

As a manuscript

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Adaptive Functions of Daydream and Daydreaming

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DISSERTATION BASICS

Research relevance

Daydream and daydreaming are among the brightest and, at the same time, the most intimate and hidden from the observer, interior events [Klinger, 1990; McMillan, Kaufman, Singer, 2013; Singer, 1975]. Both in psychological science and in pedagogical practice, a rather negative attitude towards daydream has developed [Klinger, 1990; McMillan, Kaufman, Singer, 2013; Mooneyham, Schooler, 2013; Singer, 1975]. Teachers saw in it the cause of inattention and learning blunders, psychologists often considered daydream as an infantile way to relieve tension and escape from complex reality into fruitless but comforting fantasies [Shibutani, 1969; Starker, 1982].

Thoughts and images born of daydream often accompany external activity and, according to various sources, take up to half of waking hours [Klinger, 1990; McMillan, Kaufman, Singer, 2013; Mooneyham, Schooler, 2013]. However, until recently, there were relatively few experimental works devoted to daydream and daydreaming [Egorova, 2014; Mooneyham, Schooler, 2013; Smallwood, Schooler, 2006]. Thanks to systematic studies of daydream and daydreaming processes carried out in the 1950s by a group of scientists led by J. L. Singer, a number of positive properties of daydream were convincingly shown, which were then confirmed in later studies [Singer, 1955; McCraven, Singer, Wilensky, 1956; Singer, Schonbar, 1961; Singer, Rowe, 1962; Singer, 1975; Antrobus, 1999; Klinger, 1990; McMillan, Kaufman, Singer, 2013; Baird, Smallwood, Schooler, 2011 et al]. But most modern research still considers daydreaming as a source of erroneous actions in an experimental situation and everyday life, as well as a decrease in mood and a deterioration in the emotional state of a person [see, e.g., Mooneyham, Schooler, 2013; Killingsworth, Gilbert, 2010; Smallwood et al. 2003; Smallwood et al., 2007; McVay, Kane, 2009; Smallwood et al., 2009; Soffer-Dudek, Somer, 2018; Somer, 2002 et al]. Meanwhile, the high prevalence of daydreaming and its often-high subjective significance raises a legitimate question for researchers about the adaptive functions of daydream and daydreaming and their role in mental activity regulation. Over the past 20 years, more and more works have appeared demonstrating

the positive role of daydream and daydreaming self-regulation processes. However, studies of their adaptive functions are still insufficient [see, e.g., Mooneyham, Schooler, 2013].

Relevance of the research topic is also related to the fact that daydream, at least in one of its meanings, embodies a person's ideas about happiness. Can having daydream make a person happy? Is it the motivating force that guides a person's choices? Will daydream promote higher levels of psychological well-being and social achievement, or is it just castle building? All these questions still do not have a clear answer. This is largely due to the fact that daydream is not a homogeneous phenomenon. Identification of constructive daydreaming as a special kind of daydreaming directed to the future made it possible to show a number of its positive functions, as well as to confirm its positive relationship with life satisfaction level [Singer, Antrobus, 1963; McMillan, Kaufman, Singer, 2013; Blouin-Hudon, Zelenski, 2016 et al]. At the same time, there are very few studies of constructive daydreaming, creative daydreaming about the future and their impact on human consciousness and activity [McMillan, Kaufman, Singer, 2013, Mooneyham, Schooler, 2013; Yuryeva, 2007].

Daydream and daydreaming, directed to the future, are part of the target determination of behavior. According to a number of researchers, it is the anticipation of future events and the prospect of a personal future that have a significant impact on self-regulation and human behavior in a 'here-and-now' situation [see, e.g., Mandrikova, 2008; Nuttin, 1985; Spagnuolo Lobb, 2013; Levin, 2001; Adler, 1997].

Finally, presence of daydream and daydreaming directed to the future pose new complex tasks for a person that require original solutions. The choice to complicate life and increase psychological stress is increasingly becoming a subject of scientific analysis, since it is a sign of a higher level of personal maturity [Maslow, 2013; Allport, 2002; Fromm, 1990; Frankl, 1990; Vittersø, 2016; Huta, 2016]. Knowledge about positive functions of daydream and daydreaming is in demand in the practice of psychological counseling and psychotherapy, pedagogy, sociology, and many other human sciences and social practices [Singer, 1975; Klinger, 1990].

Despite relevance of studying this topic, theoretical ideas about daydream and daydreaming are generally not correlated with each other and develop separately, within separate approaches. A large number of concepts describing daydream and daydreaming often create terminological confusion, which can lead to lack of clear boundaries of the research area. Until now, results of empirical studies of daydream and daydreaming, which were carried out within cognitive psychology and research on daydream and emotional-motivational sphere, have not been compared with each other. In addition, research of daydream and daydreaming was carried out without taking into account linguistic and cultural specifics, which, in our opinion, has a significant impact on development of theoretical ideas about daydream and daydreaming.

All of the above issues make relevant theoretical analysis and empirical studies of adaptive functions of daydream and daydreaming, directed to the future, in mental activity regulation.

Research objectives

Studying individual characteristics of daydreaming and functions of daydream in mental activity regulation.

Research **object** is constructive daydreaming and daydream, understood as *an image of the desired future, which has value for the subject*.

Research **topic** is adaptive functions of daydream and constructive daydreaming.

Research hypotheses

1. Constructive daydreaming is a special kind of daydreaming that performs a number of adaptive functions in mental activity regulation.
2. There are individual differences in intensity of constructive daydreaming, daydream presence and content.
3. Constructive daydreaming is associated with a higher level of autonomy and experiencing life meaning.
4. Constructive daydreaming is associated with balanced time perspective.
5. Constructive daydreaming is associated with motivation content qualities (self-transcendence values, eudaimonic motivation, intensity and predominance of intrinsic aspirations over extrinsic ones)

6. Constructive daydreaming is associated with higher levels of psychological well-being and lower anxiety and depression levels.
7. In a situation of choice, constructive daydreaming contributes to clarification of personal priorities.

Research problems

1. Analyze existing theoretical concepts and results of empirical studies of daydream and daydreaming process.
2. Develop a theoretical model of the phenomenon of daydream and constructive daydreaming, highlighting their main types and functions.
3. Develop and validate diagnostic methods for studying daydream and daydreaming processes on a Russian-speaking sample.
4. Conduct qualitative analysis of daydream content in adolescents and adults in a Russian-speaking sample.
5. Study adaptive functions of constructive daydreaming in mental activity regulation.

Theoretical and methodological research base is made up by cultural activity approach principles [L.S. Vygotsky, A.N. Leontyev, S.L. Rubinstein, M.B. Teplov, V.A. Petrovsky, D.A. Leontyev]; dynamic personality theory by K. Levin; existential approach ideas [E. Fromm, W. Frankl, S. Muddy]; self-determination theory [E. Deci, R. Ryan]; F. Zimbardo's time perspective model; eudaimonic well-being models [V. Huta, C.D. Ryff, C.L. Keyes].

