XXV NAUČNI SKUP

EMPIRIJSKA ISTRAŽIVANJA U PSIHOLOGIJI

29 – 31. MART 2019.
FILOZOFSKI FAKULTET, UNIVERZITET U BEOGRADU

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INSTITUT ZA PSIHOLOGIJU
LABORATORIJA ZA EKSPERIMENTALNU PSIHOLOGIJU
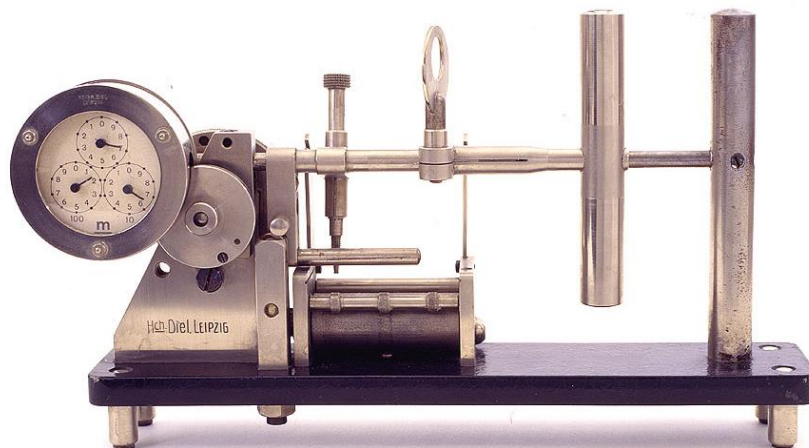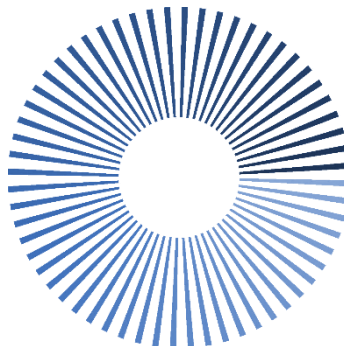FILOZOFSKI FAKULTET, UNIVERZITET U BEOGRADU

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BEOGRAD, 2019

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Organizacioni odbor:
Ljiljana Lazarević, Slobodan Marković, Olga Marković Rosić, Ivana Stepanović Ilić, Predrag Nedimović, Ksenija Mišić, Oliver Tošković, Marko Živanović, Kaja Damnjanović

Lektura i prelom: Ksenija Mišić

SADRŽAJ:

PLENARNA PREDAVANJA

TWO TYPES OF SPATIAL COLOR MIXTURES AND COLOR ILLUSIONS

Akiyoshi Kitaoka
Ritsumeikan University, Japan

There are two types of spatial color mixtures in vision as well as in displays. The additive color mixture follows the highest luminance rule whereas the subtractive one conforms to the lowest luminance rule. A close relationship to a variety of color illusions including the Munker illusion is pointed out. The histogram equalization hypothesis (Shapiro, Hedjar, Dixon and Kitaoka 2018) on the color illusion depending on the additive color change is also discussed.

Examples are shown in the <u>webpage</u>.

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FINANCIAL CHOICE AND POPULATION WELL-BEING: REPLICATING BEHAVIORAL INSIGHTS FOR PUBLIC POLICY IN SERBIA

Kai Ruggeri
Columbia University, USA

The rapid growth in influence of psychological insights in public policy continues globally. Much of this work involves linking validated interventions from experimental behavioral sciences to macro-level issues identified from large-scale data sources. For example, we evaluated well-being in 21 countries in Europe before and after the economic crisis using the European Social Survey, linking with areas of concern such as health behaviors, education, employment, and financial choice. As Serbia did not participate in collecting those data, we attempted to replicate findings in 2019. We also replicated three behavioral interventions linked to financial decision-making based on nudging (encouraging optimal choices without mandating them) and boosting (eliciting improved choices through training). We show why empirical study of complex behavioral patterns, particularly related to financial choice under uncertainty, has critical implications for policy and the well-being of populations, specifically Serbia.

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TRANSCRANIAL DIRECT CURRENT STIMULATION (tDCS) IN NEUROCOGNITIVE RESEARCH

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Moderators:

Saša R. Filipović

Institute for Medical Research, University of Belgrade, Serbia | *sasa.filipovic@imi.bg.ac.rs*

Marko Živanović

Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia

TRANSKRANIJALNA STIMULACIJA JEDNOSMERNOM STRUJOM (tDCS) U NEUROKOGNITIVNIM ISTRAŽIVANJIMA

Transkranijalna stimulacija jednosmernom strujom (tDCS) je tehnika neinvazivne neuromodulacije koja putem konstantne jednosmerne struje niskog intenziteta modulira kortikalnu ekscitabilnost dovodeći do ekscitatornih ili inhibitornih efekata na različite funkcije. Popularnost tDCS-a tokom proteklih 15 godina raste, a tDCS se ističe kao obećavajuća tehnika za modulaciju motoričkih sposobnosti i kognitivnih procesa. Iako postoji značajna evidencija da tDCS ostvaruje pouzdane efekte na motoričke funkcije, dometi ove tehnike u proizvođenju uporedivih efekata na različite kognitivne funkcije su i dalje predmet debate. Empirijski nalazi efekata tDCS na kogniciju još uvek su ograničeni, a nalazi eksperimenata u kojima je korišćena jednokratna stimulacija često su konfliktni. Ovaj simpozijum ima za cilj da pruži kratak pregled upotrebe tDCS-a kao tehnike neuromodulacije, da ukaže na njene potencijale u poboljšanju kognitivnih funkcija i neurorehabilitaciji, ali i da istakne izazove sa kojima se suočava, kao i da ukaže na potrebu za daljim istraživanjima ove tehnike i njenih efekata. U okviru simpozijuma biće predstavljeni neki obećavajući nalazi, ali i neki koji izveštavaju o neočekivanom odsustvu efekata što ukazuje na pitanje replikabilnosti rezultata ovih studija. Takođe, biće reči o izvesnim metodološkim izazovima sa kojima se studije koje koriste tDCS susreću. Konačno, izlaganja će biti praćena diskusijom trenutnog stanja u oblasti, pitanjima reproducibilnosti i metodoloških izazova na koje nailaze studije tDCS, kao i mogućim načinima prevazilaženja ovih teškoća.

Transcranial direct current stimulation (tDCS) is a noninvasive neuromodulation technique that uses constant, low-intensity direct current to modulate cortical excitability, producing facilitatory or inhibitory effects upon different functions. The popularity of tDCS has grown over the past 15 years, as it came to the fore as a promising tool for modulating motor skills and cognitive processes. While there is significant evidence that tDCS can reliably affect motor functions, its ability to produce comparable effects on different cognitive functions is still a matter of debate. The empirical evidence on how tDCS affects cognition is still limited and the conclusions of single-experiment studies are often conflicting. This symposium aims to provide a brief overview of the tDCS as neuromodulation technique, demonstrate its potentials for cognitive enhancement and neurorehabilitation, but also highlight the gaps and needs for future research. Therefore, some encouraging results will be presented, but also some that report unexpected, null findings suggesting problems with replicability, along with some reporting on particular methodological issues that need to be addressed. Finally, the talks will be followed by the discussion on the current state of knowledge, issues regarding reproducibility and methodology as well as possible ways of overcoming these issues.

