, 1992a; Goldberg, 1993; John, Srivastava, 1999; Jeheil, 2005; Kreps et al., 1982; Kagel, McGee, 2014; Neyman, 1985; Selten, Stoecker, 1986).

As noted by T.V.Kornilova, vigilance, avoidance, procrastination and hypervigilance can influence on interaction strategies choice (Kornilova, 2013). Procrastination is understood as defensive avoidance, which is characterized as ignoring possible complex and risky situations. Hypervigilance is seen as impulsive decision-making of the proposed alternatives. In some cases it can be regarded as panic behavior. Vigilance is a personality trait that allows the most accurate and rational assessment of possible strategy choice consequences.

Recently special attention has been focused on such personal traits as machiavellianism, narcissism and psychopathy. D.Paulhus, C.Williams, and J.McHoskey point out that these traits reveal the negative side of human behavior to others (Paulhus, Williams, 2002). It is important to note that machiavellianism as a scientific category has recently become widely used and is characterized as an orientation toward selfish interests (Kornilova, 2015). At the same time, this personality trait appears in situations of risk and uncertainty. Psychopathy, in the context of research, is characterized by highly impulsive behavior and low levels of empathy (Lilienfeld, Andrews, 1996). Narcissism is characterized by achieving

personal benefit and strengthening the position as a leader at the loss of interpersonal relations (Furnham, Richards, Paulhus, 2013).

The further behavior of opponents and choice outcome can be described in terms of trust/distrust. The authors suggest that if the trust level is high, then there is no point in antisocial behavior and choice of confrontation strategy (Kramer, Goldman, 1995; Yamagishi, 1986; De Cremer, Knippenberg, 2005). Trust is one of the premises of social stability as a form of social capital, which provides as opportunity for cooperation and collective action (Coleman, 1990). A number of researchers distinguish that it is important to consider trust in a situation of uncertainty, since one of the participants cannot control and accurately predict the behavior of the other side (Baier, 1985; Hosmer, 1995; Govier, 1994).

*Situational premises* may become the second component that determines human behavior. In the context of interpersonal interaction strategies choice, emotional state and time pressure play a special role (Thompson, Wang, Gunia, 2010). Emotions are situational and can particularly influence behavior when choosing interaction strategies. J.Forgas noted that emotional attitudes also affect the choice of cooperation or competition strategies (Forgas, Cromer, 2004; Allred et al., 1997; Van Kleef et al., 2006). Thus, in a number of investigations, it was proved that with negative emotions the choice of a competing strategy became the most common (Lerner et al., 2015; Chuang, Lin, 2007).

For the purposes of the current study, we considered time pressure as a situational premise in decision-making process. There are researches that considered the effects of limited time on decision-making. Authors mentioned that conditions of time pressure have negative consequences for the result. The negative influence of time pressure on the decision-making process was also confirmed in the research of J.Payne, J.Bettman, and E.Johnson. They underlined that the factor of time pressure has a devastating influence on the quality of decisions, especially if a person makes a decision individually. A number of scholars considered time pressure with the effect of stress (Hammond, McClelland, Mumpower, 1980). Some other researchers also assumed that limited time

decreases mental resources and cognitive control (Mostered, Rutte, 2000; Muraven, Tice, Baumeister, 1998). Moreover, an inverse relationship between limited time and confidence in decision-making was defined in the research (Smith, Mitchell, Beach, 1982). Taking into account the results of the above studies, it is important to consider the impact of emotional state and time pressure on strategies choice in situations following the prisoner's dilemma type.

Thus, **the relevance** of the study is due to the fact that the development of social, organizational, economic and technical processes determines the objective conditions leading to the complication of understanding the decision-making process as a choice among possible alternatives. The conditions of the modern world set new parameters for the development of social ties, which determine the features of decision-making on the interaction strategies choice in interpersonal communication. In this regard, predicting the outcome of possible solutions is becoming increasingly important. It is the conditions of the uncertainty that make it possible to talk about the need to study the choice of interpersonal strategies, which can be determined by people's trust in each other and the influence of dispositional and situational premises. From the point of view of situational premises, the emotional state of a person, which directly depends on external events and conditions, can play an important role in interpersonal interaction. In addition, in the modern world, no one area of human activity can do without studying the time aspects, or rather time pressure. Thus, the relevance of the study premises decision making of interpersonal interaction strategies is increasing due to the lack of comprehensive research dispositional and situational factors under condition of uncertainty.

The study of dispositional and situational premises, in our opinion, is correctly considered from the point of view of their simultaneous influence on the strategies choice in interpersonal interaction under condition of uncertainty. Thus, **the research problem** is to study the decision-making process interpersonal interaction strategies choice in the context of dispositional and situational premises. It is important to understand these premises not as their consistent

influence on decision-making, but as their simultaneous influence on the strategies choice for interpersonal interaction under condition of uncertainty.

In this way **the aim** of our research is to study the dispositional and situational prerequisites for making a prognostic decision on the interaction strategies choice under uncertainty (using the “prisoner dilemma”).

In accordance with the goal and hypotheses, the following **tasks** were set:

1. Conduct a theoretical review of studies on the characteristics of the decision-making process.
2. Modify the conditions of the classical “prisoner dilemma” in accordance with the purpose of the experimental study.
3. Conduct an empirical study to determine the dispositional premises of the prognostic decision-making process under condition of uncertainty (using the “prisoner dilemma” model).
4. Carry out an experimental study to determine the situational premises of the prognostic decision-making process under condition of uncertainty (using the “prisoner dilemma” model).
5. Empirically verify influence of the complex dispositional and situational premises on the interaction strategies choice under condition of uncertainty.

In accordance with the aim the following **hypotheses** are put forward:

1. The predictor of the interaction strategies choice under condition of uncertainty is situational and dispositional premises in the conditions as joint influence and in the conditions of influence as independent prerequisites.
2. Situational premises ad time pressure and emotional state make a greater contribution to the interaction strategies choice of than dispositional premises.
3. Such situational premises as an emotional state, positive and negative, and time pressure, influence on interaction strategy choice under condition of uncertainty:
  - 3.1. With a positive emotional state increases the probability of choosing a cooperation strategy.

- 3.2. With a negative emotional state and time pressure increases the probability of choosing a confrontation strategy.
4. There is a connection between dispositional premises such as extraversion, agreeableness, consciousness, emotional stability, vigilance, affection as a criterion of trust, as well as the pronounced properties of the “dark triad” and the probability of choosing interaction strategies under condition of uncertainty.

**The object** of the research is the dispositional and situational premises of interaction strategies choice.

To achieve this goal, an experimental study was conducted using the modified classical model “prisoner’s dilemma” and following methods: A Five-Factor Personality Questionnaire adaptation by A.B.Khromov, Melbourne Decision-Making Questionnaire adaptation by T.V.Kornilova, The Dark Triad Questionnaire (tested by T.V.Kornilova, S.A.Kornilov, M.A.Chumakova, M.S.Talmach), the method of assessment of trust-distrust of the person to other people by A.B.Kupreychenko (2008) and Scales of positive affect and negative affect (E.N.Osin, 2012).