Research methods and techniques. The following methodological tools were used in the study:

1. Short Imaginal Process Inventory; SIPI [Huba et al., 1982]. The inventory was translated within this study.
2. Mental Health Continuum, Short Form; MHC [Keyes, 2009]. Russian-language validation was performed by E.N. Osin and D.A. Leontyev [Osin, Leontyev, 2020].
3. Self-Determination Scale (SDS) by K. Sheldon [Sheldon, Deci, 1993] adapted and modified by E.N. Osin [Osin, Boniwell, 2010]

4. Aspiration Index (T. Kasser) [Kasser, Ryan, 1993] as adapted by T.O. Gordeeva and E.N. Osin [Gordeeva, Osin, print-ready]
5. Portrait Values Questionnaire – Revised (PVQ-R) by S. Schwartz [Schwartz et al., 2012]
6. Hedonic and Eudaimonic Motives for Activities – Revised (HEMA-R) [Huta, Waterman, 2014] as adapted by Osin et al. [Osin, Voevodina, Kostenko, print-ready]
7. Optimal Time Use Inventory (OTUI) by E.N. Osin and I. Boniwell [Osin, Boniwell, under review]
8. Zimbardo Time Perspective Inventory (ZTPI) by F. Zimbardo [Zimbardo, Boyd, 1999]. The Russian-language version was time-tested by Syrtsova A., Sokolova E.T., Mitina O.V. [Syrtsova, Sokolova, Mitina, 2008].
9. Personal Anxiety Scale by A.M. Prikhozhan, Form B [Prikhozhan, 2000]
10. Scale of Depression as a State by C. Spielberger; adaptation by A.B. Leonova and Y. Karpova [Karpova, 2001]
11. Activity-related Experiences Assessment Scale [Osin, Leontyev, 2017]
12. Subjective Choice Quality Technique [Leontyev, Mandrikova, Fam, 2007; Leontyev et al., 2020].
13. Author's Questionnaire "Qualitative Characteristics of Daydream and Daydreaming" aimed at studying content and conditions for emergence of daydream
14. Author's Questionnaire "Choice Description and Evaluation" aimed at studying choice perception, experience and evaluation.

For processing of quantitative research data, the following were used: descriptive statistics, analysis of variance, correlation analysis (Pearson's correlation coefficients), cluster analysis, linear regression, confirmatory factor analysis, exploratory structural modeling. Qualitative research data were processed using conventional content analysis [Hsieh, Shannon, 2005].

The empirical base of the study is represented by results of four studies conducted in 2014-2020. The total sample size is 1,042 people (of which 180 people are teenagers aged 13 to 16).

In the first series, the study (mixed quantitative-qualitative design) consisted of 460 people (386 women and 74 men) aged 17 to 66 ($M = 34.2$, $SD = 9.97$). Participants completed an online survey on the Webanketa platform, and invitation to participate was distributed through social networks.

The second series of the study (quantitative study) involved 359 people (309 women and 50 men) aged 18 to 72 ($M = 37$, $SD = 10.9$). Participants were tested online on the platform OneClick Survey (1KA), invitation to participate was also distributed through social media.

The third stage of the study (mixed quantitative-qualitative design) involved 180 people (89 girls and 91 boys), students of grades 8-11 of School No. 2114, aged 13-16 ($M = 14.7$, $SD = 1.0$).

The fourth series of the study (mixed qualitative-quantitative design) involved 199 (163 women and 36 men) aged 18 to 64 ($M = 35.7$, $SD = 10.3$). 120 people completed the experimental procedure in the form of an online questionnaire, 79 people – in the format of a conversation with the experimenter. Invitation to participate was distributed through social networks and thematic psychological sites.

Reliability and validity of research results is based on a detailed theoretical review of existing ideas about daydream and daydreaming, analysis of results of empirical research within this topic, a complex program of our own empirical study of daydream and daydreaming, use of diagnostic methods that correspond to research goals and objectives, correct mathematical and statistical and qualitative data processing, comparison of obtained data with given research results and their discussion.

Scientific novelty of research is as follows:

1. Based on literary source analysis, main approaches to the study of daydream and daydreaming process were identified, characterized and correlated with each other.
2. Psychological analysis of daydream phenomenon was carried out taking into account cultural context: detailed comparison of daydream conception in Russian

and English cultures, given contribution of cultural context to development of daydream and daydreaming concepts in science and practice.

3. Psychodiagnostic methodology was developed and validated: Constructive Daydreaming Inventory (adolescent/adult version), Short Imaginal Process Inventory (SIPI) (Russian-language adaptation).
4. A study was made of individual daydreaming characteristics (daydreaming frequency, content, triggering events, etc.) on Russian-speaking adolescent/adults samples.

Theoretical importance of the study lies in theoretical analysis of existing ideas about daydream and daydreaming, as a result of which understanding of daydream and daydreaming in the narrow (future daydreaming, constructive daydreaming) and the broad sense (any spontaneously arising thoughts not related to the actual task) were distinguished. The theoretical model of daydream and constructive daydreaming, their roles and functions in mental activity regulation and their place in ontogenesis was also developed. The paper shows relationship of constructive daydreaming with indicators of self-determination, self-regulation and psychological well-being. An understanding of future daydream and constructive daydreaming as manifestations of personal maturity is proposed.

Practical importance. Conducted empirical research has demonstrated a number of positive properties of daydream and constructive daydreaming, which can be used in the work of helping practitioners, as well as in the practice of teachers who seek to support and develop intrinsic motivation of an individual and reliance on personally significant goals and aspirations. Creation and testing of the Russian-language Inventory for studying individual daydreaming characteristics makes it possible to further study daydream on Russian adolescent/adult samples. Knowledge of the adaptive role of constructive daydreaming sets the task of diagnosing development of daydreaming and formation of daydreaming as an important component of harmonious individual development.

Thesis submitted to defense:

1. Constructive daydreaming is adaptive and plays an important role in processes of mental activity self-regulation. Constructive daydreaming functions: 1) clarifying

one's own life priorities and values (awareness), 2) maintaining motivation (belief in goal achievability and making efforts), 3) orientation in the process of choosing and achieving goals (daydream acts as a criterion of the desired, with which a person correlates their goals and actions)

2. Daydream, being an integrative phenomenon, participates in mental activity regulation in several aspects at once: cognitive (creating a future image), emotional (stress reduction and mood regulation) and motivational (daydream encourages activity aimed at achieving it, daydream serves as a value guide that gives meaning to a person's actions and choices).
3. Individual differences in the nature of daydreaming are associated with individual differences in indicators of well-being and distress in both adults and adolescents: a tendency to constructive daydreaming is associated with higher levels of well-being and lower intensity of negative emotions.
4. Constructive nature of daydreaming and presence of daydream are associated with a number of indicators of effective self-regulation and self-determination: balanced time perspective, more positive forecast regarding achievability of one's own goals, as well as dispositional autonomy of personality.
5. Constructive nature of daydreaming is associated with indicators of motivational sphere development (eudaimonic motivation, self-transcendence values and predominance of internal aspirations over external ones) and is one of manifestations of personal maturity.

Approbation and discussion. Key findings were presented at 3 international research-to-practice conferences: ‘Challenge of Establishing a Research Tradition for Gestalt Therapy, Part Two’ (Cape Cod, 2015), ‘Exploring Practice-Based Research in Gestalt-Therapy’ (Paris, 2017), 4th International Conference on Time Perspective (Nantes, 2018).

Research structure and scope

The dissertation consists of an introduction, two chapters, a conclusion, references including 246 titles, 134 of which are in foreign languages, and 25 appendices. The dissertation text (without the appendices and references) is presented on 183 pages. The dissertation contains 31 tables and 2 figures. The paper’s total amount is 254 pages.

BASIC CONTENT OF THE PAPER

The **Introduction** substantiates relevance of the issue, formulates research object, subject, goal, objectives and hypotheses, describes methods used, theoretical, methodological and empirical bases, determines research novelty, theoretical and practical significance, substantiates reliability of results obtained, and sets out main defense provisions.

The **first chapter ‘Daydream as a psychological research subject’**, which consists of four paragraphs, describes daydream as a cultural phenomenon, provides an overview of main approaches to understanding and defining daydream and daydreaming processes, analyzes empirical research results, and discusses the author's (together with E.N. Osin and N.B. Kedrova) theoretical model of daydream and constructive daydreaming.