CAN tDCS BE USED FOR MEMORY ENHANCEMENT? THE EVIDENCE FROM ASSOCIATIVE MEMORY EXPERIMENTS

Katarina Vulić
Institute for Medical Research, University of Belgrade, Serbia | *katarina.vulic@imi.bg.ac.rs*
Jovana Bjekić
Institute for Medical Research, University of Belgrade, Serbia
Saša R. Filipović
Institute for Medical Research, University of Belgrade, Serbia

Associative memory (AM) represents the ability to form and retrieve relations between independent information units. AM deficits often accompany neurodegenerative conditions, as well as normal aging. Therefore, AM enhancement has become one of the main challenges of modern neurorehabilitation. The aim of this study was to investigate the effects of tDCS over posterior parietal cortex (PPC) on AM. Thirty-seven healthy participants (18 male, age $M = 25.34$, $SD = 3.59$) took part in cross-over sham-controlled experiment, in which they received 20 minutes of either anodal (1.5 mA) or sham tDCS over left PPC. Following tDCS participants completed cognitive tasks. AM was assessed via Face-word pair task, which consisted of *learning block* – sequential exposition of 20 face-word pairs, and *test block* – sequential face recognition (20 targets mixed with 30 distractors in a randomized order; non-associative memory measure) followed by face-cued word recall (AM measure). A subsample ($N = 18$; 9 male, age $M = 24.77$, $SD = 1.89$) also completed follow up memory assessments (the test block) one and five days after the stimulation. Control task was Verbal fluency (e.g. *Words that start with "S"*). Significant immediate effect of STIMULATION on AM was obtained ($F(1, 36) = 9.156$, $p = .005$, $\eta^2 = .20$), i.e. tDCS led to AM improvement comparing to sham condition. Additionally, STIMULATION had no effect on face recognition ($F(1, 36) = 1.393$, $p = .246$) or Verbal fluency ($F(1, 36) = .085$, p = .772), confirming that obtained tDCS effect was function – specific. The same trend in AM persisted one and five days after the treatment. In a subsample that completed follow-up measures, both STIMULATION ($F(1, 17) = 4.662$, $p = .045$, $\eta^2 = .22$) and TIME ($F(2, 34) = 35.452$, $p < .001$, $\eta^2 = .68$) had significant effects on AM. There was no time×stimulation interaction ($F(4, 66) = .523$, $p = .719$), suggesting that the forgetting rate was the same in both conditions. The results indicate that it is possible to obtain positive effects of a single tDCS treatment, even on a relatively small sample of young and healthy participants, and that those effects persist at least 5 days after the treatment. This finding supports the robustness of tDCS effect on associative memory and provides a foundation for future research of the cumulative effect of multiple tDCS treatments.

Keywords: associative memory, memory enhancement, transcranial direct current stimulation (tDCS), posterior parietal cortex (PPC), longitudinal effects

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THE EFFECTS OF tDCS OVER THE RIGHT HEMISPHERE ON COGNITIVE ABILITIES AND EXECUTIVE FUNCTIONS

Marko Živanović
Department of Psychology, Faculty of Philosophy, University of Belgrade,
Serbia | *marko.zivanovic@f.bg.ac.rs*
Goran Opačić
Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia
Saša R. Filipović
Institute for Medical Research, University of Belgrade, Serbia

The aim of the study was to explore the effects of anodal tDCS over neural loci which have the crucial role in higher cognitive processes – right dorsolateral (r-dlPFC), posterior parietal (r-PPC), and simultaneous stimulation of both loci (r-BL) – on cognitive performance assessed by test-markers of fluid (*Gf*), crystallized (*Gc*), visual abilities (*Gv*), and cognitive speed (*Gs*), as well as executive functions (EF) of updating, inhibition, and shifting. All cognitive abilities/functions were operationalized using two tests, the half of which were in verbal, and the other half in the nonverbal domain. Twenty-one, right-handed, healthy participants took part in the study (age: 26.43±4.78; 12 females). Participants underwent repeated sham-controlled crossover experiment with four counterbalanced experimental conditions: tDCS over F4, P4, r-BL, and sham. Within each session, after 20 minutes of tDCS (1.8 mA) or sham, participants solved parallel forms of *Gf* (Matrix reasoning, Analogies), *Gc* (Synonym-antonym, Crystallized associations), *Gv* (Puzzle, Mosaic), and *Gs* (Symbol, Visual search) test-markers, and updating (verbal and nonverbal 3-back), inhibition (verbal and nonverbal Stroop task), and shifting tasks (Number-letter, Local-global) in counterbalanced order. r-dlPFC stimulation facilitated performance on visual puzzles ($\eta^2 = .20$), while the same trend was observed for r-PPC stimulation ($\eta^2 = .14$). r-PPC stimulation facilitated nonverbal cognitive speed ($\eta^2 = .19$), while tDCS over the r-PPC on a trend-level impaired fluid reasoning measured by both verbal ($\eta^2 = .14$) and nonverbal *Gf* tests ($\eta^2 = .13$). tDCS over the r-dlPFC tended to facilitate updating abilities measured by both verbal and nonverbal 3-back task ($\eta^2 = .26$, $\eta^2 = .13$, respectively), while the positive effect of r-PPC stimulation was observed for verbal 3-back only ($\eta^2 = .18$). Verbal cognitive inhibition was not affected by tDCS, while inhibition measured in the nonverbal domain was facilitated by tDCS over r-PPC ($\eta^2 = .22$). No effects of tDCS were observed for any of the shifting tasks. The r-BL stimulation had no effect on any of the cognitive measures. Finally, results have shown that effects on cognitive abilities are mostly mediated by modulation of the updating capacity. In conclusion, right tDCS has the potential to achieve short-term effects on nonverbal cognitive abilities by modulating more basic executive processes, thus mimicking psychometric relations between cognitive abilities and EF on a neural level.

Keywords: transcranial direct current stimulation (tDCS), noninvasive neuromodulation, cognitive abilities, intelligence, executive functions

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HOW RELIABLE ARE PREFRONTAL tDCS EFFECTS? – ZERO-EFFECTS ON KEEP-TRACK TASK

Dunja Paunović
Department of Psychology, Faculty of Philosophy, University of Belgrade,
Serbia | *dunja.paunovic.dp@gmail.com*
Danka Purić
Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia
Jovana Bjekić
Institute for Medical Research, University of Belgrade, Serbia

For many years, the functional activity of the dorsolateral prefrontal cortex (dlPFC) was considered to be the main hub for higher cognitive processes, especially executive functions. However, recent neuroimaging studies suggest that the neural basis of higher cognitive abilities lay in the activity of wider fronto-parietal functional network. The objective of this study was to investigate the effects of tDCS on the executive function of updating– assessed by Keep-track task. Updating represents the ability to efficiently monitor incoming information and keep the relevant information in mind by replacing older, no longer relevant information with newer, more relevant information. Nineteen healthy right-handed participants (age $M = 24.89$, $SD = 2.60$; 10 females) took part in a cross-over sham-controlled experiment. All participants underwent three tDCS conditions (active tDCS over left dlPFC; active tDCS over left PPC; and sham) in counterbalanced order. In active conditions, participants received 1.5mA of constant current for 20 minutes, while in the sham condition the current was applied for only 60 seconds with gradual rump up and rump down. Following tDCS participants completed Keep track task, with parallel forms being used in different test-sessions. In Keep-track task participants are asked to monitor the list of successively presented words for belonging to target categories and to recall the last word presented for each target category at the end. As a control measure, the choice reaction time task was used. The results showed no effect of stimulation condition on Keep-track task ($F(2, 36) = 0.499$, $p = .611$), with no significant post-hoc differences between sham and active dlPFC stimulation ($p = .790$) and between sham and active PPC stimulation ($p = .536$). In addition to that, no effect of stimulation condition was observed for choice reaction time ($F(1.28, 23.06) = 1.519$, $p = .233$). The absence of tDCS effects was present even after controlling for potential confounding factors (i.e. task forms, session order, participants' gender). These results call into question the reliability of prefrontal tDCS effects and do not allow for deriving conclusions about the role of left PPC in the ability to update information in working memory.

Keywords: updating, executive functions, transcranial direct current stimulation (tDCS), dorsolateral prefrontal cortex (dlPFC), posterior parietal cortex (PPC), Keep-track task

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SUBJECTIVE EXPIRIENCE OF tDCS TRETMENT: EVIDENCE FROM MULTIPLE EXPERIMENTS

Uroš Konstantinović
Institute for Medical Research, University of Belgrade,
Serbia | *uros.konstantinovic@imi.bg.ac.rs*
Marko Živanović
Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia
Katarina Vulić
Institute for Medical Research, University of Belgrade, Serbia
Dunja Paunović
Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia
Marija V. Čolić
Faculty of Sport and Physical Education, University of Belgrade, Serbia
Saša R. Filipović
Institute for Medical Research, University of Belgrade, Serbia