**The theoretical and methodological basis** of the study was: approaches to the study of decision-making under conditions of risk and uncertainty (T.V.Kornilova, V.P.Zinchenko, D.Kaneman, P.Slovik, A.Tversky, Y. Kozeletsky, G.Simon, J.Bragger, I.Gilboa, J.Payne, J.Bettman, E.Johnson, L.R.Goldberg, R.R.McCrae); approach to the study of decision – making in context activity (V.D.Shadrikov, O. K. Tikhomirov, A.V.Karpov, L.Yu.Karas, O.A.Kulagin); the understanding of “choice” (D.A.Leontiev, E.Yu.Ovchinnikova, E.I.Rasskazova, A.Kh.Fam); ideas about the choice as intellectual - personal regulation (T.V.Kornilova, O.K.Tikhomirov, M.A.Chumakova, S.A.Kornilov, M.A.Novikova); psychological regulation of prognostic decision making (A.V. Brushlinsky, T.I.Medvedeva, S.D.Smirnov, O.V.Stepansova, M.A.Chumakova, S.A.Kornilova, E.V.Krasnov, T.V.Kornilova; I.A.Chigrinova); studies of trust and distrust as a socio-psychological phenomenon (V.P.Zinchenko; A.B.Kupreichenko, S.K.Nartova-Bochaver, T.P.Skripkina, L.A.Zhuravleva).

**The scientific novelty** of the research is that:

1. For the first time, an integrated approach to the study of prognostic decision as the interaction strategies choice was implemented taking into account the simultaneous influence of situational and dispositional premises in the format of constructing a prognostic model of interaction strategy choice.
2. An experimental scheme has been developed and tested for study decision making the interaction strategies choice under uncertainty with using the modified “prisoner`s dilemma” task, which has established itself as a working prognostic model and can be further considered as a tool for checking the influence of other factors. The model “prisoner dilemma”, despite being schematic, is embodied in a person`s real life in the context of social interaction.
3. During the study patterns of manifestation of a number of dispositional traits were discovered with the combined influence of situational premises.

**The theoretical significance** is that research:

1. The study showed that the “prisoner`s dilemma” model allows one to consider a person`s behavior when predicting a decision as interaction strategies choice of not only from the point of view economic logic, but also from the point of view of the influence of various psychological factors, especially dispositional and situational premises.
2. The study allowed us to theoretically justify that such situational prerequisites as a time pressure and emotional state, as well as dispositional prerequisites in the form of the “big five”, “dark triad” models, vigilance, hypervigilance, avoidance, procrastination, and also the level of trust, may be predictors of the interaction strategy choice under the proposed experimental conditions of the modified “prisoner`s dilemma”.

**The practical significance** of the research results is that:

1. The results of the study can be used in the framework of organizational, family, personal counseling to develop teaching materials in order to implement effective

conditions for the negotiation process, in particular predicting the behavior of opponents in context interaction strategies choice.

2. The results of the study may be advisory for organizations to correct interpersonal communication, as well as conducting trainings and coach sessions.

The obtained prognostic model of human behavior in the context of interpersonal interaction can become a practical applicable tool for analyzing employee behavior. In addition, the results can serve as a theoretical basis for the development of practical programs, for example, trainings of personal growth or communication in stressful situations with time pressure.

3. Based on the results obtained, a course of lectures in the field of general and organizational psychology can be created in context interaction strategy choice under condition of uncertainty.

**Thesis to be defended:**

1. A modified model of the “prisoner`s dilemma” can be considered as an effective working tool for studying human behavior in context predicting decisions about the interaction strategies choice under condition of uncertainty.
2. Situational prerequisites make a greater contribution to the choice of interaction strategy under condition of uncertainty than dispositional prerequisites.
3. Significant situational prerequisites for interaction strategies choice under condition of uncertainty are the time pressure and the emotional state of a person. At the same time, time pressure and a negative emotional state increase the probability of choosing a confrontation strategy, while a positive emotional state increases the probability of choosing a cooperation strategy.
4. Among the dispositional premises the predictor of interaction strategies choice is the factor of trust and factor of self-regulation. Moreover, with the simultaneous interaction of dispositional and situational prerequisites under conditions of time pressure, such a personal disposition as an anxiety factor intensifies, which increases the probability of confrontation strategy choice.

**The structure** of the thesis: this work consists of an introduction, one theoretical and one empirical chapter, conclusions by chapters, list of references (258 titles, of which 159 are in foreign languages) and appendices. The main text of the thesis is presented on 132 pages (with appendices - 166). The results of theoretical and empirical analysis are presented in 12 tables and 6 figure.

## CONTENTS OF THESIS

**The introduction** presents the relevance, goals, hypotheses and objectives of the study, describes the methods used, the theoretical and methodological basis of the study, reveals the scientific novelty, theoretical and practical significance of the work, outlines the main thesis for the defense, gives a brief description of the structure of the work.

In **the first chapter** “Dispositional and situational prerequisites for decision making under conditions of uncertainty. Decision Making Approaches” presents a theoretical overview of the main approaches to the study of the decision-making process and the particularities of interpersonal choosing strategies, cooperation or confrontation, as well as special attention is paid to possible premises and factors for their choice.

**The first paragraph** presents the main definitions and approaches to understanding the decision-making process are presented. When studying this issue, it is important to pay attention to non-psychological theories and models (Bernulli, 1954; Kahneman, Tversky, 1979; Slovic, Lichtenstein, 1983).

In the context of the psychological context, it is important to consider the following models and approaches: the study of decision-making under conditions of risk and uncertainty (T.V. Kornilova, O.K. Tikhomirov, D. Kaneman, P. Slovik, A. Tversky and G. Simon); the concept of multiple multilevel regulation, as well as the position of a dynamic regulatory system (T.V. Kornilova, O.K. Tikhomirov, M.A. Chumakova, S.D. Smirnov and others); decision-making from the point of view of the activity approach (V.D.Shadrikov, A.V.Karpov; O.K.Tikhomirov, A.V.Brushlinsky); decision-making from the point of view of problem situations

(A.V.Karpov, N.I.Bulaev, B.Perfiriev), in the context of complex tasks (H.-Yu. Derner, A.N.Poddyakov); the study of decision-making as a manifestation of personality (A.G.Asmolov, A.Bergson, F.E.Vasilyuk, D.Uznadze, D.A.Leontyev, B.F.Porshnev, E.Fromm, V.Frankl, I.Yalom); from the point of view of the neuroeconomic approach (V.A.Klyucharev, A.Shmids, A.N.Shestakova, E.Rybina, O.O.Zinchenko, M.Colosio, A.Rangel, C.Camerer, P.R.Montague).

**The second paragraph** the features of decision-making under conditions of uncertainty were examined using the example of the prognostic task “prisoner`s dilemma”. The question is raised about the study of forecasting in the context of decision-making under uncertainty (A.G. Asmolov, A.V. Brushlinsky and O.K. Tikhomirov, T.V. Kornilova, M.A. Chumakova, S.D. Smirnov).