In **paragraph 1.1 ‘Daydream as a cultural phenomenon’**, daydream is considered as a cultural phenomenon, whose understanding is inseparable from linguistic and cultural environment in which it arose and is used. The paragraph provides a brief analysis of meanings of ‘daydream’ in Romano-Germanic and Slavic languages. Differences in the understanding and role of daydream in the English-speaking and Russian-speaking cultural fields are discussed. In most European languages, the words ‘daydream’ and ‘sleep’ are homonymous, while in Slavic languages, daydream and sleep are not homonyms [Levitsky et al., 2013]. Sociological researchers, culturologists, and philologists emphasize the special role of daydream in Russian culture and highlight a number of its distinctive features: social orientation of daydream, experiencing gap between daydream and reality, adherence to daydream, the ability of a Russian person to surrender completely and devote oneself to the idea of the common good, sometimes going to extremes in this [Likhachev, 1992; Lotman, 1993; Tikhonova, 2015; Niva, 1995].

Paragraph 1.2 ‘Theoretical models of daydream and daydreaming’ presents a conceptual overview of daydream and daydreaming within various psychological theories and approaches. **Subparagraphs 1.2.1-1.2.5** provide descriptions of concepts that did not contain separate studies of daydream and daydreaming, but had a significant impact on

relevant future research. Ideas about daydream in classical psychoanalysis by Z. Freud are considered [Freud, 2007, 2011; Laplanche, Pontalis, 1996], analytical psychology by K.G. Jung [Jung, 1997], object relations theory by M. Klein [Klein et al. 2001], and transition object theory by D.W. Winnicott [Winnicott, 2002]). The following describes ideas about daydream within K. Levin's dynamic psychology [Levin, 2000, Levin, 2001, Zeigarnik, 1981], D.N. Uznadze [Natadze, 1972], L. Binswanger's existential analysis [Binswanger, 1999, 2014], and S. Maddi's drive theory [Maddi, 1970].

Subparagraphs 1.2.6-1.2.10 discusses main approaches to studying daydream and daydreaming processes, in which daydream and daydreaming have become a special research topic: situational [Singer, 1975; Antrobus, 1999; Klinger, 1990; McMillan, Kaufman, Singer, 2013, Mooneyham, Schooler, 2013], cultural activity [Vygotsky, 1984(a,b), 1991; 1996; Bozovic, 1995; Petrovsky, 1995; Meshcheryakov et al., 2009; Dodonov, 1978; Ilyin, 2011; Rubinstein, 2002; Yuryeva, 2007; Egorova et al., 2018; Egorova, 2014], motivational [Oettingen, 2014; Oettingen, Reininger, 2016; Kappes, Sharma, Oettingen, 2013], possible selves theory [Markus, Nurius, 1986; Kostenko, 2016] and development theory by D.J. Levinson [Levinson, 1978; Kittrell, 1998].

Subparagraph 1.2.6 presents situational approach, in which daydream is understood as part of the flow of thoughts and images that are not related to the main task in a particular experimental situation [Singer, 1975; Klinger, 1999; McMillan, Kaufman, Singer, 2013]. In modern research, the concept of daydreaming is used as a synonym for the concept of mind wandering, and daydream refers to both pleasant fantasies about the future and images of the present and memories of the past, which can be colored by anxiety, guilt, anger, and other negative experiences [Klinger 1990; McMillan, Kaufman, Singer, 2013; Mooneyham, Schooler, 2013; Singer, Schonbar, 1961; Smallwood, Schooler, 2006].

Subparagraph 1.2.7 is dedicated to cultural and activity approach. Here, analysis subject is daydream as a positive image of the desired future, which does not require immediate implementation, daydream genesis, place and functions in mental activity structure [Vygotsky, 1991, 1984(a); Meshcheryakov et al., 2009; Dodonov, 1978; Ilyin, 2011; Rubinstein, 2002; Yuryeva, 2007; Egorova et al., 2018; Egorova, 2014]. If

daydreaming in a broad sense (mind wandering) is typical of all people, then not everyone has formed daydream, related to the future. Constructive daydream creates and motivates new activity, orients and directs a person's activity, brings meaning and emotional coloring to actions, allows one to replay difficult, conflict situations, and creates desired future perspective [Vygotsky, 1984(a), 1991; Dodonov, 1978; Rubinstein, 2002; Yuryeva, 2007].

Subparagraph 1.2.8 discusses mental contrasting concept. According to G. Oettingen, who develops motivational approach to the study of daydream and daydreaming, a positive view of future events is of great importance for exploring possibilities of the future and regulating mood, but without support and connection with reality, remains at fantasy level [Oettingen, 2014].

Subparagraph 1.2.9 presents a description of possible selves theory by H. Markus and P. Nurius [Markus, Nurius, 1986, Kostenko, 2016]. Possible selves are cognitive expression of stable and significant desires, goals, hopes and fears of a person and include both possible desired selves and possible avoided, rejected scenarios for selves' future development.

Subparagraph 1.2.10 is devoted to D.J. Levinson's concept, in which daydream is a key factor in development in both adolescence and adulthood [Levinson, 1978, Kittrell, 1998]. According to the author, daydream formation is a special task of development, which is important for entering adulthood.

Subparagraph 1.2.11 provides comparative analysis of main approaches to the study of daydream and daydreaming based on 5 parameters: 1) a broad or narrow understanding of daydream and daydreaming, 2) an emotional sign of daydream and daydreaming, 3) a description of daydream and daydreaming within the class of mental phenomena (motivational, value), 4) relatedness of daydream and daydreaming in time, 5) arbitrariness and awareness of daydream and daydreaming.

Subparagraph 1.2.12 provides an overview of psychological concepts related to daydream and daydreaming concepts. Within situational approach, these are concepts close to daydreaming: "daydreaming": "mindwandering", "chain of thoughts", "flight of ideas", "outpouring of thoughts", "waking dreams", "reverie", "rumination" [Klinger,

1990, p, 22]. In cultural activity approach, daydream is delimited from goal (daydream is not necessarily feasible and conscious), desire (daydream does not require immediate implementation), reverie (daydream has a motivating force to act) and ideal (daydream does not contain obligations, prescriptions or restrictions) [Leontyev, 1977; Rubinstein, 2002; Meshcheryakov et al., 2009; Ilyenkov, 2020]. Further, daydream and daydreaming concepts are correlated with such psychological concepts as ‘time perspective’ [Levin, 2001, Zeigarnik, 1981], ‘subjective life journey picture’ [Golovakha, Kronik, 1984], ‘life perspective’ [Abulkhanova, Berezina, 2001], ‘prospective goal-setting’ [Arestova, 2000], as well as concepts describing future idea [Nuttin, 1985]: ‘future perspective’ [Lens, Moreas, 1994], ‘future orientation’ [Gjesme, 1996], “needed future” [Bernstein, Feigenberg, 1990], “personal future” [Mandrikova, 2008]. All of the above phenomena are related to daydream by presence of future perspective and possibility of anticipating future events, which is an important mechanism for mental work [Falikman, Pechenkova, 2016]. However, there is a difference: only in daydream, thanks to its fantastic nature, a person gets freedom to go beyond reality limitations and feel, experience to the limit what is of value to them.

Paragraph 1.3 ‘Empirical research on daydream and daydreaming’ provides an overview of results of empirical research on daydream and daydreaming, as well as main methods for their research: daydream story or daydream recording, daydream and daydreaming questionnaires, story telling, projective content analysis, thoughts sampling, daydreaming effect assessment [Klinger, 1990].

Subparagraph 1.3.1 deals with research issues on daydream and daydreaming.

Subparagraphs 1.3.2-1.3.11 provide main methods for studying daydream and daydreaming, results of empirical research on daydreaming, which relate to studying frequency, gender characteristics and content of daydream and daydreaming, daydream types, conditions for daydreaming emergence, the nature of daydreaming across age periods and daydream and daydreaming functions. The issue of connection between daydream, daydreaming and psychopathology, as well as possibility of using daydream and daydreaming in the practice of psychological counseling and psychotherapy is discussed.