Over the last two decades, there has been a lot of effort to develop standardized protocols for safe and non-harmful application of tDCS both in research and clinical practice. Still, there is limited empirical evidence on participants' subjective experience during and after tDCS. In this study, we analyzed data from multiple tDCS sham-controlled, crossover experiments to assess psycho-physical side effects of active prefrontal and parietal tDCS relative to sham (a total of 315 tDCS sessions). In each session, measures of unpleasantness were collected using single-item with ten-point scale (1 – absence of unpleasantness, 10 – extreme unpleasantness) every five minutes during 20 min treatment. Additionally, prior and immediately after the treatment participants used ten-point scale to rate presence of potentially stimulation-induced psycho-physical symptoms (headache, neck pain, back pain, blurry vision, scalp irritation, tingling, itch, palpitations, burning sensations, hot flashes, dizziness, acute mood change, fatigue, and anxiety). Results showed effect of stimulation protocol on unpleasantness during treatment. Namely, anodal stimulation was slightly more unpleasant than sham condition ($F(1, 313) = 5.318$, $p = .022$, $\eta^2 = .017$). However, no differences in unpleasantness has been observed between three localizations (dlPFC, PPC, simultaneous dlPFC-PPC stimulation) in active condition ($F(1, 206) = 0.599$, $p = .550$). Repeated measures ANOVA results showed increase of scalp irritation ($F(1, 266) = 30.578$, $p < .001$, $\eta^2 = .10$), tingling ($F(1, 266) = 89.166$, $p < .001$, $\eta^2 = .25$), itching ($F(1, 266) = 44.764$, $p < .001$, $\eta^2 = .14$), and burning sensations ($F(1, 266) = 28.395$, $p < .001$, $\eta^2 = .10$), while decrease was observed for headache ($F(1, 266) = 3.962$, $p = .048$, $\eta^2 = .02$), back pain ($F(1, 266) = 9.021$, $p = .003$, $\eta^2 = .03$), palpitations ($F(1, 266) = 15.883$, $p < .001$, $\eta^2 = .06$), fatigue ($F(1, 284) = 7.591$, $p = .008$, $\eta^2 = .03$), acute mood change ($F(1, 266) = 8.226$, $p = .004$, $\eta^2 = .03$), hot flashes ($F(,1,266) = 23.492$, $p < .001$, $\eta^2 = .08$), and anxiety ($F(1, 266) = 7.720$, $p = .006$, $\eta^2 = .03$) with active stimulation. The results imply that active stimulation and sham are to some extent experienced differently, thus it is necessary to assess the successfulness of blinding procedure in each experiment. Furthermore, high amount of individual differences in subjective experience calls for identifying personal and situational factors that contribute to unpleasantness of tDCS.

Keywords: transcranial direct current stimulation (tDCS), unpleasantness, subjective experience, blinding

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RESEARCH ON ADVERSE CHILDHOOD EXPERIENCES IN SERBIA
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Symposium moderator:
Oliver Tošković
Laboratory for experimental psychology, Faculty of Philosophy, University of
Belgrade | *otoskovi@f.bg.ac.rs*

FLOWERS IN THE ATTIC – ADVERSE CHILDHOOD EXPERIENCES AND THEIR
RELATIONS WITH LIFE-OUTCOME

Milica Pejović Milovančević
Institute for Mental Health, Belgrade
Oliver Tošković
Laboratory for experimental psychology, Faculty of Philosophy, University of Belgrade
Milutin Kostić
Institute for Mental Health, Belgrade
Ana Stojković
Department of Psychology, Faculty of Philosophy, University of Belgrade

This is an introductory abstract for other papers within this symposium, which are all part of the same study, Research on Adverse Childhood Experiences (ACE) in Serbia. ACE is a traumatic experience in one's life occurring before the age of 18 that the person remembers as an adult. The purpose of this survey was to explore the prevalence of ACEs and their correlates on a sample of 18-65 years old in Serbia. We used multistage random sampling, with a stratified cluster sample in the first (187 settlements were sampled from 4 regions), and random sample in the second stage (a random-walk technique for sampling participants). The final sample consisted of 2792 respondents (57.4% females), interviewed face-to-face. Instrument package included: ACE International Questionnaire, Health Appraisal, Family Health History, Trauma Symptom Checklist, Benevolent Childhood experience, Experiences in Close Relationships-Revised, HEXACO, DELTA9, and Non-suicidal self-injury. Each ACE was represented by a binary score, in two ways: (1) any ACE score implies that participant had a specific event at least "once or twice"; (2) frequent ACE implies that participant had specific events "many times". Factor analysis, principal axis with varimax rotation extracted three dimensions: violence (involvement in physical fight, bullying, community violence, physical abuse, collective violence, psychological abuse), neglect (depression in family, suicide in family, psychological neglect, sexual abuse and parental separation) and abuse (alcoholism in family, abuse of mother or father by the partner, incarceration of family member, drug abuse in family and physical neglect). If we use ACEs as predictors of various life events in multiple regression analysis, the highest prediction is gained for a number of suicidal attempts ($R^2 = .53$, $F = 2.38$; $df = 17$, 36; $p < 0.05$) - more ACEs lead to more attempts, with psychological neglect as strongest predictor. Most frequent ACEs in Serbia are community violence (any 69.4%; frequent 37.7%), psychological abuse (any 43.7%; frequent 26.3%), and involvement in a physical fight (any 37.7%; frequent 19.7%). For comparison, physical abuse and domestic violence appeared more frequently in Serbia than in Wales study, while parent separation and sexual abuse appeared a bit more frequently in Wales sample. Possible higher prevalence of

ACEs in our study might occur due to the context of the collective experience of wars, civil unrest, insecurity, etc.

Keywords: adverse childhood experience, prevalence, socio-demographic correlates, suicide prediction

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LORD OF THE FLIES – BASIC PERSONALITY TRAITS AND ACES

Ljiljana B. Lazarevic
Institute of Psychology; Laboratory for Research of Individual Differences, Faculty of Philosophy, University of Belgrade
Marija Mitkovic Voncina
Institute for Mental Health, Belgrade

Studies show that personality traits and maltreatment, being abused or neglected in childhood, are independently related to the different negative health outcomes later in life. However, studies investigating relations between basic personality traits and different forms of ACEs are scarce. Available evidence indicates that Neuroticism, Openness, and Agreeableness are related to different ACEs. In this survey, we have investigated relations between ACEs and basic personality space defined by the HEXACO model and Disintegration trait. In addition, the validity of personality traits and ACEs in the prediction of different physical and mental health outcomes was tested. For assessment of basic personality traits, we have used 60-items HEXACO-PI-R, while Disintegration was assessed using the 20-item DELTA9 questionnaire. For assessment of physical health, the Health Appraisal Questionnaire was used, while mental health was assessed using the Trauma Symptom Checklist. Results showed that when controlling for age, among personality traits, the strongest correlate of the total ACE score was Disintegration ($r = .29$, $p = .000$), followed by Honesty ($r = -.19$, $p = .000$), Agreeableness ($r = -.18$, $p = .000$), and Extraversion ($r = -.14$, $p = .000$). Disintegration was the most consistent correlate of several specific ACE types, i.e., depression/suicidal tendencies, alcoholism and drug abuse in the family, violent behavior of family members, physical abuse, and physical neglect. Furthermore, it was investigated whether ACEs add to the prediction of physical and mental health outcomes over and above basic personality structure. Hierarchical regression analysis showed that ACEs explained an additional 6% of the variance of overall physical health over and above all seven personality traits (which explain 22%). In the prediction of mental health, ACEs added little (3% of the variance) to what is already predicted by the personality traits (22% of the variance), which suggests the dominant role of basic personality structure in the mental-health status. Disintegration has a dominant role in the prediction of both physical and mental health. Several hypotheses on the relationship between basic personality traits, the specific role of Disintegration and ACEs are discussed.

Keywords: Adverse Childhood Experience (ACE), basic personality traits, HEXACO, Disintegration

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THE WASP FACTORY – ADVERSE CHILDHOOD EXPERIENCES AND NEGATIVE PHYSICAL-HEALTH OUTCOMES

Ljiljana B. Lazarevic
Institute of Psychology; Laboratory for Research of Individual Differences, Faculty of Philosophy, University of Belgrade
Milutin Kostic
Institute for Mental Health, Belgrade
Marija Mitkovic Voncina
Institute for Mental Health, Belgrade

Literature reports that early adversity, especially child maltreatment, is associated with various unfavourable physical-health outcomes throughout the lifespan, like diabetes type 2 and hypertension. This paper investigates the relations between Adverse Childhood Experiences (ACEs) and negative physical-health outcomes. To assess health-related behaviours and outcomes, we have used items from the health surveys directed by the Centre for Disease Control and Prevention: The Behavioral Risk Factor Surveys and the Third National Health and Nutrition Examination Survey. Results indicated significant associations between health-related outcomes and ACEs. Almost all respiratory (e.g., rhinitis, asthma, chronic bronchitis or emphysema), gastrointestinal (e.g., stomach pain, digestion problems, constipation, diarrhoea), cardiovascular (e.g., heart racing or "skipping a beat", hypertension, heart attack) and neurological (e.g., epileptic attacks, loss of consciousness, foot or hand paralysis, stroke, loss of speech) problems correlate with ACE scores. For analyses, correlation and binary logistic regressions were used. The number of respiratory problems correlates with frequent ACEs score ($r = .21$, $p < .01$), and it increases the odds of having respiratory problems from 1.07 to 1.2 times. The number of gastrointestinal problems correlates with the number of ACEs ($r = .18$, $p < .01$), and it increases the odds of having some gastrointestinal problems from 1.06 to 1.25 times. The number of cardiovascular problems correlates with the number of ACEs ($r = .16$, $p < .01$), and it increases the odds of having cardiovascular problems from 1.05 to 1.15 times. The number of neurological symptoms correlates with ACEs ($r = .29$, $p < .01$). Again, the odds of having neurological symptoms increases as the number of ACEs increase between 1.12 and 1.32 times. Results suggest that ACEs impose an elevated risk of developing various negative physical conditions or illnesses, which can have negative consequences on the health-care system. Therefore, as a potential prevention strategy, a joint action of professionals in the health-care system in primary, secondary and tertiary prevention is advised.