In addition, this section discusses the issue of understanding the conditions of uncertainty, as well as a possible study of human behavior in these conditions during interpersonal interaction. In one of the modeling situations of choosing interaction, cooperation or confrontation strategies, in conditions of uncertainty is customary to consider the “prisoner dilemma” model (Axelrod, Hamilton, 1981; Cook, Cooper, 2003; De Cremer, Knippenberg, 2005; Grinberg, Hristova, Borisova, 2013).

**The third paragraph** discusses the important issue of regulation interaction strategies choice under condition of uncertainty in “prisoner`s dilemma”, namely, the main studies on possible dispositional and situational premises for decision making are presented.

Among situational premises, many authors consider the emotional state of a person (positive and negative) (Anderson, Thompson, 2004; Steele, Aronson, 1995; Banaji, Blair, 1996; Bargh, 1982; Klaczynski, 2001; Stanovich, West, 2000; Forgas, Cromer, 2004; Chuang, Lin, 2007; Wang, Murnighan, 2011; Haidt, 2001). Another important situational factor affecting the choice of interpersonal interaction strategies, as the researchers note, is the time pressure (Bolotova, 2007; Busemeyer, 1985; Druckman, 1994, Mosterd, Rutte, 2000; Fisher, Ury, Patton, 1991). The analyzed results of the study allow us to conclude that the emotional

state of a person and time pressure can influence on the interaction strategies choice, cooperation or confrontation, under uncertainty.

A number of researchers consider personality traits as dominant predictors of decision-making on the choice of interaction strategies (Payne et al., 1993; Fearl, et al., 1995; Burka, Yuen, 1983; Ferguson et al., 2012). In this context, among the studied personality premises the authors especially distinguish such predictors as Big Five, the Dark Triad, vigilance, avoidance, procrastination and hypervigilance and trust in another (Antonenko, 2003; Kupreychenko, 2008; Kornilova, 2013; Crysel, Crosier, Webster, 2013; Curry, Chester, Viding, 2011; Deutchman, Sullivan, 2018; Jeheil, 2005; Jones, Paulhus, 2011; Koole et.al. , 2001; Kagel, McGee, 2014; Mesko, Lang, Andrea, Szijarto, Bereczkei, 2014; Miller, Hyatt, Maples-Keller, Carter, Lynam, 2016; Mann, 2000; Pauln, Williams, 2002).

In **the second chapter**, an empirical study of dispositional and situational prerequisites of prognostic decision under condition of uncertainty (using the “prisoner`s dilemma”) outlines the scheme for conducting the research, describes the methods used and presents the results obtained.

In the first paragraph «Objectives, tasks and hypotheses» of research, the purpose, objectives, hypotheses, methods, stages and procedure of the study are formulated, and its empirical base is described.

The study was conducted in several stages:

*Stage I (2017):* a theoretical analysis of the literature, a program of empirical research was developed and research methods were selected.

*Stage II (2017-2018):* a pilot experiment was conducted with the study of situational premises and the testing of the modified task according to the type of “prisoner`s dilemma” (n = 50). Also, a basic empirical study was conducted with the study of personal and situational factors of the decision-making process.

*Stage III (2019):* Conduct a quantitative and qualitative analysis of the data obtained in the study.

**The empirical base** of the study consisted 208 subjects, including 123 women and 85 men (students of Russian universities) aged 18 to 25 years (M - 22 years old, SD - 1.9).

The second paragraph, “Methods and Procedures for Empirical Research,” describes design of an experimental study based on the modified “prisoner`s dilemma” model, and describes the methods used.

To test the hypotheses put forward, an experiment was conducted the modified “prisoner`s dilemma” was used. This model has four possible outcomes, corresponding to either a cooperation strategy or a confrontation strategy. The following techniques were also used:

1. *A Five-Factor Personality Questionnaire* adaptation by A.B. Khromov (scales: extroversion-introversion, agreeableness- antagonism, emotional instability-emotional stability; self-control-impulsivity, openness to experience-practicality; 2000).

2. *Melbourne Decision-Making Questionnaire* by T.V.Kornilova (scales: vigilance, avoidance, procrastination and supervigilance, 2013).

3. *The Dark Triad Questionnaire* (tested by T.V.Kornilova, S.A.Kornilov, M.A.Chumakova, M.S.Talmach, 2015) includes machiavellianism, narcissism and psychopathy scales (approbation of the Dark Dozen questionnaire by Paulhus D.L., Williams K.M.).

4. *The method of assessment of trust-distrust of the person to other people* by A.B.Kupreychenko (2008). The method allows determining the criteria of trust-distrust to other people. The method presents five symmetrical scales: reliability, knowledge, liking, unity, estimation, and disadvantages.

5. *Scales of positive affect and negative affect* for the diagnosis of individual emotional state (E.N.Osin, 2012).

By randomization all respondents were divided into four groups of 52 people: one control and three experimental groups to study the influence of situational factors, namely positive and negative affective factors and time pressure. In groups all participants were randomly divided into pairs. All

participants did not know each other and were introduced only before the start of experiment.

To study the process of choosing strategies in all groups was the following experimental design.

*In the control group (n = 52):*

1. Make a decision in the "prisoner's dilemma".
2. After selecting the outcome, each participant was asked to fill out the following questionnaires: "Five-factor personality questionnaire", "Melbourne decision-making questionnaire", "Dark Triad" questionnaire, and "Assessment of trust - personal distrust of other people" questionnaire.

*In the first and second experimental groups with the induction of a negative (n = 52) or positive (n = 52) emotional state:*

1. Filling out the "Positive and Negative Affect Scale" questionnaire to control the emotional state before emotion induction.
2. View the video corresponding to a specific valency.
3. Make a decision in the "prisoner's dilemma".
4. Filling out the questionnaire "Scale of positive and negative affect" to control the emotional state after induction.
5. Filling out the questionnaires: "Five-factor personality questionnaire", "Melbourne decision-making questionnaire", the "Dark Triad" questionnaire and the questionnaire "Assessment of trust - personal distrust of other people".

*In the third experimental group with a time pressure (n = 52):*

1. Make a decision in the task "prisoner's dilemma" with a time limit (1.5 minutes). The exposure was controlled by the experimenter.
2. Filling out the questionnaires: "Five-factor personality questionnaire", "Melbourne decision-making questionnaire", the "Dark Triad" questionnaire and the questionnaire "Assessment of trust - personal distrust of other people".

**The third paragraph** presents the results of testing research hypotheses, as well as an analysis and discussion of the results.

The third paragraph contains the calculations of reliability-consistency common for the whole study, descriptive statistics, checking the distribution of the results obtained for normality, and others.

In accordance with the hypotheses put forward, three investigations were conducted.

**Investigation 1** “Features of the simultaneous influence of situational and dispositional prerequisites for choosing interaction strategies under condition of uncertainty” is based on the construction of a binomial regression model, due to which significant dispositional and situational predictors of the interaction strategy choice can be determined. The situational prerequisites in the form of a time pressure and emotional state, positive and negative, are considered as predictors. Dispositional factors obtained in the results of factor analysis: trust factor, anxiety factor, self-regulation factor, psychopathy factor, machiavellianism factor, factor emotional attitude.