Studies of daydreaming frequency confirmed researchers' assumption about high prevalence of daydreaming as a mental life phenomenon. Daydreaming frequency did not differ by gender, IQ level, and education. However, differences were found in daydreaming frequency between ethnic groups and young people living in cities, small suburbs and rural areas [Singer, 1975; Giambra, 1974; Klinger 1990].

Analyzing daydream content, E. Klinger [Klinger, 1990] identified a number of areas that can be defined in mental flow: actual task, daydreams and reflections on actual task, anxious thoughts, sexual fantasies, etc. Research on daydream content on the Russian adult sample showed that that most often subjects daydreamed of material wealth, life in more just and reasonable society, good health, good children, a separate apartment, interesting life and self-realization, good family (sociological study data [Tikhonova, 2015]).

Researchers also found gender differences in daydreaming, greater propensity for a certain type of daydreaming [Singer, 1975], differences in daydream content, their emotional coloring, and occurrence time [Singer, 1975; Levinson, 1978], and a decrease in daydreaming frequency with age [Singer, McCraven, 1961].

Based on results of the review of studies on daydream and daydreaming functions, the following conclusions are formulated: 1) daydreaming is not a homogeneous phenomenon: a special kind of daydreaming is constructive daydreaming, which plays an important role in self-regulation processes (building future perspective, planning long-term goal implementation, emotional regulation, experience comprehension, creativity, reflection, empathy development); 2) daydreaming consequences depend on daydreaming flow and content; 3) daydream and constructive daydreaming integrate the most important motives and values of a person, motivate, orient and direct activity by creating and developing future perspective; 4) daydream and daydreaming influence formation and development of personality, and presence of a holistic image of daydream and constructive daydreaming are considered as basis for future harmonious development of personality [Singer, 1975; Klinger, 1990; McMillan, Kaufman, Singer, 2013; Mooneyham, Schooler, 2013; Immordino-Yang, Christodoulou, Singh 2012; Smallwood,

Schooler, 2006; Smallwood, Ruby, Singer, 2013; Baird, Smallwood, Schooler 2011, Levinson, 1978, etc.].

Research into daydreaming effects on psychopathology development has shown lack of connection between them [Klinger, 1990; Singer, 1975]. On the contrary, use of daydreaming in psychological practice gave positive results in counseling and psychotherapy [Markus, Nurius, 1986; Yuryeva, 2007; Klinger, 1990; Jung, 1997].

In conclusion, main contradictions are formulated in empirical results of research that relate to impact of daydream and daydreaming on emotional state, behavior and psychological well-being. A conclusion is made about heterogeneity of daydream phenomena and need to describe and study daydreaming types, in particular, positive constructive daydreaming, as well as taking into account connection between daydreaming and motivation, which will allow more differentiated approach to empirical data evaluation [Blouin-Hudon, Zelenski, 2016; McMillan, Kaufman, Singer, 2013].

Paragraph 1.4 ‘Theoretical research model’ discusses the author's model of creative daydream and constructive daydreaming.

Subparagraph 1.4.1 deals with daydream and daydreaming definition. Following cultural activity approach ideas [Vygotsky, 1984 (a, b), 1991, 1996; Rubinstein, 2002; Dodonov, 1978; Meshcheryakov et al., 2009; Bozhovich, 1995 et al], daydream is defined by the author as an image of the desired future, which has value for the subject. When daydreaming, a person comprehends themselves and in daydream creates a holistic image, an ideal form of their intentionality. Daydream image integrates the most important values, goals and motives of a person's life path and becomes a special psychological reference point in mental activity structure. Being precisely the ideal project and guideline, daydream has an independent value and does not require immediate and complete implementation. It is associated with deep value experiences and expresses personal integrity. Creative daydream motivates, directs activity and gives meaning and value to a person's actions, emotionally coloring the choice made by them [Egorova, 2014].

Further **subparagraphs (1.4.2-1.4.5)** discuss daydream emergence in ontogeny, daydream content and types, as well as positive functions of daydream and constructive

daydreaming. Presumably, daydream first arises at senior preschool age (5-6 years, so called “life dream”). An assumption is made about connection between daydream contenting not only with frustration situation, but also with personal abilities and sensitivity in any area [Egorova, 2014]. Description is given to 5 daydream and daydreaming types: constructive daydreaming, compensatory daydreaming, hedonistic daydreaming, daydream play and daydream thinking.

In conclusion, positive functions of daydream and constructive daydreaming are discussed: development of intrinsic motivation, personal autonomy, experiencing meaningfulness of one’s life and actions, as well as time perspective. Daydream, performing an orienting function, participates in emotional and value regulation of activity and influences decision-making. Presence of daydream and belief in its usefulness and possibility of achieving it contribute to a higher level of psychological well-being of a person. Constructive daydream is a product of creative daydreaming about the future. It is an adaptive phenomenon that performs a number of positive functions in mental activity regulation.

In the conclusion of the first chapter, theoretical analysis results are summarized and hypotheses of the study’s empirical part are formulated.

The second chapter ‘Empirical study of positive properties of constructive daydreaming’, consisting of six paragraphs, is devoted to results of an empirical study of adaptive functions of daydream and constructive daydreaming: development and testing of Constructive Daydreaming Inventory (CDI) and Short Imaginal Processes Inventory (SIPI) [Huba et al., 1982]), analysis of positive properties of constructive daydreaming, relationship of daydream and constructive daydreaming with psychological well-being level and negative emotion severity, and impact of daydream and constructive daydreaming on choice processes.

Paragraph 2.1 ‘Research program’ describes general logic of empirical research and its stages. Study design is discussed – embedded mixed method design with predominant quantitative strategy [Cresswell, Clark, 2011].

Paragraph 2.2 ‘Testing and validation of the Constructive Daydreaming Inventory. Study of quantitative and qualitative characteristics of daydream and

daydreaming' describes the process and main results of development and validation of the Constructive Daydreaming Inventory (CDI), as well as results of qualitative study of conditions for daydream emergence and content.

Subparagraph 2.2.1 describes the study's objectives, hypotheses, procedure, sample and methodological apparatus. The first study involved 460 people (83.9% of them are women) aged 17-66 ($M = 34.2$, $SD = 9.97$). There were no ethical barriers to including one respondent under the age of 18 in the sample. The paragraph presents 3 methods that were filled in by the respondents.

Subparagraph 2.2.2 describes the process of creating CDI and presents its validation results: structural model definition and verification of the construct validity of CDI.

Structural model definition of the CDI took place in 3 stages. At the first stage ($N=304$), based on theoretical assumptions and cluster analysis results (hierarchical cluster analysis according to the Ward method, the metric is Pearson's correlation coefficient), preliminary inventory structure was identified. The inventory consisted of 32 statements that assessed features of constructive daydreaming on 4 scales: *Daydream Presence* (6 points, $\alpha=0.79$, e.g., 'I like to fantasize and imagine the future'), *Daydream Absorption* (9 points, $\alpha=0.79$, e.g., 'When I daydream, it can be difficult for me to force myself to return to reality'), *Daydream Value* (10 points, $\alpha=0.81$, e.g., 'Daydreaming helps a person find their way in life'), *Daydream Belief* (7 points, $\alpha=0.72$, e.g., 'I feel like my daydream will never come true'). Values of Cronbach's alpha (0.72+) indicated acceptable and high internal consistency of inventory scales and possibility of using the technique for research purposes. CDI also included questions about emotional coloring of daydream and daydreaming, temporal daydream relevance, daydreaming frequency. The paragraph also provides a brief description and example items for each of the scales. At the second stage, correspondence of extracted structure to empirical data on the new sample was checked using exploratory structural equation modeling (ESEM, $N=359$, see Table 1), which is exploratory factor analysis with Procrustean rotation [Asparouhov, Muthén, 2009]. Inventory items (5-point Likert scale) were considered as ordinal

[Sellbom, Tellegen, 2019], the model was estimated using the weighted least squares with means and variance adjusted (WLSMV, [Muthén, Muthén, 2012]). Performance of the 4-factor model indicated an acceptable (though not excellent) fit to original data. Good agreement with empirical data was shown by the bifactorial ESEM model with four particular and one common (latent) factor. The common factor in the bifactor 4-factor model (Overall Constructive Daydreaming Index) had clear meaningful interpretation: it is a tendency to constructive daydreaming or general positive attitude to daydreaming, which is expressed in the idea of daydreaming value, daydream presence, daydream absorption, and daydream belief. Values of Cronbach's alpha for the second sample (0.77+) also indicated acceptable and high internal consistency of the scales and made it possible to use the CDI for research purposes. At the third stage, on the combined sample (first and second samples, N=663), quality of correspondence to data of two theoretical structural models (ESEM) was checked. The best fit to data was also demonstrated by the bifactor 4-factor model of the CDI (see Table 1).