Keywords: Adverse Childhood Experience (ACE), physical health, life outcomes

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A CHILD CALLED IT - MENTAL HEALTH AND ADVERSE CHILDHOOD EXPERIENCES

Milutin Kostic
Institute for Mental Health, Belgrade
Ljiljana B. Lazarevic
Institute of Psychology; Laboratory for Research of Individual Differences, Faculty of Philosophy, University of Belgrade

Ground-breaking studies like CDC – Kaiser Permanente Adverse Childhood Experiences (ACE) Study indicated that ACEs are common and associated with health risk behavior, mental illness, decreased life potential, and premature death. It was found to be dose-related – if an individual's number of ACE increases, their risk of experiencing poorer adult outcomes also increases. To assess symptomatology associated with childhood or adult traumatic experiences in adults Trauma Symptom Checklist (TSC-40) containing 40 items was used. It assesses

trauma symptoms and allows for the calculation of the total TCL-40 score, and six subscores: Anxiety, Depression, Dissociation, Sexual Abuse Trauma Index, Sexual problems, and Sleep Disturbance. Besides that, one item was used to assess whether someone tried to commit suicide during lifetime. For analyses, binary logistic regressions were used. Results show that adverse childhood experiences (ACE) significantly predict whether someone tried to commit suicide (self-reported) later in life (Nagelkerke $R^2 = 0.23$, $p < .01$). Specifically, individuals who suffered psychological abuse were 4.19 more likely to attempt suicide, while for those who experienced psychological neglect this risk was 4.16 times higher. Additionally, the intensity of mental health symptoms was related to different types of ACE. In order to assess this we used canonical correlation analysis, which extracted three significant functions (*Rho* = 0.363, $p < .01$; *Rho* = 0.185, $p < .01$; *Rho* = 0.130, $p < .01$). First function shows that dissociation, depression and trauma index are positively related to psychological abuse, sexual abuse, alcohol abuse, depression in family, psychological neglect and bullying. Second function shows negative relation of depressive symptomatology with parent separation, involvement in a fight, community and collective violence. And finally, third function shows positive relation of sexual problems with physical abuse, suicide in a family, abuse of mother and father and community violence. Interestingly, third function also shows negative relation between sexual problems and incarceration of a family member. Our findings suggest a significant relationship between ACEs and mental-health symptomatology, like suicidality, dissociation, depression, trauma and sexual dysfunction.

Keywords: Adverse Childhood Experience (ACE), mental health, Trauma Symptom Checklist, life outcomes

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INSIDE OUT – DO ADVERSE CHILDHOOD EXPERIENCES PREDICT NON-SUICIDAL SELF-INJURY?

Ana Stojković
Department of Psychology, Faculty of Philosophy, University of Belgrade
Jelena Radosavljev Kirćanski
Institute for Mental Health, Belgrade
Marija Mitkovic Voncina
Institute for Mental Health, Belgrade

Non-suicidal self-injury (NSSI) is defined as behavior that is self-directed and deliberate, resulting in injury or potential injury to oneself without suicidal intent, although it consistently correlates with suicidality. Common forms of NSSI include cutting, burning, scratching, banging, hitting, biting etc. Meta-analysis showed that overall childhood maltreatment is associated with NSSI, especially in the case of childhood emotional neglect or emotional abuse. Highly lethal self-harm was associated with childhood physical peer victimization, sexual abuse, emotional abuse, and emotional neglect. The NSSI questionnaire designed for this study was based on several questionnaires such as Deliberate Self-Harm Inventory (DSHI), Inventory of Statements About Self-Injury (ISAS), Ottawa Self-Injury Inventory (OSI) and Self-Harm Behaviour Questionnaire (SHBQ). The NSSI used in this survey contains 12 items with joint binary (yes or no) and numeric (how many times) scales. On all items, respondents provided answers with respect to two time periods: before and after the age of 18 (laws in Serbia restrict rights of persons under the age of 18 and some of those are related to potentially risky behaviors such as rights regarding alcohol purchase). Overall, approximately 4% of respondents reported NSSI at least once in lifetime, out of which 3.6% reported NSSI at least once before the age of

18 and 1.8% at least once after the age of 18. Since this is a form of behaviour is typical for younger adolescents, as expected, the NSSI is more prevalent before the age of 18 ($\chi^2 = 17.225$, $p < .01$). The correlation between the frequency of NSSI before and after the age of 18 is $r = 0.73$ ($p < .01$), while the correlation between suicide attempts and NSSI was $\Phi = 0.25$ ($p < .01$). When it comes to the prediction of NSSI that occurred after the age of 18, ACE scores were not significant predictors. However, regression analysis showed about 9% of the variance of the NSSI before the age of 18 can be related to ACEs. Specifically, three types of ACEs were significant predictors of NSSI: sexual abuse ($\beta = 0.16$, $p < .01$), incarceration of a family member ($\beta = 0.11$, $p = 0.051$) and abuse of father by the partner ($\beta = 0.15$, $p = 0.012$). Available data suggest that at least one part of the variance can be ascribed to the ACEs. Therefore, emphasis should be put on fostering coping strategies in adolescents that would lead to diminishing negative consequences of ACEs.

Keywords: Adverse Childhood Experience (ACE), Non-Suicidal Self Injury (NSSI), Suicide attempts

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ADVERSE CHILDHOOD EXPERIENCE AND EDUCATIONAL OUTCOMES: SEARCHING FOR GOOD WILL HUNTING

Marina Videnović
Institute of Psychology, Faculty of Philosophy, University of Belgrade

Studies from western countries show that higher ACEs score is associated with lower educational achievement, which as a consequence has financial insecurity. Literature reports that students' academic problems co-occur with the maltreatment and manifestations of emotional distress. The special research topic is academic resilience defined as academic success and persistence despite maltreatment and adverse childhood experience. The aim of this study was to establish an association between adverse childhood experiences and educational outcomes: obtained educational level (primary school, secondary school, college degree and faculty degree), the incidence of dropping out (leaving school before finishing) and the presence of school's problems. Participants who graduated from university and at the same time experienced four or more adverse experience were identified as those who manifested academic resilience. Our findings indicated that respondents with higher education report a lower number of ACEs, but this effect was very weak and was significant only when frequent ACEs score was taken into account ($\eta^2 = 0.01$, $p < .01$). Albeit very weak, a significant difference between the obtained level of education and personal income was detected ($\eta^2 = 0.01$, $p < .01$). The correlation between ACEs score and personal income was not statistically significant. Importantly, the higher ACEs score was related to drop out, i.e., leaving school before completing the final year ($F(3, 2651) = 9.124$; $p < .01$). Further, analyse revealed that participants who left a secondary school education have more adverse childhood experience than the rest. When we calculated a composite score related to various school problems (i.e., absenteeism, violence toward teachers and pupils, engaging in the school fights, destroying school property, exposure to teachers and peer violence) it correlated significantly with ACEs score ($r = .41$, $p < .01$). This result indicates that respondents who reported a higher number of ACEs had more school problems. Participants who showed academic resilience (16% of the sample) have parents with higher educational level ($F = 12.47$; $p < .01$) and have a higher score at Agreeableness ($F = 13.05$; $df = 1$; $p < .01$) and Openness ($F = 16.89$; $df = 1$; $p < .01$) compared to the rest of the sample. The indications of the results for the prevention intervention programs related to the ACEs and educational outcomes will be discussed.