According to the matrix of prediction errors, the obtained prognostic model more accurately predicts the choice of a confrontation strategy, which allows us to talk about its working ability to classify and highlight interaction strategies. The likelihood of a mistake confrontation strategy for a cooperation strategy is also minimal. However, the results show that the probability of adopting a cooperation strategy as a confrontation strategy is quite high, which justifies the need for a more detailed consideration of the premises for cooperation strategy choice.

According to the results of the regression model, *significant situational predictors* of the interaction strategies choice are time pressure and emotional state; significant *dispositional predictors* are the factor of trust and the factor of self-regulation. In addition, with simultaneous influence the interaction of time pressure and anxiety factor turned out to be a significant predictor. Therefore, the main hypothesis of the study is confirmed.

The effect size of each significant predictor was estimated.

**Table 1. Evaluation of the effect size situational and dispositional predictors of interaction strategies choice**

<b>Predictors</b>	<b>Effect size (r)*</b>
Disposition factor of self-regulation	0,50
Situational factor: emotional state	0,46
Dispositional trust factor	0,35
The interaction of time pressure and dispositional anxiety factor	0,24
Situational factor: time pressure	0,01

According to the results of evaluating the effect size it is impossible to say unequivocally that one of the studied situational prerequisites is more likely to influence on interaction strategies choice, which was assumed in accordance with our hypothesis. The results obtained indicate that the dispositional factor of self-regulation and the emotional state have almost the same effect size.

The situational premise of time pressure has a rather low effect size in comparison with other significant predictors of the choice of interaction strategies. But, when a dispositional anxiety factor appears in combination with it, the size of the effect in the situation of interaction of these two predictors increases significantly. Therefore, the particular hypothesis that situational prerequisites make a greater contribution to the choice of interaction strategies than dispositional prerequisites was partially confirmed, since, according to the results obtained, the dispositional factor of self-regulation and the emotional state as a situational factor have almost identical indicators of the size of the effect.

**Investigation 2** is based on an analysis of the probability of choosing a collaboration interaction strategy under the influence of situational prerequisites: time pressure and emotional state.

This block shows the general quantitative indicators of the strategies choice in the control and each experimental group, and also presents the results of the PANAS methodology before and after the affective factor. This block ends with an analysis of the probability cooperation strategy choice under the influence of

situational factors. It was found that the hypothesis about the influence of situational assumptions on the prognostic decision about the interaction strategies choice is confirmed. Time pressure and induction of negative emotions decreases the probability of choosing cooperation strategies, induction of positive emotions increases the probability of choosing a cooperative strategy.

After that, possible explanations of the obtained results are given in Investigation №1 and Investigation №2 based on the work of other researchers (Asmolov, 2017; Astapov, 2011; Veiten, Lloyd, 2002; Kornilova, Chumakova, 2016; Anderson, Thompson, 2004; Druckman, 1994, Chuang, Lin, 2007; Forgas, Cromer, 2004; Mosterd, Rutte, 2000).

It is important to note separately that the interaction of the situational factor as time pressure and the dispositional anxiety factor can be considered from the point of view of dynamic interaction (Kornilova, 2011). When situational factor appears dispositional trait is activated, that is, when a time pressure occurs the inclusion of such a dispositional factor as an anxiety factor.

**Investigation 3** includes a correlation analysis of dispositional premises (personality traits of the “Big Five”, “Dark Triad”, criteria of trust according to the model of A.B.Kupreichenko, as well as personal decision-making strategies such as vigilance, hypervigilance, procrastination and avoidance of T.V.Kornilova) and the probability of choosing a collaboration strategy obtained as a result of building a binomial regression model in Investigation 1.

As the correlation analysis show, there is a positive relationship between the probability of cooperation strategy choice and such personality variables as “Open to experience” ( $r = 0.213$  at  $p = 0.02$ ), “Consciousness” ( $r = 0.518$  at  $p < 0.00$ ), “Affection” ( $r = 0.245$  at  $p < 0,000$ ) and “Calculation” ( $r = 0.167$  at  $p < 0,016$ ). A negative relationship was found with personality variables such as Machiavellianism ( $r = -0.133$  at  $p < 0.05$ ), Vigilance ( $r = -0.158$  at  $p < 0.05$ ), and Disadvantage ( $r = -0.265$  at  $p < 0.01$ ).

Thus, the third hypothesis about the connection of dispositional premises with the probability of choosing a cooperation strategy was partially confirmed.

According to the hypothesis, a positive relationship was found with variables such as consciousness and affection as one of the criteria for trust, and a negative relationship was found with such a variable as vigilance and Disadvantage as one of the criteria of trust, as well as with machiavellianism as a personality trait from the Dark Triad model. After a description of the results, possible explanations are given based on the work of other researchers (Kornilova, 2013; Kupreychenko, 2008; Khromov, 2000; Al-Ubaydli, Jones, Weel, 2016; Deutchman, Sullivan, 2018; Crysel, Crosier, Webster, 2013; Jones , De Roos, 2017; Hardin, 2003; Hirsh, Peterson, 2009; Kagel, McGee, 2014; Lönnqvist, Verkasalo, Walkowitz, 2011; Volk, Thöni, Ruigrok, 2012).

According to the results obtained in the experimental study of the dispositional and situational factors for interaction strategies choice in situations of the prisoner's dilemma type, the **following conclusions** can be drawn:

1. Situational and dispositional premises can be considered as regulatory prerequisites for making a prognostic decision on the choice of interpersonal interaction strategies in a situation like the "prisoner`s dilemma".

2. Time pressure and changes emotional state are predictors of the interaction strategies choice. In particular, time pressure and a negative emotional state increase the probability of choosing a confrontation strategy, and a positive emotional state increases the probability of choosing a cooperation strategy.

3. Significant dispositional prerequisites for choosing interaction strategies are the factor of trust and the factor of self-regulation. High rates of these dispositional premises increase the probability of choosing a cooperation strategy.

4. With the combined influence of situational and dispositional premises a significant predictor is the interaction of time pressure and anxiety factor. With a time pressure and a high level of anxiety increases the probability of choosing a confrontation strategy.

5. Significant dispositional and situational prerequisites are almost equally likely to become leading predictors of the interaction strategies choice. Such significant predictors are the factor of self-regulation and emotional state.

6. Such dispositional prerequisites as openness to new experience, consciousness, affection and calculation as criteria of trust have a positive relationship with the choice of a cooperation strategy when making a prognostic decision. Such dispositional prerequisites as machiavellianism, vigilance and disadvantage as a criterion of trust are connected with the choice of a confrontation strategy.

The study has several **limitations**. We can note the design of the experiment, as well as the specifics of the organization of the procedure for the experimental impact of situational factors.

The results of the induction of a negative and positive emotional state could be distorted in connection with the initial emotional state of the subjects, despite the use of a special technique that controls the emotional state of the subjects before and after exposure to the factor. On the other hand, the video material used may not have the necessary effect on the emotional state of the subjects, for example, in the case of indicating positive emotions.