Table 1. Structural modeling (ESEM) options for the CDI on the second (N=359) and pooled (N=663) samples

Sample	Model	χ^2 (df)	CFI	TLI	RMSEA	90% CI	SRMR
Sample 2 (N=359)	4-factor model	749.72 (374)	0.934	0.913	0.053	0.047, 0.058	0.042
	Bifactor model (4 factors + common factor)	600.61 (346)	0.955	0.936	0.045	0.039, 0.051	0.035
Pooled sample (N=663)	4-factor model	1252.922 (374)	0.919	0.892	0.060	(0.056; 0.063)	0.039
	Bifactor model (4 factors + common factor)	913.635 (346)	0.948	0.925	0.050	(0.046; 0.054)	0.032

Legend: df – number of degrees of freedom χ^2 ; CFI – comparative Bentler agreement index; TLI – Tucker-Lewis index; RMSEA – root of mean square error of approximation; 90% CI – confidence interval limits for RMSEA; SRMR – standardized root mean residual

Results obtained allowed us to conclude that Constructive Daydreaming Inventory (by E.N. Osin, N.B. Kedrova, P.A. Egorova) has bifactor 4-factor structure and evaluates the Overall Constructive Daydreaming Index and intensity of four constructive daydreaming properties: daydream presence, daydream absorption, daydream value, and daydream belief. The theoretically assumed factor structure showed good agreement with

data on two samples, and the scales turned out to be reliable enough, at least for research purposes.

Convergent validity of the CDI was verified by correlation and regression analyzes of the CDI scales, SIPI scales [Huba et al., 1982]) and positive/negative emotionality scales (an extra question pool in CDI). The SIPI questionnaire was previously translated by the authors into Russian (using bilingual experts) and tested on the Russian sample. During testing, factor structure of SIPI methodology was specified, which was also tested using exploratory structural equation modeling (ESEM, N=285). Resulting models were evaluated using WLSMV recommended for ordinal variables [Muthén, Muthén, 2012]. The best fit to data was shown by the 3-factor model, taking into account item covariance within facets (items grouped into mini-blocks in the original questionnaire version), while 3-factor structure, which corresponded to the original method, showed unsatisfactory quality of the model.

Table 2. Structural modeling options (ESEM) for SIPI (N=285)

Model	χ^2 (df)	CFI	TLI	RMSEA	90% CI	SRMR
3-factor model	2248.01 (858)	0.781	0.747	0.075	(0.072; 0.079)	0.073
3-factor model with facet covariance	1278.33 (801)	0.923	0.905	0.046	(0.041; 0.051)	0.054

Legend: df – number of degrees of freedom χ^2 ; CFI – comparative Bentler agreement index; TLI – Tucker-Lewis index; RMSEA – root mean square error of approximation; 90% CI – confidence interval limits for RMSEA; SRMR – standardized root mean residual

SIPI scales (Positive Constructive Daydreaming, Dysphoric Daydreaming, and Poor Attentional Control) fully corresponded in content to the original SIPI version and had a high internal consistency level: each scale consisted of 15 items, for all scales $\alpha=0.84$.

To assess convergent validity of CDI, correlation analysis of relationships between SIPI and CDI scales was done (calculating Pearson's correlation coefficient). As can be seen from Table 3, the Positive Constructive Daydreaming scale positively correlated with both the Overall Constructive Daydreaming Index and specific CDI scales. Whereas Dysphoric Daydreaming and Poor Attentional Control scales had no significant correlations with the Overall Constructive Daydreaming Index. Relationships obtained

and correlation values for partial scales were theoretically expected and confirmed convergent validity of CDI.

Table 3. Correlations of CDI methodology with the SIPI questionnaire

CDI/SIPI	Positive constructive daydreaming	Dysphoric daydreaming	Poor Attentional Control
Overall Constructive Daydreaming Index	0.76***	-0.03	-0.06
Daydream value	0.66***	-0.18**	-0.13*
Daydream belief	0.57***	-0.17**	-0.39***
Daydream Presence	0.66***	-0.02	-0.00
Daydream absorption	0.30***	0.25***	0.28***

Legend: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Correlation analysis of CDI scales and positive and negative emotionality factors also confirmed connection between positive emotions and constructive daydreaming. Positive correlations were shown for both the Overall Constructive Daydreaming Index ($r=0.44$, $p < 0.001$) and the four partial CDI scales (Daydream Presence, Daydream Value, $r=0.34$, $p < 0.001$; Daydream Belief, $r=0.42$, $p < 0.001$; Daydream Absorption, $r=0.16$, $p < 0.01$).

The following subparagraph describes results of multiple linear regression analysis in which 4 CDI scales were entered simultaneously as predictors of the SIPI positive constructive daydreaming scale (dependent variable). The regression model turned out to be statistically significant, all CDI scales predicted the value of the positive constructive daydreaming scale of the SIPI (see Table 4). The share of factor dispersion of positive constructive daydreaming, which was explained by CDI scales, turned out to be high and amounted to 61%. Multiple regression analysis of relationship between CDI scales and positive and negative emotionality factors was also done (see Table 5). Daydream Presence and Daydream Belief scales predicted positive emotionality, while frequency of negative emotions during daydreaming was predicted by higher daydreaming absorption and low daydreaming belief.

Table 4. Results of multiple regression analysis

Dependent variable		Positive constructive daydreaming	Positive emotions	Negative emotions
N		283	333	333
R ²		0.61	0.23	0.10
Beta ratio	Daydream presence	0.36***	0.17*	-0.02
	Daydream value	0.25***	0.06	-0.08
	Daydream absorption	0.11**	0.08	0.14 *
	Daydream belief	0.32***	0.34***	-0.24***

Legend: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results of correlation and regression analyzes confirmed construct validity of the Constructive Daydreaming Inventory.

The last part of the paragraph provides data on daydreaming frequency and qualitative analysis of answers about when and what adults daydream about. When asked about the frequency of daydreaming, the majority of respondents answered that they daydream “several times a day” (37.8%), “about once a day” (21.5%), or “many times a day” (17.5%); The frequencies of the answers “I daydream once a week” (11.8%) and “I rarely daydream” (11.4%) were equally distributed. Daydreaming frequency findings clearly indicate that the majority of adult Russian-speaking subjects daydream every day. Daydreaming frequency gradually decreased with age ($r = -0.27$, $p < 0.001$) and did not differ depending on subject’s gender (the t -test is not significant). Frequency analysis of author’s questionnaire answer categories showed that most often adults daydream 1) while traveling in transport and walking, 2) when they go to bed, wake up or cannot fall asleep, 3) when busy with routine tasks that do not require focus, 4) when creative or inspired by others’ creativity or ideas, 5) while experiencing negative emotions or facing a frustrating situation.