Keywords: education, adverse childhood experience, drop-out, academic resilience

VIOLENCE BEGETS VIOLENCE – ACES ASSOCIATIONS TO CONFLICTS IN ROMANTIC RELATIONSHIPS, ATTACHMENT, AND ATTITUDES TOWARDS CORPORAL PRACTICES IN PARENTING

Marija Mitković Vončina
Institute for Mental Health, Belgrade
Milica Pejović Milovančević
Institute for Mental Health, Belgrade

The studies repeatedly show that adverse childhood experiences (ACEs) such as child maltreatment affect early relationships and attachment, and may have adverse interpersonal implications in victim's adult life, including problematic functioning as romantic partners and as parents. This may further set a stage for an intergenerational cycle of adversity and violence. The nature of these transmissions is still unknown and requires additional investigation. The aim of our study was to explore relationships of ACEs with romantic attachment and frequency of conflicts in romantic relationships, as well as with attitudes towards corporal punishment as a parenting discipline practice. Participants were asked about the frequency of verbal and physical conflicts in their romantic relationships (1 item), and about their attitudes to corporal punishment (2 items), whereas romantic attachment was assessed through Experience in Close Relationships-Revised. The mediation and moderation analyses were based on the ordinary least square regression within path analysis method, using bootstrapping confidence intervals (PROCESS). Results showed that insecure romantic attachment (higher attachment anxiety and avoidance) partially mediated the association between frequent ACEs score and more relationship conflicts, when adjusted for gender and age (total effect of the ACE score on relationship quality $B = -0.07$; indirect effects through anxiety $B = -0.02$, avoidance $B = -0.01$, $p < .000$). Supportive attitudes toward corporal punishment positively correlated with being spanked as a child ($Rho = .20$, $p < .001$) and to a lesser extent with ACE score ($Rho = .06$, $p < .001$). Being a parent moderated a link between the ACE score and the attitude toward corporal punishment in terms of higher number of ACEs weakly but significantly predicting higher support of corporal discipline only in those who were parents (any ACE score $B = 0.04$, $p < .05$; frequent ACE score $B = 0.05$, $p < .05$). Overall, the findings suggest a positive relationship between adverse events in childhood and markers of dysfunctional partner and parenting features. Practical implications are discussed, in terms of preventive strategies focused on the possible intergenerational transmission of family adversity. However, small effect sizes suggest the complexity of the transmission mechanisms and the involvement of other factors.

Keywords: Adverse Childhood Experience (ACE), partner relationships, romantic attachment, corporal punishment

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PRATEĆA PREDAVANJA

LANGUAGE, LITERACY AND ACADEMIC ATTAINMENT OF INTERNATIONAL
STUDENTS IN HIGHER EDUCATION

Danijela Trenkic
Department of Education, University of York

An increasing number of university students pursue education in English as a foreign language. An implicit assumption is that their English is good enough, or would improve sufficiently over the course of their studies, to allow them to fulfil their academic potential. Yet, research conducted in the UK suggests that international students perform notably less well on average than home students (Morrison et al, 2005).

In this talk I present my recent research on how language abilities and literacy skills of newly-arrived students develop over the course of a year and how they impact on their end-or-year academic results. I consider challenges of pursuing an academic degree in a foreign language, and how psycholinguistic research can inform university policies and strategies to ensure that educational experience and outcomes of international students are not compromised.

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MEASURING ATTENTION IN VIDEO GAMES

Joe Cutting
Department of Theatre, Film and Television, University of York, UK

Everyone knows the experience of playing a video game, but being able to measure that experience is still a challenge. Meeting that challenge would give greater insights into how games work and improve game design. In this talk I describe a method for measuring how well games hold your attention. This method uses visual images to distract participants while they are playing and then after the game participants are tested to see how many of the distractor images they recognise. I will also be describing how I have used this method to measure inattentional blindness in games and show how inattentional blindness in games is related to how immersed players are in the game but also the specific design features of the game.

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KLINIČKA PSIHOLOGIJA

RAZUMEVANJE SAJBERHONDRIJE U KONTEKSTU AFEKTIVNE VEZANOSTI I SKRIPTNE ZABRANE „NE BUDI ZDRAV"

Đorđi Đeorgiev
Departman za psihologiju Filozofski fakultet, Univerzitet u Nišu | *dzolleb@gmail.com*
Tina Janjić
Departman za psihologiju Filozofski fakultet, Univerzitet u Nišu
Nikola Goljović
Departman za psihologiju Filozofski fakultet, Univerzitet u Nišu

Cilj ovog istraživanja jeste da ispita da li postoji statistički značajna povezanost afektivne vezanosti i skriptne zabrane „Ne budi zdrav" sa sajberhondrijom – kompulsivnim nagonom traganja za informacijama koje zbog svog sadržaja izazivaju nove i preuveličane strahove za zdravlje; kao i ispitati da li na osnovu ovih fenomena možemo predvideti skor na dimenziji Sajberhondrije. Uzorak je prigodan, a čini ga 342 ispitanika (m = 108; ž = 234), pretežno studenata (71.3%), dok ostatak čine zaposlena (19.9%) i nezaposlena lica (8.8%), starosti od 18 do 49 godina (M = 25.36; SD = 6.79). Instrumenti korišćeni u istraživanju su: Revidirana skala za merenje afektivne vezanosti odraslih (Collins, 1996), Subskala „Ne budi zdrav" iz Skale procene skriptnih zabrana (Gavrilov-Jerković i sar., 2010) i Kratka skala Sajberhondrije (Jokić-Begić i sar., 2018). Rezultati pokazuju da je dimenzija Sajberhondrija u niskoj korelaciji sa obe dimenzije afektivne vezanosti, pozitivno sa dimenzijom Anksioznost ($r = 0.22$; $p < 0.01$) i negativno sa dimenzijom Bliskost/zavisnost ($r = -0.15$; $p < 0.05$) i u niskoj i pozitivnoj korelaciji sa skriptnom zabranom „Ne budi zdrav" ($r = 0.17$; $p < 0.05$). Sprovedena je hijerarhijska regresiona analiza sa dva seta prediktora. Na osnovu prvog seta prediktora ($R^2 = 0.057$; $F(2, 189) = 5.68$; $p = .004$] koji čine dimenzije afektivne vezanosti, kao statistički značajan prediktor Sajberhondrije izdvaja se dimenzija Anksioznost ($\beta = 0.18$; $p < .05$). Nakon unošenja skriptne zabrane, u drugom koraku, u finalnom modelu kao statistički značajan prediktor izdvaja se samo skriptna zabrana „Ne budi zdrav" ($\beta = 0.17$; $p < .05$). Nakon uvođenja drugog seta prediktora došlo je do statistički značajne promene ($\Delta R^2 = 0.025$; $\Delta F(1, 188) = 5,11$, $p = 0.025$) u objašnjenoj varijansi, tako da konačni model objašnjava ukupno 8.2%. U konačnom modelu skriptna zabrana ostaje jedini prediktor sajberhondrije, dok dimenzije afektivne vezanosti gube svoju prediktivnu moć. Ipak ostaje povezanost između ovih dimenzija koja se uklapa u željeni teorijski kontekst. Imajući u vidu da osobe koje su internalizovale skriptnu zabranu „Ne budi zdrav" često umeju da budu bolesne kako bi pridobile pažnju drugih, isto kao i osobe koje su ambivalentno vezane a koje svoje simptome prikazuju sa istim ciljem, traganje za informacijama na internetu posle čega se javljaju novi i preuveličani strahovi za svoje zdravlje, može biti u funkciji opisanog ponašanja pridobijanja pažnje drugih.

Ključne reci: sajberhondrija, afektivna vezanost, skriptne zabrane, Ne budi zdrav

UNDERSTANDING CYBERCHONDRIA IN THE CONTEXT OF ATTACHMENT AND INJUNCTION "DON'T BE WELL"

The aim of this research is to examine the relation between the Attachment and injunction "Don't be well" with Cyberchondria defined as compulsive tendency to seek information about one's health which creates an exaggerated fear for one's current health. The sample consisted of 342 respondents (m = 108; f = 234), aged 18-49 (M = 25.36; SD = 6.79). We used the Scale of the injunction, Revived Adult Attachment Scale and Short Cyberchondria scale. The results showed that there is a significant correlation between Cyberchondria with both dimensions of

Attachment; and also a significant correlation with the injunction "Don't be well". The final hierarchical regression model shows that only the injunction "Don't be well" can be seen as a significant predictor of Cyberchondria. The relation between dimensions of Attachment, injunction, and Cyberchondria can be discussed through a behavioral manner of getting ill in order to get the attention of others through the maintenance of the behavior patterns of cyberchondria.