Another important limitation in the scheme of the organization of the experiment is the issue related to the remuneration of subjects for participation in the experiment, which is significant in the context of motivation for their participation. A related limitation is that in the “prisoner dilemma” problem, the conditional payment was used as the gain (payment for the choice of outcome) rather than real monetary units, which could also affect the inclusion of the subjects and the results of choosing strategies.

Among the prospects for further research, the following areas can be noted:

1. The study of the simultaneous influence of personal and situational prerequisites for the choice of interaction strategies under condition of uncertainty on the example repeated “prisoner dilemma”.

2. The study of the characteristics of the interaction strategies choice under the influence of situational prerequisites on the example of the “prisoner dilemma” from the point of view of building trust between opponents in the course of a multi-part game.

3. The expansion of possible personal prerequisites for choosing interaction strategies in the situation of the “prisoner dilemma”, namely, the study of the influence of cognitive decision-making variables.

## Literature

1. *Abul'hanova Slavskaya K.A.* Lichnostnyj aspekt problemy obshcheniya // Problema obshcheniya v psikhologii. M.: 1989. s. 110–134.
2. *Antonenko I.V.* Obzor issledovanij po probleme doveriya // Social'-nyj psiholog. 2003. № 1. s. 26–35.
3. Anokhin P.K. Emotsii // Psikhologiya emotsiy. Teksty / Sostav.: Yu. B. Gippenreyter i V.K. Vilyunas. — Moskva: Izd-vo MGU, 1984. — s. 173. — 288.
4. *Asmolov A.G.* Modern Psychology: Challenges of Uncertainty, Complexity and Diversity // Psychol. researched 2015. V. 8. No. 40 (1).
5. *Astapov V.M.* A functional approach to the study of anxiety // Anxiety and anxiety. St. Petersburg: Peter, 2011. s.156-165.
6. *Bolotova A.K.* Chelovek i vremya v poznanii, deyatel'nosti, obshchenii. – M.: Izdatel'skiy dom GU-VShE, 2007.
7. *Brushlinskiy A.V.* Myshlenie i prognozirovanie. M.: Mysl', 1979.
8. *Brushlinskiy A.V., Tikhomirov O.K.* O tendentsiyakh razvitiya sovremennoy psikhologii myshleniya // natsional'nyy psikhologicheskij zhurnal. 2013. №2(10). s.10-16.
9. *Veselov Y.V.* Transformaciya doveriya v rossijskom/sovetskom obshche-stve // Ekonomika i sociologiya doveriya / Pod red. YU.V. Veselova. – SPb.: Sociol. ob vo im. M.M. Kovalevskogo, 2004. s. 109–134.
10. *Veyten U., Lloyd M.* Stress i ego efekty/ Obshchaya psikhologiya. Teksty/ pod red. V.V.Petukhova. M.: UMK «Psikhologiya»; Genezis, 2002.T.», kn.1. s. 501-542.
11. *Gordeeva N.D.* Situativnaya neopredelennost' kak faktor izmeneniya funkcional'noj struktury serijnyh dejstvij / N.D. Gordeeva // Sb.: Tolerantnost' k neopredelennosti v psikhologii / Trudy kafedry obshchej eksperimental'noj psikhologii GU-VSHE. – M., 2007.
12. *Derner D.* Logika neudachi. M.: Smysl, 1997.

13. *Zhuravleva L.A.* Svyaz' obshchitel'nosti lichnosti i doveriya k lyudyam: Dis. ... kand. psihol. nauk. M., 2004.
14. *Zeigarnik B.V.* Teoriya lichnosti K. Levina. — M.: Izd-vo Mosk. un-ta, 1981. — s.18—32, 43—51.
15. *Zinchenko V.P.* Tolerantnost' k neopredelennosti: novost' ili psihologicheskaya tradiciya? /V.P. Zinchenko / CHelovek v situacii neopredelennosti / Gl. red. A.K. Bolotova. M.: TEIS. 2007. - s. 9-33.
16. *Zinchenko V.P.* Psihologiya doveriya // Vopr. filosofii. 1998. № 7. s. 76–93.
17. *Zinchenko O.O.* Neyrobiologicheskie mekhanizmy sotsial'nogo nakazaniya kak regulyatora kooperatsii//Rezyume dissertatsii na soiskanie uchenoy stepeni kandidata psikhologicheskikh nauk NIU VShE. M, 2019.
18. *Karas' L.Y.* Sistemnyj analiz i prinyatie reshenij v deyatel'nosti menedzhera. — M., 1996.
19. *Kaneman D.* Dumaj medlenno..., reshaj bystro: [per. s angl.]. M.: AST, 2013.
20. *Kaneman D., Slovik P., Tverski A.* Prinyatie reshenij v neopredelennosti: Pravila i predubezhdeniya. – Har'kov: Izdatel'stvo Institut prikladnoj psihologii «Gumanitarnyj Centr», 2005. – 632 s.
21. *Karpov A.V.* Psihologiya prinyatiya reshenij v professional'noj deyatel'nosti // YAroslavl': YArGU., - 1991, s.153.
22. *Karpov A.V., Karpov A. A. Markova E.V.* Psihologiya prinyatiya resheniya v upravlencheskoj deyatel'nosti. Metasistemnyj podhod. – YAroslavl': YArGU; M.: Izd. dom RAO, 2016. – 644 s.
23. *Klucharev V.A., Zubarev I.P., Shestakova A.N.* Neurobiological mechanisms of social influence. Eksperimental'naâ psihologiâ = Experimental Psychology (Russia), 2014. Vol. 7, no. 4, pp. 20–36. (In Russ., abstr. in Engl.).
24. *Klucharev V.A., Smidts A., Shestakova A.N.* Neuroeconomics: the neurobiology of decision-making . Eksperimental'naâ psihologiâ = Experimental Psychology (Russia), 2011. Vol. 4, no. 2, pp. 14–35. (In Russ., abstr. in Engl.).
25. *Kozeleckij Y.* Psihologicheskaya teoriya reshenij. M.: Progress, 1979.
26. *Kozeleckij Y.* CHelovek mnogomernyj. Kiev: Lybed', 1991.