Relevant adult daydreams most often relate to: 1) development, hobbies, and travel, 2) material well-being, 3) success at work and career growth, and 4) relationships (family and romantic). Ultimate daydream is most often associated with 1) everybody’s happiness and well-being, 2) happiness and well-being of the loved ones, 3) development, and 4)

personal happiness and well-being. As children, the participants daydreamed most of all about 1) a future job, 2) owning something and being well off, 3) development, and 4) family and love relationships. Finally, in 20 years, survey respondents believe that their daydreams will be more related to 1) well-being of the loved ones, 2) development, 3) personal happiness, health, and well-being, and 4) family.

Women, compared with men, were more likely to daydream about family relationships ($\chi^2(1)=6.00$, $p=0.014$, $\phi=0.13$) and work ($\chi^2(1)=4.53$, $p=0.033$, $\phi=0.11$). Young respondents featured daydreams of everybody's well-being ($\rho=0.19$, $p<0.001$), work and profession ($\rho=0.16$, $p=0.002$), whereas older adults daydreamed of well-being of the loved ones ($\rho=0.15$, $p=0.004$) and development ($\rho=0.12$, $p=0.025$).

Subparagraph 2.2.3 summarizes study results. 1) A new diagnostic tool was developed – the Constructive Daydreaming Inventory (adult version) allowing to assess the Overall Constructive Daydreaming Index and intensity of the 4 properties of constructive daydreaming: Daydream Presence, Daydream Absorption, Daydream Values, and Daydream Belief. 2) Theoretically assumed factor structure (the 4-factor model with a common (latent) factor) turned out to be statistically significant and showed good agreement with data. 3) The questionnaire consists of 34 questions, has acceptable structural validity and sufficiently high rates of one-time item reliability for research purposes. 4) CDI also has construct validity: questionnaire scores are related in a theoretically predictable way with SIPI questionnaire scores and positive and negative emotionality scales during daydreaming. However, it is noted that further confirmation of construct validity using additional methods is needed. 5) SIPI translated into Russian can also be used in Russian-language psychological research and counseling practice. 5) Qualitative analysis of daydream triggering events and daydream content was done. The subparagraph also discusses work limitations and targets future research.

Paragraph 2.3 ‘Research on positive properties of daydream and constructive daydreaming’ is devoted to description and results of a correlation study of adaptive properties of daydream and constructive daydreaming.

Subparagraph 2.3.1 describes study goals, hypotheses, procedure, sampling and methodological apparatus. 8 inventories are presented, which were filled in by

respondents. The second study involved 359 people, of which 86% were women, subjects' age was from 18 to 72 years ($M = 37$, $SD = 10.9$).

Subparagraph 2.3.2 analyzes results of a study on relationship between constructive daydreaming intensity and autonomy level, meaningful life experiences and balanced time perspective, self-transcendence values, eudaimonic motivation intensity, prevalence of intrinsic aspirations over extrinsic ones, and a higher level of psychological well-being (see Table 5). Constructive daydreaming was found to be positively associated with scales of perceived choice and authentic self-expression. The Overall Constructive Daydreaming Index showed significant associations with importance and likelihood of achieving both intrinsic and extrinsic aspirations. However, if importance of internal aspirations positively correlated with all CDI scales including Daydream Value and Daydream Belief scales, in case of external aspirations relationship with these scales was not significant. The desire for wealth was not connected with either common index or individual CDI scales. Importance of aspirations for fame and attractiveness were positively associated with Daydream Absorption and Daydream Presence scales. The index of relative intrinsic to extrinsic value orientations (RIEVO) was not associated with the Overall Constructive Daydreaming Index. However, positive relationships were obtained for daydream values and daydream belief scales. Aspiration driver (with a person achieving personally significant goals, AD) turned out to be associated with Daydream Belief. The Overall Constructive Daydreaming Index showed positive associations with both hedonic and eudaimonic motivations. Eudaimonic motivation intensity was also associated with daydream belief, while in case of hedonic motivation, this relationship was not significant. The Overall Constructive Daydreaming Index and self-transcendence values were not statistically related. At the same time, the Daydream Value scale was weakly negatively associated with the self-enhancement index and positively with the self-transcendence index, while the Daydream Absorption scale showed negative relationship with the Openness to Experience scale. Constructive daydreaming intensity is negatively associated with the indicator of deviation from balanced time perspective (DBTP) and with the overall factor assessing optimal time

usage. The general level of psychological well-being demonstrated significant positive relationships with all CDI scales.

Table 5. Relationships between CDI and other methods scales (N=359)

Questionnaire	Scale	Overall Constructive Daydreaming	Daydream Value	Daydream Absorption	Daydream Belief	Daydream Presence
Mental health spectrum: overall score (N=306)		0.32***	0.31***	-0.05	0.50***	0.24***
Self-Determination Scale by C. Sheldon (N=307)	Perceived choice	0.27***	0.29***	-0.10	0.41***	0.25***
	Authentic self-expression (Awareness)	0.20***	0.27***	-0.23***	0.47***	0.18**
Aspiration index (N=296)	Intrinsic aspiration importance	0.32***	0.29***	0.13*	0.27***	0.25***
	Health (I)	0.13*	0.11*	0.04	0.14*	0.09
	Personal growth (I)	0.26***	0.29***	0.04	0.26***	0.19**
	Relationships (I)	0.18**	0.16**	0.06	0.18**	0.10
	Community (I)	0.27***	0.19**	0.16**	0.18**	0.23***
	Probability of achieving intrinsic aspirations	0.33***	0.32***	-0.11	0.50***	0.30***
	Health (PA)	0.16**	0.15*	-0.08	0.32***	0.10
	Personal growth (PA)	0.28***	0.31***	0.17**	0.49***	0.25***
	Relationships (PA)	0.26***	0.26***	-0.11	0.43***	0.23***
	Community (PA)	0.26***	0.20**	0.02	0.30***	0.24***
	Extrinsic aspiration importance	0.15**	0.02	0.18**	0.03	0.17**
	Wealth (I)	0.05	0.00	0.06	0.01	0.06
	Image (I)	0.17**	0.06	0.19**	0.06	0.15**
	Fame (I)	0.15**	-0.00	0.20***	0.02	0.19***
	Probability of achieving extrinsic aspirations	0.29***	0.21***	0.03	0.37**	0.24***
	Wealth (PA)	0.25***	0.21***	-0.04	0.38***	0.19**
	Image (PA)	0.20**	0.15*	0.03	0.23***	0.19**
	Fame (PA)	0.27***	0.17**	0.07	0.31***	0.24***
	RIEVO	0.05	0.15*	-0.10	0.13*	-0.01
	AD	0.05	0.10	-0.18**	0.28***	0.01
HEMA-R (N=132)	Hedonism	0.24**	0.26**	0.11	0.13	0.19*
	Eudaimonia	0.33***	0.30***	0.01	0.40***	0.30***
Time Perspective Inventory by F. Zimbardo (N=112)	Hedonistic present	0.33***	0.19	0.26**	0.21*	0.21*
	Positive past	0.14	0.05	0.13	0.08	0.13
	Fatalistic present	-0.25**	-0.29**	0.22*	-0.43***	-0.26**
	Negative past	-0.23*	-0.28**	0.28**	-0.53***	-0.20*
	Future orientation	-0.17	-0.07	-0.23*	-0.02	-0.12
	DBTP	-0.34***	-0.31***	0.12	-0.50***	-0.30**
Value Questionnaire by S. Schwartz (N=145)	Openness to change	-0.07	-0.04	-0.19*	0.09	0.03
	Conservation	0.01	-0.03	0.09	0.03	-0.12
	Self-determination	0.14	0.24**	0.09	0.02	0.11
	Self-enhancement	-0.10	-0.20*	0.04	-0.13	-0.04
Optimal Time Use Questionnaire: overall (N=253)		0.25***	0.29***	-0.22***	0.50***	0.27***