Keywords: Cyberchondria, Attachment, injunctions, Don't be well

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COPING WITH SECONDARY TRAUMA IN PROFESSIONALS WORKING WITH REFUGEES

Maša Vukčević Marković
Psychosocial Innovation Network, Belgrade | *masa@psychosocialinnovation.net*
Marko Živanović
Department of Psychology, Faculty of Philosophy, University of Belgrade

Professionals who are working with refugees are on a daily basis faced with people who have experienced severe traumatic experiences and, therefore, are subjected to secondary traumatization. Secondary traumatization comprises of typical trauma-related symptoms usually seen in trauma survivors suffering from PTSD. The aim of this study was the examination of the latent structure of coping mechanisms in a sample of professionals working with refugees in Serbia and the exploration of relations between coping mechanisms and secondary trauma symptoms. A total of 270 participants (57% females, age range from 18 to 67 (M = 33.66, SD = 9.58) working directly with refugees completed COPE inventory assessing 15 coping mechanisms and Secondary Traumatic Stress Scale (α = .916) measuring intrusions (α = .766), avoidance (α = .809), and arousal symptoms (α = .818) of secondary trauma. Factor analysis of COPE inventory (Maximum likelihood extraction, Promax rotation) has shown that coping mechanisms group around four inter-related latent factors which accounted for 46.92% of variance – Problem-focused coping (planning, active coping, suppression competing activities, and positive reinterpretation and growth), Emotion-focused coping (use of emotional social support, use of instrumental social support, and focus on distress and venting of emotions), Avoidant coping (denial, religious coping, and behavioral disengagement), and Passive coping (acceptance, humor, substance use, restraint, and mental disengagement). Problem- and emotion-focused coping have shown not to be related to any of the secondary trauma symptoms. On the other hand, Avoidant coping was related to intrusions ($r = .282$, $p < .001$), avoidance ($r = .290$, $p < .001$), and arousal ($r = .261$, $p < .001$). The same pattern of correlations was observed for Passive coping (intrusions $r = .129$, $p < .05$; avoidance $r = .232$, $p < .001$; arousal $r = .208$, $p < .001$). Results have shown that employing maladaptive coping mechanisms in order to reduce negative effects of emotionally charged and demanding work experiences lead to the increase of secondary trauma symptoms, disabling one to deal with traumatic contents they were faced with. On the other hand, the use of adaptive coping mechanisms seems not to be effective in terms of alleviation of secondary trauma symptoms. Obtained results provide valuable guidelines for designing and delivering programs oriented toward enhancing the well-being of professionals working with traumatized individuals.

Keywords: coping mechanisms, secondary traumatization, refugees, traumatic experiences

NAJČEŠĆE TEŠKOĆE OSOBA SA DIJABETESOM I POTREBA ZA PSIHOLOŠKOM PODRŠKOM: PRELIMINARNI REZULTATI

Tatjana Gutić
Psychosocial Innovation Network | *tatjana.gutic@psychosocialinnovation.net*
Dunja Božović
Psychosocial Innovation Network
Maša Vukčević Marković
Psychosocial Innovation Network

Institut za javno zdravlje Srbije "Dr Milan Jovanović Batut" procenjuje da u Srbiji više od 710.000 stanovnika živi sa dijabetesom, što je više od 10% populacije. Uzimajući u obzir trend porasta prevalence, Svetska zdravstvena organizacija je procenila da će do 2040. godine svaki 5. stanovnik Srbije imati ovu dijagnozu. Nakon što je osobi saopštena dijagnoza, ona se suočava sa novim izazovima i obavezama, budući da adekvatno zbrinjavanje dijabetesa zahteva mnogo planiranja, prilagođavanja i samokontrole. Takvi zahtevi mogu postati psihološki opterećujući za osobu i za njenu okolinu. Istraživanje je imalo za cilj utvrđivanje najčešćih psiholoških teškoća i potrebe za psihološkom podrškom u kontekstu dijabetesa. Korišćeni instrumenti su upitnik *PAID* (*Problem Areas in Diabetes Questionnaire*), *WHO (Five) Well-Being Index*, kao i kratak upitnik o stavovima prema psihološkoj podršci i savetovanju, konstruisan za potrebe ovog istraživanja. Istraživanje je sprovedeno preko interneta, a uzorak je činilo 184 osobe oba pola (ženski pol = 75,5%, muški pol = 24,5%), tj. osobe sa dijabetesom (55%), njima bliski prijatelji (10%) i članovi njihovih porodica (35%). Rezultati deskriptivne statistike na celokupnom uzorku pokazali su da se sledeće teškoće sa kojima se osobe sa dijabetesom suočavaju izdvajaju kao dominantne: *briga za budućnost i mogućnost da budu suočeni sa ozbiljnim komplikacijama* (64%), *briga oko reakcija na nizak nivo šećera u krvi* (50%) i *osećanje krivice i anksioznost kada se ne pridržavaju režima terapije ili ishrane* (50%). Slede *osećaj nemanja jasnih i konkretnih ciljeva u tretmanu dijabetesa* (45%), *osećanje da su "sagoreli" od konstantnih napora da vode računa o dijabetesu* (45%) i *konstantno razmišljanje i briga o ishrani* (43%). Kada su u pitanju stavovi prema psihološkoj podršci, pokazano je da 99.5% ispitanika smatra da je osobama sa dijabetesom potrebno da im na raspolaganju bude besplatno psihološko savetovanje kao dodatna pomoć u suočavanju i prevazilaženju teškoća, a 91.3% da bi oni lično koristili usluge programa psihološke podrške osobama sa dijabetesom u okviru grupnog ili individualnog savetovanja. Rezultati su pokazali da veliki broj osoba koje se direktno ili indirektno suočavaju sa dijabetesom smatra da je psihološka podrška u nošenju sa ovim izazovom potrebna, te je važno da rezultati ove i sličnih studija naiđu na praktične implikacije i formiranje programa dodatne podrške kako za osobe sa dijabetesom, tako i za njima bliske osobe.

Ključne reči: psihološka podrška, dijabetes, mentalno zdravlje

COMMON DIFFICULTIES AND THE NEED FOR PSYCHOLOGICAL SUPPORT AMONG PERSONS WITH DIABETES: PRELIMINARY RESULTS

The estimates from 'Dr Milan Jovanovic Batut' Institute of Public Health of Serbia are that over 710,000 people in Serbia have diabetes, which is over 10% of population. Taking into account the increase of the prevalence of the condition, World Health Organization (WHO) estimates that by 2040 one in five people in Serbia will have this diagnosis. After being diagnosed, one is facing many new challenges since adequate diabetes care requires a lot of planning, adjustments, and self-control. The demands can become psychologically burdening

for a person with diabetes (PWD), as well as for others around them. This study examines the most common difficulties and the need for psychological support in relation to diabetes. Instruments used were the *PAID* questionnaire (*Problem Areas in Diabetes Questionnaire*), *WHO (Five) Well-Being Index*, and a short questionnaire about the attitudes towards psychological support and counseling, created for the purpose of this research. The study was conducted online, and the sample included 184 participants, both gender (female = 75,5%, male = 24,5%), i.e. PWD (55%), their close friends (10%) and members of their families (35%). Data of the sample in total underwent descriptive statistical analysis and results revealed that the most common difficulties that PWD face are: *concern about the future and worry that they could face serious complications in times to come* (64%), *concern about reactions to low blood sugar levels* (50%) *feeling of guilt and anxiety when not taking medication regularly or sticking to the prescribed diet* (50%), followed by the *feeling of not having clear goals in the treatment of diabetes* (45%), *feeling burned-out from taking incessant diabetes care* (45%) and *constantly thinking and caring about their diet* (43%). Regarding the attitudes towards psychological support, 99,5% feels that PWD should be provided with free psychological counseling as auxiliary assistance in facing and overcoming these difficulties, while 91,3% say they would personally take part in a programme of psychological support to PWD as part of a group or individual counseling. The results show that a large number of persons in/directly facing diabetes feels that there is a need for psychological support in handling this challenge, therefore it is important for the results of this and similar studies to be applied in practice and used to establish additional support programs for PWD as well as for persons close to them.