27. *Kornilova T.V.* Mel'burnskij oprosnik prinyatiya reshenij: russkoyazychnaya adaptaciya // *Psihologicheskie issledovaniya*. 2013. T. 6, № 31. s. 4.
28. *Kornilova T.V.* Princip neopredelennosti: osnovaniya i problemy // *Psihologicheskie issledovaniya*, 2010b, No3 (11).
29. *Kornilova T.V.* Psihologiya riska i prinyatiya reshenij. – M.: Aspekt Press, 2003.
30. *Kornilova T.V.* Dinamicheskoe funktsionirovanie intellektul'no-lichnostnogo potentsiala cheloveka v psikhologicheskoy regulyatsii resheniy i vyborov / *Vestnik Moskovskogo universita*. Ser. 14. №1. 2011. s. 66-78.
31. *Kornilova T.V., Kamenev I.I.* Prinyatie intellektual'nyh reshenij v usloviyah neopredelennosti / *T.V. Kornilova, I.I. Kamenev // Vestn. Mosk. Uni-ta Ser. 14, Psihologiya*. 2002. - №2. - s. 24-36.
32. *Kornilova T.V., Kamenev I.I., Stepanosova O.V.* Motivatsionnaya regulyatsiya prinyatiya resheniy// *Vopr. psikhol.* 2001. № 6. s. 55–65.
33. *Kornilova T.V., Kornilov S.A., Chumakova M.A., Talmach M.S.* Metodika diagnostiki lichnostnykh chert «Temnoy triady»: aprobatsiya oprosnika «Temnaya dyuzhina»/ *Psikhologicheskiy zhurnal*, 2015. T.36. №2. s.99-112.
34. *Kornilova T.V., CHigrinova I.A.* Stadii individual'noj morali i prinyatie neopredelennosti v regulyacii lichnostnyh vyborov // *Psihologicheskij zhurnal*. 2012. T. 33. № 2. s. 69–87.
35. *Kornilova T.V., CHumakova M.A., Kornilov S.A., Novikova M.A.* Psihologiya neopredelennosti: Edinstvo intellektual'no-lichnostnogo potentsiala cheloveka. – M.: Smysl, 2010.
36. *Kuprejchenko A.B.* Psihologiya doveriya i nedoveriya// M.: Izd-vo «Institut psihologii RAN», 2008 – s.564.
37. *Lomov B.F.* Matematika i psihologiya v izuchenii processov prinyatiya reshenij / V kn.: *Normativnye i deskriptivnye modeli prinyatiya reshenij / Pod red. B.F. Lomova i dr.*. M.: Nauka, 1981. s. 5–20.
38. *Larina A.D.* Podhody, ustanovki i perspektivy v issledovanii makiavellizma // *Voprosy psihologii*. 2010. № 3. s. 75–83.
39. *Leont'ev A.N.* Potrebnosti, motivy i emocii /*A.N. Leont'ev*. – M., 1971 – 40 s.

40. *Leont'ev D.A.* Psihologiya vybora. CHast' II. Lichnostnye predposylki i lichnostnye posledstviya vybora // Psihologicheskij zhurnal/ Red. A.L. ZHuravlev. – 2014. – Tom 35 №6, 2014. – s. 56-68.
41. *Leont'ev D.A., Fam A.H.* Kak my vybiraem: struktury perezhivaniya sobstvennogo vybora i ih svyaz' s harakteristikami lichnosti// Vestn. Mosk. Unta. Ser.14. Psihologiya. 2011. №1. s.39-53.
42. *Leont'ev D.A., Pilipko N.V.* Vybor kak deyatel'nost': lichnostnye determinanty i vozmozhnosti formirovaniya // Vopr. psihologii. 1995. № 1. S. 97—110.
43. *Nartova-Bochaver S.K.* CHelovek suverennyj: psihologicheskoe issledovanie sub"ekta v ego bytii — Sankt-Peterburg: Piter, 2008. — 400 s.
44. *Osin E.N.* Izmerenie pozitivnyh i negativnyh emocij: razrabotka russkoyazychnogo analoga metodiki PANAS//Psihologiya. ZHurnal Vysšej shkoly ekonomiki, 2012, T.9, №4, s.91-110.
45. *Olport G.* Stanovlenie lichnosti: Izbrannye trudy / [Per. s angl. L. V. Trubitsynoy i D. A. Leont'yeva]; pod obshch. red. D. A. Leont'yeva. M.: Smysl, 2002.
46. *Podd'yakov A.N.* Reshenie kompleksnyh zadach // Kognitivnaya psihologiya: Uchebnik dlya vuzov / Pod red. V.N.Druzhinina, D.V.Ushakova. M.: PER SE, 2002. s. 225-233.
47. *Ross L., Nisbett R.* CHelovek i situaciya. Perspektivy social'noj psihologii / Per. s angl. V. V. Rumynskogo pod red. E. N. Emel'yanova, B. C. Maguna — M.: Aspekt Press, 1999. — 429 s
48. *Sajmon G.* Racional'nost' kak process i produkt myshleniya // Al'manah THESIS. Mir cheloveka. 1993. №5. s. 16–37.
49. *Skripkina T.P.* Doverie kak social'no psihologicheskoe yavlenie: Dis. dokt. psihol. nauk. Rostov, 1998.
50. *Skripkina T.P.* Kategoriya doveriya v social'nyh naukah. Osnovnye polozheniya koncepcii social'nogo kapitala // Doverie v social'-no psihologicheskom vzaimodejstvii: Kollektivnaya monografiya / Pod red. T.P. Skripkinoy. Rostov n/D: Izd vo RGPU, 2006. s. 51–54.

51. *Simonov P.V.* Emotsional'nyy mozg. — M.: Nauka, 1981. — s. 20.
52. *Tihomirov O.K.* Prinyatie resheniya kak psihologicheskaya problema// Problemy prinyatiya resheniya: M.: Nauka, 1976. s. 77-82.
53. *Hekkhauzen H.* Motivaciya i deyatel'nost'. M.: Pedagogika, 1986 – 408 s.
54. *Hromov A.B.* Pyatifaktornyj oprosnik lichnosti: Uchebno-metodicheskoe posobie Kurgan: Izd-vo Kurganskogo gos.universiteta, 2000. –23 s.
55. *SHadrikov V.D.* Psihologiya deyatel'nosti cheloveka. M.: Institut psihologii RAN, 2013.
56. *SHadrikov V.D.* Problemy sistemogeneza professional'noj deyatel'nosti [Tekst]/V.D. SHadrikov. – M.:Logos, 2007. – 192 s.
57. *Yadov V.A.* O dispozitsionnoj regulyatsii sotsial'nogo povedeniya lichnosti // Metodologicheskie problemy sotsial'noy psikhologii. M., 1975.
58. *Agor W.H.* The logic of intuitive decision making. Westport, CT: Quorum books, 1986.
59. *Aktipis C.A.*, 2011. Is cooperation viable in mobile organisms? Simple walk away rule favors the evolution of cooperation in groups. *Evol. Hum. Behav.* 2011. 32, p. 263– 276.
60. *Anderson C., Thompson L.* Affect from the top down: how powerful individuals positive affect shapes negotiations. 2004. p.379.
61. *Axelrod S., May J.* Effect of increased reward on the two-person non-zero-sum game. *Psychol. Rep.*, 1968.
62. *Axelrod R., Hamilton W.D.* The Evolution of Cooperation. *Science.* 1981. p.1390—1396.
63. *Al-Ubaydli O., G.Jones, J. Weel.* Average player traits as predictors of cooperation in a repeated prisoner's dilemma, *Journal of Behavioral and Experimental Economics.* 2016. 64. p. 50–60.
64. *Allred K., Mallozzi J., Matsui F, Raia C.* The influence of anger and compassion on negotiation performance. *Organ. Behav. Hum. Decis. Process.* 1997. 70(3). p. 75–87.