Legend: * p<0.05, ** p<0.01, *** p<0.001; I - aspiration importance, PA - probability of achieving aspirations

Subparagraph 2.2.3 presents discussion of Study 2 results. Hypotheses put forward about positive properties of constructive daydreaming were partly confirmed. Constructive daydreaming turned out to be associated with effective self-regulation and self-determination indicators: balanced time perspective, more positive forecast of ability to achieve personal goals, and also positively correlated with dispositional autonomy of personality and eudaimonic motivation intensity. Hypothesis about relationship between constructive daydreaming intensity and predominance of intrinsic aspirations over extrinsic ones has not been confirmed. Also, hypothesis about relationship between the Overall Constructive Daydreaming Index and self-transcendence values was partially confirmed. At the same time, essential relationship of some CDI scales with the index of predominance of intrinsic aspirations over extrinsic ones and self-transcendence values indirectly confirms assumptions made. It is noted that daydream belief can be a differential criterion for different daydreaming types and daydream attitudes. In addition, daydream and daydreaming can perform different functions in structure of extrinsic and intrinsic motivation. Hypothesis about relationship between constructive daydreaming and a higher level of psychological well-being was confirmed, which suggests the important role of constructive daydreaming in the personal self-regulation system.

Paragraph 2.4 ‘Daydream in adolescence: connection with anxiety and depression’¹ describes 1) process of creating an adolescent version of CDI, 2) content and characteristics of adolescent daydream and daydreaming process (how often, when and what adolescents daydream of), 3) individual differences in daydream and daydreaming and its representation in adolescents’ lives. The third study tested hypothesis that daydream and daydreaming are related to anxiety and depression levels in adolescents.

Subparagraph 2.4.1 provides description of the sample and information on the four inventories of Study 3. The study involved 180 adolescents, students in grades 8-11

¹ The results of the study are published in Egorova P.A., Osin E.N., Kedrova N.B., Rogova I.A. What and how Teenagers Dream about. Connection with the Level of Anxiety and Depression. *Voprosy Psihologii* [Issues of Psychology], 2018, No. 3, P. 22–33.

at School No. 2114. Of these, 49% were girls, with subjects' age from 13 to 16 ($M = 14.7$, $SD = 1.0$).

Subparagraph 2.4.2 describes results of Study 3 and their discussion. Based on the adult version of the CDI, E.N. Osin, N.B. Kedrova and P.A. Egorova developed a questionnaire form for adolescents. Forty questionnaire statements were factorized by principal component analysis, according to the results of which a 5-factor model was chosen, which included the following scales: Daydream Presence (5 points, $\alpha=0.74$), Daydream Value (6 points, $\alpha=0.76$), Daydream Constructiveness (7 points, $\alpha=0.71$), Daydream Belief (5 points, $\alpha=0.66$) and Daydream Absorption (9 points, $\alpha=0.80$). All scales had a sufficient level of internal consistency to use the methodology for research purposes.

Factorization of primary factors made it possible to identify 2 secondary factors: Constructive daydreaming (daydream presence and value: 18 statements, $\alpha=0.83$) and Defensive fantasizing (high daydream absorption with low reachability: 14 statements, $\alpha=0.81$). Frequency analysis of qualitative data showed that adolescents most often daydream when 1) they go to bed, wake up or cannot fall asleep, 2) when something inspires them (their own or someone else's creativity, natural beauty, computer games), 3) while traveling in transport and walking, 4) when they are not busy or resting, 5) when they experience negative emotions. Relevant adolescents' daydreams mostly relate to: 1) a future job, a successful career, excellent graduation from school and going to college, 2) their well-being in general and changing themselves for the better, 3) material wealth, 4) travel, adventure, self-development and new experiences. Ultimate daydreams mostly concerned global well-being and supernatural abilities. Childhood daydreams were associated with possession, future, magic, growing up and development. In 20 years, according to adolescents, their daydreams will be associated with 1) material well-being, 2) career success and professional growth, close relationships, 3) caring for the loved ones and friends.

Comparative analysis of qualitative questions showed that daydreaming triggering events and its content, identified in the adolescent/adult sample, turned out generally similar.

To test research hypothesis about relationship between daydream characteristics and anxiety and depression levels, correlation analysis was done, the results of which are presented in Table 6. Anxiety level is positively associated with daydream presence and daydream absorption and negatively with daydream belief. Depressiveness is also positively associated with daydream absorption and negatively with daydream belief and constructiveness. The secondary indicator of constructive daydreaming is not statistically significantly associated with either anxiety or depression, and the defensive daydreaming indicator is positively associated with them. Thus, anxiety in adolescents is more expressed in daydream than depression, in which, rather, belief in daydream and its positive meaning decreases. In both anxiety and depression, absorption with unattainable daydream (fantasy) increases, but constructive daydreaming may not be present.

Table 6. Pearson's correlations of daydream characteristics with anxiety and depression indicators

Daydream characteristics / Anxiety and depression levels	Anxiety	Depression
Daydream presence	0,21**	0,01
Daydream belief	-0,18*	-0,31***
Daydream value	0,06	0,13
Daydream absorption	0,32***	0,24**
Daydream constructiveness	-0,01	-0,30***
Constructive daydreaming	0,10	-0,09
Defensive fantasizing	0,32***	0,31***

Legend: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Research hypothesis that constructive daydreaming is associated with lower anxiety and depression levels has not been directly supported. However, data obtained allow us to see relationship between daydreaming characteristics in adolescents (defensive fantasizing) and negative emotion intensity.

At the end of the paragraph, a description of cluster analysis (Ward's method) is given, according to the results of which daydreamer types among adolescents are distinguished: 1) constructive daydreamers (with daydream as a driver), 2) pragmatic daydreamers (with daydream as a goal), 3) adolescents prone to defensive daydreaming (with daydream as escape from frustration), 4) daydreamers for pleasure (with daydream

as a means of improving mood) and 5) adolescents who do not believe in their daydream (daydream is unrealizable and has no positive driving force).

Most of all, adolescents from the third group daydream, least of all – from the second. Anxiety level is statistically significantly higher in the third group compared to the rest, which confirms assumption about the defensive function of daydreaming in adolescents in this group. Depression level is significantly higher in Groups 3 and 5 compared to the rest. Thus, adolescents with high anxiety level have daydream that is experienced as meaningful but unrealizable, and adolescents with high depression level may be consumed by fantasies but do not believe in daydream feasibility. For girls, more often than for boys, a combination of defensive fantasizing and constructive daydreaming is typical, and among boys pragmatic approach to daydream or disbelief in daydream is more common.

In **subparagraph 2.4.3**, based on study results, a conclusion is made about the important role of daydream in an adolescent's inner life and about relationship between daydreaming characteristics (defensive fantasizing) and anxiety/depression levels. Study results expand the daydream idea and can be used in the practice of psychological counseling and psychotherapy of adolescents.

In **paragraph 2.5 'Daydream and choice: an experimental study'**² of the second chapter, results of studying the role of daydream and daydreaming in the selection process are described.

Subparagraph 2.5.1 describes the study's sample, diagnostic tools, and experimental design. The study involved 199 people, of which 82% were women, the subjects' age was 18-64 years, the average age was 35.7 (SD = 10.3). The study tested two hypotheses: 1) daydreaming affects emotional attitude to choice; 2) daydreaming contributes to finding a solution in a situation of choice. The experimental scheme included random division of subjects (N=199) into control (N=91) and experimental

² The results of the study are published in Egorova P.A., Osin E.N., Kedrova N.B. Daydream and Life Choices: an Experimental Study. *Psikhologicheskie Issledovaniya [Psychological Studies]*, 2021, Vol. 14, No. 75, p. 2.
<http://psystudy.ru>

(N=108) groups and consisted of 4 stages. At the first stage (pre-test), participants were asked to recall a recent choice situation and evaluate it on 5 scales (decision importance, choice clarity, emotional intensity, individual emotion intensity, and readiness for action). At the second stage (impact), participants in the experimental group were asked to immerse themselves in daydream, and participants in the control group were asked to immerse themselves in memories of today's events. At the third stage (manipulation check), respondents of both groups were asked to describe in 5–7 sentences what they daydreamed about (remembered) and assess their experiences in the process of completing the task and the degree of their involvement. At the final stage (post-test), respondents in both groups were asked to recall and name the choice situation that they described at the first stage, answer the same set of questions and fill in the Subjective Choice Quality methodology. At the end of the study, the experimenter conducted a brief post-experimental interview with some subjects in both groups.