Keywords: psychological support, diabetes, mental health

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PSYCHOMETRIC PROPERTIES AND FACTOR STRUCTURE OF REFUGEE HEALTH SCREENER (RHS-13)

Maša Vukčević Marković
Psychosocial Innovation Network | *masa@psychosocialinnovation.net*
Irena Stojadinović
Psychosocial Innovation Network | *irena.stojadinovic@psychosocialinnovation.net*
Jovana Bjekić
Institute for Medical Research, University of Belgrade | *jovana.bjekic@imi.bg.ac.rs*

Refugee Health Screener (RHS–13) is a brief screening tool designed to assess most common symptoms of mental health conditions in refugee population. Despite its indisputable practical value in mental health screening and psychological triage, there has been little evidence on basic psychometric properties of this instrument. Therefore, this study aims to explore internal constancy and factor structure of RHS–13 on a diverse sample of refugees/asylum seekers/migrants. Sample consisted of 567 refugees/asylum seekers/migrants (86.8% male, age range 13 – 65 years (M = 23.37, SD = 8.59) from different countries, including Syria, Afghanistan, Cuba, Nigeria, Iraq, Zimbabwe, etc. RHS–13 consists of 13 Likert-scale items representing most common psychological distress symptoms in refugee population i.e. symptoms of anxiety, depression and post-traumatic stress. Results showed good internal consistency ($\alpha = .861$). Using the Maximum Likelihood estimation method we te sted the one-, two – and three-factor models. One-factor model was rather poor $\chi^2(54) = 265.15$, $p < .001$; CFI = .888; RMSEA = .083 [CI90%: .073 – .095], two-factor model (factor 1: anxiety and depression symptoms, factor 2: post-traumatic stress symptoms) had better fit $\chi^2(53) = 201.69$, $p < .001$; CFI = .921; RMSEA = .070 [CI90%: .060 – .081], while three-factor model

$\chi2(51) = 190.17$, $p < .001$; CFI = .926, RMSEA = .069 [CI90%: .059 – .080] had also good fit. The results show that three-factor model fits best the data (one- vs three-factor model $p < .001$; two- vs three-factor model $p < .01$) indicating a clear factorial structure of RHS-13. Therefore, our data justify the usage of additional cut-off scores, alongside recommended overall RHS-13 cut-off score, in screening for anxiety, depression and post traumatic stress symptoms in refugee population.

Keywords: Refugee Health Screener, factor structure, anxiety, depression, post-traumatic stress

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IT'S A BAD LUCK: RELATIONS BETWEEN SUPERSTITION AND COPING STRATEGIES

Nikola Goljović
Departman za psihologiju, Filozofski fakultet, Univerzitet u
Nišu | *nikolagoljovic@gmail.com*

Superstition can be defined as believing that certain life events can influence a person's fate and that they can bring good or bad luck, which cannot be explained using scientific facts, but their source can be found in magical or mystical causes. According to the tripartite model, superstition was considered and analyzed as an attitude toward specific objects of superstition. The study assumes that superstitious behavior can be linked to stress coping strategies, where we assume that people who are prone to superstition may be more inclined to use alternative methods of coping with stress and avoiding dealing with the problem. The sample consisted of 342 respondents (234 female), mostly students (71.3%), and the rest consisted of employed (19.9%) and unemployed (8.8%) people, aged 18 – 49 (M = 25.36; SD = 6.79). We used Superstition scale (Žeželj et al., 2009) to measure behavior associated with superstitions and Brief COPE (Carver, 1997) with three factors of coping: problem focus, avoidance and seeking social support. The results of the correlation analysis showed that there is a statistically significant correlation between superstition and coping strategies. A positive correlation has been found between superstitions and the seeking social support strategy ($r = .262$; $p < .00$) and the avoidance coping strategy ($r = .233$; $p < .00$), while statistically significant negative correlation has been found between superstitions and problem-focused coping ($r = -.126$; $p < .05$). All of the obtained correlations are of low intensity. We conducted 3 hierarchical regression analysis (one for each coping strategy) with two sets of predictors, wherein the first step we controlled gender, age, residence, and education level. In the second step, we added a dimension of general superstition. The results of the regression analysis showed that problem-focused coping ($R^2 = .033$; $F(5, 337) = 2.275$; $p < .05$) can be predicted negatively by superstition ($\beta = -.127$, $p < .05$), same as the seeking social support coping ($R^2 = .155$; F(5, 337) = 12.407; $p < .00$] positively ($\beta = .206$, $p < .00$), and the avoidance coping ($R^2 = .081$; F(5, 337) = 5.943; $p < .05$) also positively ($\beta = .249$, $p < .05$). Based on these results, it can be concluded that the inclination to superstition is higher for those who are prone to seeking support in others and avoiding coping with problems. The obtained results indicate that bad luck and similar magical justifications represent an ineffective way of overcoming stressful situations.

Keywords: superstition, coping, problem-focused, avoidance, seeking social support

KOGNITIVNA PSIHOLOGIJA

SENSORY LOAD AND WORD RECOGNITION

Dušica Filipović Đurđević
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *dusica.djurdjevic@f.bg.ac.rs*
Katarina Jelisavčić
Laboratorija za eksperimentalnu psihologiju, Filozofski fakultet, Univerzitet u
Novom Sadu | *katarinajelisavcic99@gmail.com*

The hallmark of the Perceptual Symbol Systems is the hypothesized perceptual simulation that is at the core of conceptual representation. The simulation can be boosted if the attention is directed towards a given modality, or prevented if the input information occupies attentional resources within the given modality. Here, we make use of this effect to demonstrate that perceptual simulation occurs not only when explicitly addressing particular sensory feature (as previously demonstrated), but also in word recognition. We take as the starting point the finding that nouns denoting objects that can be only visually perceived (e.g. *sky*) take advantage over nouns denoting objects that can be only auditorily perceived (e.g. *sound*) if presented in a visual lexical decision task (VLD), whereas, if presented in an auditory lexical decision task (ALD), the opposite pattern is observed. We selected two groups of Serbian nouns: one denoted objects that could only be perceptually experienced in visual modality, whereas the other denoted objects that could only be perceptually experienced in auditory modality. Simultaneously with performing either VLD or ALD to forty critical stimuli (combined with pseudo-words and fillers), half of the participants were performing serial digit recall taxing their Phonological Loop (PhL), whereas half of the participants were memorizing visual matrices which taxed their Visuospatial Sketchpad (VSSP). Additionally, the data collected from participants that were engaged either in VLD or ALD without additional working memory (WM) load were taken from a previous study to serve as the control condition. Linear mixed-effects regression applied to data from the total of 111 participants revealed significant three-way interaction ($\beta = .09$, $t = 2.55$, $p = .011$) which indicated different effects of PhL and VSSP load on words denoting visual and auditory objects in different presentation modalities. VSSP load was more detrimental to processing of words denoting visual objects, than to words denoting auditory objects, but only when those words were presented visually (in VLD; $\beta = .18$, $t = 3.80$, $p < .001$). The simulation boosting effect that had been observed in the control condition was cancelled out under cognitive load condition by the selective interference. In the light of Perceptual Symbol Systems, this is interpreted as a consequence of the preventing of perceptual simulation, thus pointing to the role of perceptual simulation in the process of word recognition.

Keywords: Dual tasks, Embodied Cognition, Lexical Decision Task, Semantic Memory, Working Memory

THE RELATIONSHIP BETWEEN CONSENSUALITY AND DIRECTION OF CHANGE OF INITIAL RESPONSES IN SYLLOGISTIC REASONING

Igor Bajšanski
Odsjek za psihologiju, Filozofski fakultet, Sveučilište u Rijeci,
Hrvatska | *sibajsan@ffri.hr*
Valnea Žauhar
Odsjek za psihologiju, Filozofski fakultet, Sveučilište u Rijeci,
Hrvatska | *vzauhar@ffri.hr*

Research using two-response paradigm shows that reasoners sometimes change their initial responses to reasoning problems after rethinking. The probability of answers change is related to feeling of rightness, the metacognitive feeling that is associated with the initial response. However, rethinking often does not lead to higher accuracy of responses. In line with the predictions derived from the Self-Consistency Model, higher probability of answer change was expected for initial responses with low consensuality than for initial responses with high consensuality. The aim of the experiment was to examine the effect of the response consensuality on the probability of answer change and on the confidence judgments. Seventy participants evaluated 24 syllogistic problems previously found to differ in consensuality, including consensually correct, consensually wrong, and nonconsensual items. Participants provided two responses for each task, initial quick response and second response after rethinking. After both responses, participants made confidence judgments. The analysis by-items revealed that consensuality was related to the probability of answer change ($r = -.50$; $p < .05$): initial responses given to the items with low consensuality were more likely to be changed than initial responses given to the items with high consensuality. Similarly, nonconsnensual initial responses were more likely to be changed than consensual initial responses. This effect was particularly strong for consensually wrong items, resulting in lower accuracy of responses after rethinking (M = .20) compared to the accuracy of initial responses (M = .32), $t(69) = 6.78$, $p < .001$. Confidence judgments and response times were correlated with consensuality of initial answers, and with consensualty of answers provided after rethinking. The obtained results indicate random fluctuations in representation sampling and related evidence that favours each of the two response options as a possible factor that affects the probability of answer change.