65. *Bargh J.A.* Attention and automaticity in the processing of self-relevant information. *Journal of Personality and Social Psychology* 1982. 43(3). p. 425–436.
66. *Baker J.* Trust and rationality // *Pacific philosophical quarterly*. 1987. Vol. 68.
67. *Baier A.* Trust and antitrust // *Ethics*. 1985. V. 96. p. 231 – 260.
68. *Busemeyer J.R.* Decision making under uncertainty: a comparison of simple scalability, fixed-sample, and sequential-sampling models. *Journal of Experimental Psychology: Learning, Memory, and Cognition*. 1985. p.538–564.
69. *Burka J.B., Yuen L.M.* Procrastination: Why You Do It What to Do about It. Cambridge, MA: Da Capo Press.1983.
70. *Burlando R., Guala F.* Heterogeneous Agents in Public Goods Experiments// *Experimental Economics*. 2005. 8(1). p.35-54.
71. *Blair I.V., Banaji M.R.* Automatic and controlled processes in stereotype priming. *Journal of Personality and Social Psychology*. 1996. 70(6). p. 1142–1163.
72. *Bragger J., Bragger D.* Hysteresis and uncertainty: The effect of uncertainty on delays to exit decisions / J. Bragger, D. Bragger, D. Hantula, J. Kirnan // *Organizational Behavior and Human Decision Processes*. 1998. V. 74. №3. p. 229-253.
73. *Bernulli D.* Exposition of a new theory on the measurement of risk // *Econometrica*. 1954. V. 22. P. 23-36. (Original work published in 1738).
74. *Camerer C.F.* Behavioral game theory: Experiments in strategic interaction// New York, NY, US: Russell Sage Foundation, 2003.
75. *Chen J.Q., Lee S.M.* An exploratory cognitive DSS for strategic decision making. Herberger College of Business, 3. 2003. p.147-160.
76. *Curry O., Chester M.J., Viding E.* The psychopath's dilemma: the effects of psychopathic personality traits in one-shot games. *Pers. Individ. Differ.* 50. 2011. p. 804–809.

77. *Chuang S.C., Lin H.M.* The effect of induced positive and negative emotion and openness to feeling in student's consumer decision making. *Journal of Business and Psychology*. 22. 2007. p. 65-78.
78. *Cuperman R., Ickes W.* Big Five predictors of behavior and perceptions in initial dyadic interactions: Personality similarity helps extraverts and introverts, but hurts "disagreeables". *Journal of Personality and Social Psychology*. 97. 2009. p.667-684.
79. *Costa P.T., McCrae R.R.* Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological Assessment*, 1992. 4(1). 5-13.
80. *Colosio M., Rybina E.P., Shestakova A.N., Klucharev V.A.* Neural Mechanisms Of Post-Decisional Spreading Of Alternatives// *Psychology*. *Journal of the Higher School of Economics*. 2018. Vol. 15. N 3. P. 606-614.
81. *Crysel L., Crosier B.S., Webster G.D.* The Dark Triad and risk behavior // *Person. and Individ. Diff.* 2013. V. 54(1). P. 35–40.
82. *Crockett M.J.* Models of morality//*Trends in Cognitive Sciences*, 17(8), 2013, p. 363-366.
83. *Crockett M.J., Kurth-Nelson Z., Siegel J.Z., Dayan P., Donalán R.J.* Harm to others outweighs harm to self in moral decision making// *Proc Natl Acad Sci USA*. 2015. vol.112. no. 4.
84. *De Cremer D., van Knippenberg D.* Cooperation as a function of leader self-sacrifice, trust, and identification. *Leadership & Organization Development Journal*, 2005. Vol. 26 No. 5, p. 355-369.
85. *Deutchman P, Sullivan J.* The Dark Triad and framing effects predict selfish behavior in a one-shot Prisoner's Dilemma// *PLoS ONE*. 13(9). 2018.
86. *Druckman D.* Determinants of compromising behavior in negotiation: a meta-analysis. *Journal of Conflict Resolution*. 1994. 38. P. 507-556.
87. *Engel C.* Dictator games: a meta study// *Experimental Economics*, 2011. Volume 14. Issue 4. pp. 583–610.
88. *Digman J.M.* Personality Structure: Emergence of the Five-Factor Model //*Annual Review of Psychology*. 1990. 41:1. p.417-440.

89. *Feari J.R., Wolfe N.R., Wesley J.C., Schoff L.A., Beck B.L.* Ego-identity and academic procrastination among university students// *Journal of College Student Development*, 1995, vol 36. No 4, p.361-367.
90. *Fisher R., Ury W., Patton B.* *Getting to Yes: Negotiating Agreement without Giving In*, 2nd ed., Houghton Mifflin.1991.
91. *Furnham A., Richards S.C., Paulhus D.L.* The Dark Triad of Personality: a 10-year review // *Social and Personality Psychology Compass*. 2013. V. 7(3). P. 199–216.
92. *Forgas J.* On feeling good and getting your way. *J. Personal. Soc. Psychol.*, 1998.
93. *Forgas J.P., Cromer M.* On being sad and evasive: affective influences on verbal communication strategies in conflict situations. *J. Exp. Soc. Psychol.* 40(4), 2004, p.511–518.
94. *Ferguson E., Heckman J.J., Corr P.* (Eds). Special issue on personality and economics. *Personality and Individual Differences*, 51(3), 2011.
95. *Gilboa I.* *Theory of decision under uncertainty* / Cambridge University Press 2009.
96. *Grinberg M., Hristova E., Lalev E.* Models for cooperative decisions in prisoner's dilemma. *Advances in Cognitive Systems*. IET: London. 2010.
97. *Govier T.* Is it a jungle out there? Trust, distrust, and the construction of social reality // *Dialogue*.1994. V. 33. P. 237 – 252.
98. *Goldstein W.M., Hogarth R.M.* Judgment and decision research: Some historical context / In: *Research on judgment and decision making. Currents, Connections, and Controversies* / Ed. H. Goldstein. Cambridge University Press, 1997. P. 3–65.
99. *Goldberg L.R.* The structure of phenotypic personality traits. *American Psychologist*. 1993. 48(1). p.26-34.
100. *Greene J. D., Nystrom L. E., Engell A. D., Darley J. M. and Cohen J. D.* The neural bases of cognitive conflict and control in moral judgment // *Neuron*. 2004. No 44. P. 389–400.