Subparagraph 2.5.2 presents results of Study 4. For analysis of these methods used in the pre-test and post-test, a 2x2 mixed analysis of variance (measure * group) was chosen. For the indicator of the overall intensity of emotions associated with the choice, effect of interaction of measurement and the group was found ($F_{(1;173)}=6.80$, $p=0.010$, $\eta^2=0.038$), indicating a more pronounced decrease in the indicator between measurements in the experimental group, compared to the control. Similar interaction effect was obtained for the choice importance indicator, which decreased more significantly in the experimental group ($F_{(1;174)}=4.85$, $p=0.029$, $\eta^2=0.027$). For the positive emotion indicator, only time effect was obtained, indicating a slight increase in their level in both groups ($F_{(1;170)}=4.61$, $p=0.033$, $\eta^2=0.026$). At the same time, a pronounced decrease was demonstrated by the negative emotion indicator ($F_{(1;170)}=64.21$, $p<0.001$, $\eta^2=0.274$). This effect was significant ($p<0.001$) and comparable in magnitude (η^2 from 0.144 to 0.188) for all 4 basic emotions.

One-way ANOVA was used to compare groups in terms of manipulation and post-test effects. Daydreaming was found to be associated with higher levels of enjoyment ($F_{(1;177)}=42.54$, $p<0.001$, $\eta^2=0.194$) and meaning ($F_{(1;177)}=26.45$, $p<0.001$, $\eta^2=0.130$), as well as a lower level of experience of emptiness ($F_{(1;170)}=10.82$, $p=0.001$, $\eta^2=0.058$) in

absence of significant differences in effort experience ($\eta^2=0.008$). No differences were found in Subjective Quality of Choice scales.

Subparagraph 2.5.3 discusses results obtained. Hypothesis about impact of daydreaming on emotional attitude to choice was partially confirmed: daydreaming reduces emotional intensity and experience of choice importance, presumably by placing choice in a wider motivational and semantic context. However, hypothesis about impact of daydreaming on efficiency of search and decision-making was not confirmed. Measurement of delayed effect of daydreaming and refinement of experimental design and measurement tools would make it possible to confirm or refute assumption more reliably about daydreaming effect on the decision-making process.

Analysis of the post-experimental interview and comparison of experiences of subjects in both groups suggested that the daydreaming process supports a person's turning to themselves, awareness of motives and the most important personal meanings. This means that daydreaming unfolds 'self-determination activity' (according to D.A. Leontyev) and, therefore, can increase choice awareness.

The **conclusion** formulates outcomes drawn from theoretical and empirical research results, discusses research limitations, and outlines prospects for future research on daydream and daydreaming.

GENERAL CONCLUSIONS FROM RESEARCH RESULTS

1. Understanding of daydream and daydreaming, their content and functions differ significantly depending on the cultural and linguistic environment. In English-language studies, daydream and daydreaming are more often understood as broadly as possible, as part of stream of consciousness that arises spontaneously and is not related to the current task. In Russian-language works, study subject is creative daydream, related to the future, having value nature and social orientation.
2. Identification of various daydreaming types, in particular, positive constructive daydreaming, allows more differentiated approach to assessing existing empirical data and explaining contradictions between results of various studies of daydreaming effect on emotional state, behavior and psychological well-being of a person.
3. To assess constructive daydreaming intensity, the Constructive Daydreaming Inventory was developed, which has good psychometric indicators (structural validity, rather high reliability of scales, convergent and discriminant validity in relation to other variables). CDI evaluates general index and four characteristics of constructive daydreaming: the scales Daydream Presence, Daydream Value, Daydream Absorption, and Daydream Belief. The questionnaire can be used for research purposes.
4. Based on the adult version of the Constructive Daydreaming Inventory, a variant for adolescents (13-16 years old) was developed, which has satisfactory psychometric characteristics (structural validity and scale reliability). The adolescent version of methodology assesses constructive daydreaming intensity on 5 scales (Daydream Presence, Daydream Value, Daydream Absorption, Daydream Belief and Daydream Constructivity), makes it possible to distinguish between constructive and defense aspects of daydreaming and can be used for research purposes.
5. Results of the study of daydreaming frequency confirm high prevalence of daydreaming among both adults and adolescents, which is consistent with data

obtained earlier on English-speaking samples [Singer, 1975; Klinger, 1990; Giambra, 1974 et al].

6. According to qualitative analysis, both adolescents and adults most often daydream in situations that do not require active attention, in a situation of frustration or inspiration from their own or someone else's creativity. Adult daydreams are mainly related to development, material well-being, job success, and relationships. Adolescent daydreams are more related to successful career and interesting work, material well-being, development, personal happiness and well-being.
7. Application of developed methods confirmed theoretically predictable relationship between individual differences in the nature of constructive daydreaming and the level of psychological well-being and distress in adults. Intensity of constructive daydreaming properties was associated with a higher well-being level. However, there was no association between constructive daydreaming and lower anxiety and depression levels in adolescents. At the same time, clearly interpretable relationships were obtained between characteristics of adolescent daydreaming (defensive fantasizing trend) and negative emotion intensity.
8. In a series of empirical studies, relationships were obtained that correspond to assumption of adaptive nature of daydream and constructive daydreaming. Constructive daydreaming is positively associated with effective self-regulation and self-determination indicators. People prone to constructive daydreaming are characterized by intensity of eudaimonic motives, a higher level of dispositional autonomy and meaningfulness of daily activities, more efficient use of time and balanced time perspective. Hypothesis about connection of constructive daydreaming with self-transcendence values received partial confirmation. Assumption about connection between predominance of intrinsic aspirations over extrinsic ones and constructive daydreaming was not confirmed. However, data were obtained that indirectly confirm closer connection between constructive daydreaming and intrinsic aspirations of a person: the desire for personal growth, service to society and relationships were associated with belief in daydream usefulness and feasibility, in contrast to external aspirations.

9. In a choice situation, constructive daydreaming contributed to clarification of personal priorities. Constructive daydreaming reduced emotional intensity and choice importance experience, expanding the motivational and semantic context. Hypothesis about impact of daydream on the decision-making process itself has not been confirmed and requires additional research.

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The dissertation's content and principles are reflected in articles published in journals recommended by the National Research University Higher School of Economics:

1. Egorova P.A., Osin E.N., Kedrova N.B., Rogova I.A. Adolescents Dream. The Characteristics of the Adolescent Dream and the Level of Anxiety and Depression // Psychological Issues. 2018. No. 3. P. 22–33.
2. Egorova P.A., Osin E.N., Kedrova N.B. Daydream and Life Choice: Experimental Study // Psychological Research. 2021. V. 14, No. 75, P. 2. URL: <http://psystudy.ru>
3. Egorova P.A. Adaptive Functions of Daydream and Daydreaming. Psychological Issues. 2022. Vol. 68. No. 3. P. 126–135.

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18. Egorova P.A., Osin E.N., Kedrova N.B., Rogova I.A. What do adolescents daydream about? Relationship between characteristics of adolescent daydream and anxiety/depression levels. Psychological Issue. 2018. No. 3. P. 22–33
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