101. *Haidt J.* The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*. 2001. 108(4). P. 814–834.
102. *Hardin R.* Gaming trust. In E. Ostrom & J. Walker (Eds.), *Trust and reciprocity: Interdisciplinary lessons from experimental research*. 2003 pp. 80-101.
103. *Hirshleifer D, Rasmusen E.* Cooperation in a repeated prisoners' dilemma with ostracism. *Journal of Economic Behavior & Organization* 12 (1). 1989. P. 87-106.
104. *Hirsh J., Peterson J.* Extraversion, neuroticism, and the prisoner's dilemma// *Personality and Individual Differences*. 2009. Vol. 46. p. 254-256.
105. *Hosmer L.T.* Trust: the connecting link between organizational theory Philosophical Ethics the *Academy of Management Review*. 1995. Vol. 20, No. 2.
106. *Jones D.N., Paulhus D.L.* The role of impulsivity in the Dark Triad of personality. *Personality and Individual Differences*. 2011. 51. p.670–682.
107. *Jones D.N., Paulhus D.L.* Different provocations trigger aggression in narcissists and psychopaths // *Social Psychological and Personality Science*. 2010.V.1. p. 12–18.
108. *Jones D.N., De Roos M.S.* Machiavellian flexibility in negative mate retention. *Personal Relationships*. 24. 2017. p.265–279.
109. *John O.P., Srivastava S.* The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. *Handbook of personality: Theory and research* //New York, NY, US: Guilford Press, 1999, pp. 102-138.
110. *Jeheil P.* Anlogy-based expectation equilibrium. *J. Econom. Theory*. 2005. 123. p. 81–104.
111. *Kahneman D., Tversky A.* Prospect theory: an analysis of decision under risk // *Econometrica*. 1979. № 47. p. 263-291.
112. *Kahneman D., Knetsch J., Thaler R.* Fairness as a Constraint on Profit Seeking: Entitlements in the Market. *The American Economic Review*. 1986. 76(4). p. 728-741.

113. *Kahn L.M., Murnighan J.K.* Conjecture, uncertainty, and cooperation in prisoner's dilemma games. Some experimental evidence. *Journal of Economic Behavior and Organization*. 1993. 22(1).p.91-117.
114. *Kagel J., McGee P.* Personality and cooperation in finitely repeated prisoner's dilemma games», *Economics Letters*. 2014. 124. p. 274–277.
115. *Kurokawa S.* Three-player repeated games with an opt-out option// *Journal of Theoretical biology*. 2019. 480. p.13-22.
116. *Kollock P.* Social dilemmas: The Anatomy of Cooperation // *Annu. Rev. Sociol.* 1998. Vol. 24.p.183–214.
117. *Kollock P.* The Emergence of Exchange Structures: An Experimental Study of Uncertainty, Commitment, and Trust.1994.
118. *Koole, S.L., Jager W., van den Berg A.E., Vlek C.A. J., Hofstee W.K.* On the social nature of personality: Effects of extraversion, agreeableness, and feedback about collective resource use on cooperation in a resource dilemma. *Personality and social psychology bulletin*. 2001. 27(3). p.289-301.
119. *Kreps D.M., Milgrom P., Roberts J., Wilson R.* Rational cooperation in the finitely repeated prisoners' dilemma. *J. Econom. Theory*. 1982. 27 (2). p. 245–252.
120. *Kreps D., Milgrom P., Roberts J., Wilson R.* Rational cooperation in the repeated Prisoner's Dilemma. *Journal of Economic Theory*. 1982. 27. p.245-252.
121. *Klaczynski, P.A.* Analytic and Heuristic Processing Influences on Adolescent Reasoning and Decision-Making. *Child Development*. 2001. 72. p. 844-861.
122. *Kornilova T.V., Kornilov S., Chumakova M.V., Talmach M.* The Dark Triad personality traits measure: Approbation of the Dirty Dozen questionnaire. *Psikhologicheskii zhurnal*. 2015, 36. p.99-112.
123. *Lerner J.S., Li Y., Valdesolo P., Kassam K.S.* Emotion and Decision Making. *Annual Review of Psychology*. 2015. Volume 66. p. 799-823.

124. *Lönnqvist J.-E., Verkasalo M., Walkowitz G.* It pays to pay – Big Five personality influences on co-operative behavior in an incentivized and hypothetical prisoner’s dilemma game// *Personality and Individual Differences*, 2011, V. 50(2), p. 300–304.
125. *Lilienfeld S.O., Andrews B.P.* Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations // *Journal of Personality Assessment*. 1996. V. 66. p. 488–524.
126. *Mann L.* Stili decisionali degli adolescenti: La procrastinazione [Adolescents’ decisional style: The procrastination]. In S. Soresi (Ed.), *Orientamenti per l’orientamento*. 2000. p. 67–79.
127. *Mann L., Burnett P., Radford, M., Ford, S.* The Melbourne decision making inventory: an instrument for measuring patterns for coping with decisional conflict. *Journal of Behavioral Decision Making*. 1997. 10. p. 1–19.
128. *Messick D.M., Wilke H., Brewer M.B., Kramer R.M., Zemke P.E., Lui L.* Individual adaptations and structural change as solutions to social dilemmas // *Journal of Personality and Social Psychology*. 1983. Vol. 44. p. 294–309.
129. *Mesko N., Lang A., Andrea C., Szijarto L., Bereczkei T.* Compete and compromise: Machiavellianism and conflict resolution. *International Journal of Conflict Management*. 2014. 11(3). p. 227–247.
130. *Miller J.D., Hyatt C.S., Maples-Keller J.L., Carter N.T., Lynam D.R.* Psychopathy and Machiavellianism: A Distinction Without a Difference. *J-Pers*. 2017.
131. *Mosterd I., Rutte C.G.* Effects of time pressure and accountability to constituents on negotiation. *International Journal of Conflict Management*. 2000. 11(3). p. 227–247.
132. *Neyman A.* Bounded complexity justifies cooperation in the finitely repeated prisoner’s dilemma game. *Econom. Lett.* 1985. 19. p. 227–229.
133. *Parks C.D., Henager R.F., Scamahorn S.D.* Trust and reactions to messages of intent in social dilemmas // *Journal of conflict resolution*. 1996. Vol. 40. p. 134–151.

134. *Paulhus D.L., Williams K.M.* The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 2002, 36, 6(6), p.556–563.
135. *Payne J., Bettman, J., Johnson, E.* Adaptive strategy selection in decision making. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 1988. 14. p. 534-552.
136. *Proto E., Rustichini A., Sofianos A.* Higher Intelligence Groups Have Higher Cooperation Rates in the Repeated Prisoner's Dilemma. Discussion Paper. 2014. No. 8499.
137. *Sabater-Grande, G., Georgantzis N.* Accounting for risk aversion in repeated prisoners' dilemma games: an experimental test. *Journal of Economic Behavior & Organization*. 2002. 48(1). p. 37–50.
138. *Selten R., Stoecker R.* End behavior in sequences of finite repeated prisoner's dilemma supergames: a learning theory approach// *J. Econ. Behav. Organ*, 1986, 7 (1), p.47–70.
139. *Slovic P., Lichtenstein S.* Preference reversals: A broader perspective. *American Economic Review*, 73, 1983, p. 596-605.
140. *Stanovich K., West R.* Individual Differences in Reasoning: Implications for the Rationality Debate. *The Behavioral and brain sciences*, 2000. 23. p. 645.
141. *Steele C.M., Aronson J.* Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 1995. 69(5). p. 797–811.
142. *Volk S., Thöni C., Ruigrok W.* Temporal stability and psychological foundations of cooperation preferences// *Journal of Economic Behavior & Organization*, 2012, 81(2). p. 664–676.
143. *Wang L., Murnighan J. K.* On greed. // *The Academy of Management Annals*, 2011, 5 (1), p. 279–316.
144. *Young D.L., Goodieb A.S., Hallb D.B.* Decision making under time pressure, modeled in a prospect theory framework// *Journal of organizational behavior and human decision process*. 2012. 118. p. 180-188.