Keywords: two-response paradigm, self-consistency, consensuality, confidence, syllogistic reasoning

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MULTITASK VIDEO-IGRE KAO KOGNITIVNI TRENING ZA MLAĐE ODRASLE OSOBE

Marina Martinčević
Odsjek za psihologiju Filozofskog Fakulteta, Sveučilište u
Zagrebu | *mmartincevic@ffzg.hr*
Andrea Vranić
Odsjek za psihologiju Filozofskog Fakulteta, Sveučilište u Zagrebu

Video-igre su danas izuzetno popularan oblik zabave, naročito među mlađom populacijom. U posljednje vrijeme one se vrlo često koriste kao treninga za osnaživanje kognitivnih funkcija. Stoga je i cilj ovog istraživanja bio ispitati neposredne i odgođene učinke igranja igre s više istovremenih zadataka na različite aspekte izvršnog funkcioniranja i prostornog pamćenja kod studenata. Istraživanju je pristupilo 75 studenata, no obrada je provedena na njih 58 koji su imali rezultate u svim točkama mjerenja. Studenti su na početku podijeljeni u dvije skupine:

tretmansku i aktivnu kontrolnu. Tretmanska skupina je igrala igru „MultiTask" u kojoj igrač istovremeno obavlja više jednostavnih zadataka, dok je aktivna kontrolna skupina igrala igru „Smooth Snake" u kojoj igrači obavljaju samo jedan jednostavan zadatak. Sudionici su kroz četiri tjedana, tri puta tjedno, igrali igru u trajanju od 15ak minuta. Prije početka treninga, neposredno nakon i šest mjeseci po završetku treninga ispitano im je opće izvršno funkcioniranje, mentalna fleksibilnost, inhibicija, radno i prostorno pamćenje. Pri inicijalnom mjerenju nije ustanovljena razlika između grupa na ispitanim mjerama. Korištenjem analize varijance za ponovljena mjerenja, pokazalo se da za većinu mjera razlika među grupama nije bila značajna niti nakon provedenog treninga. Razlika je utvrđena za opće izvršno funkcioniranje u kojem je tretmanska grupa imala značajno bolje rezultate od kontrolne grupe 6 mjeseci nakon provedenog treninga ($F(2, 108) = 3.13$; $p < .05$). Dodatne analize su pokazale da inicijalne sposobnosti mogu predvidjeti napredak na svim korištenim kognitivnim mjerama, a broj odigranih igara predviđa ukupan broj točnih odgovora na zadatku općeg izvršnog funkcioniranja, neposredno i 6 mjeseci nakon treninga. Ovi rezultati upućuju na učinkovitost „MultiTask" video-igre na opće izvršno funkcioniranje i važnost individualnih varijabli za učinkovitost treninga.

Ključne riječi: kognitivni trening, video-igre, izvršno funkcioniranje, pamćenje

MULTITASK GAMES AS COGNITIVE TRAINING FOR YOUNGER ADULTS

Video games are popular activity which can be used as a cognitive training. This study aimed at examining immediate and delayed effects of playing multitask video games on different aspects of cognitive functioning in students. Participants (N = 58) were randomly assigned to treatment or active control group. The treatment group played the game "MultiTask", while the control group played a simple game "Smooth Snake". The training took four weeks, with the game played three times a week for 15 minutes. General executive functioning, shifting, inhibition, working and spatial memory were tested at pretest, post-test and follow-up. After conducting repeated measures ANOVA, most measures showed no between-group differences at different time points. However, groups differed significantly in general executive functioning 6 months after the training. These results show the effectiveness of "MultiTask" video game for general executive functioning and reveal the importance of individual variables in predicting training efficacy.

Keywords: cognitive training, video games, executive functions, memory

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A DEONTIC BLIND SPOT: AN ARGUMENT FOR A SPECIALIZED MORAL REASONING SCHEMA

Mislav Sudić
Department of Psychology, University of Zadar | *mislav.sudic@gmail.com*
Pavle Valerjev
Department of Psychology, University of Zadar | *valerjev@unizd.hr*

Deontic reasoning is a type of logical reasoning that uses rule-type operators (obligations and permissions). It can also be used as a normative for determining and comparing rule-reasoning accuracy across content-types, such as morality and conventions, which was the goal of this study. We designed a 3x2x2 deontic reasoning task that tracked participants' performance (response time and accuracy) across three contents (moral, conventional, abstract), two rule-types (obligation, permission), and two induced dilemma-types (punishment dilemma, reward dilemma). Participants (N = 78) were psychology undergraduates and graduates. They solved a total of 96 deontic dilemmas. We correctly hypothesized superior performance for moral over

conventional, and conventional over abstract contents (RT: $F(2, 132) = 11.33$, $p < .01$; accuracy: $F(2, 134) = 19.71$, $p < ,01$); as well as better performance for punishment over reward dilemmas (RT: $F(1, 66) = 12.26$, $p < .01$; accuracy: $F(1, 67) = 13.47$, $p < .01$). However, contrary to our expectations, not only was the performance for obligations superior, it yielded the largest effect size (RT: $F(1, 66) = 97.35$, $p < .01$, $\eta_p^2 = .596$; accuracy: $F(1, 67) = 121.47$, $p < .01$, $\eta_p^2 = .645$). Looking into main effect interactions, we discovered an interesting phenomenon. Participants, when reasoning conventionally and abstractly, often made a logical error in rules that had the form of "It's permissible to perform [an undesirable action]". If understood correctly, this permission-type rule was supposed to induce a reward dilemma. However, it seems participants perceived this situation as a punishment dilemma, dropping their accuracy by 21-25%. We dubbed this bias "the deontic blind spot". Even more interestingly, it seems this effect was not present during moral reasoning. A specialized moral reasoning schema, implied by Turiel's Domain theory, may account for the compensatory effect of moral content for that bias. The possible existence of a moral reasoning schema is further explained by the fact that moral reasoning performance does not seem to depend on either rule-type, or the induced dilemma, unlike abstract and conventional deontic reasoning.

Keywords: moral reasoning, conventions, deontic logic, deontic blind spot

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EXAMINING THE INTERACTION BETWEEN THE CURRENT EMOTIONAL STATE AND WORD VALENCE: THE INFLUENCE ON WORKING MEMORY EFFICACY

Nikola Milosavljević
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *nikola.milosavljevic@f.bg.ac.rs*
Sara Stanisavljević
Department of Psychology, Faculty of Philosophy, University of Belgrade
Jelka Stojanov
Department of Psychology, Faculty of Philosophy, University of Belgrade
Ana Vilotijević
Department of Psychology, Faculty of Philosophy, University of Belgrade

The effects of emotional states and emotional content on working memory have mostly been studied separately. There is evidence that positive affect has a positive influence on working memory efficacy while with negative affect no effect was found. It has been shown that word valence modulates working memory processes. The aim of this study was to replicate these findings and to examine the interaction between these two factors. Total of 95 students was randomly assigned to the positive, negative and neutral group in accordance with the induced affect. Emotion induction was achieved by using pretested music and videos that varied in valence and by giving a gift. The positive group watched a video with positive content and received a gift at the beginning of the experiment, while the negative group watched a video with negative content and participants were told they should have received a gift, but there was not any left. Participants completed the Operation Span Task in which they were asked to reproduce sequences of words of varying valence while simultaneously solving mathematical equations. One-way ANOVA revealed that participants' affect in three groups significantly differed ($F(2, 88) = 25.12$, $p < .01$). However, Scheffe post hoc test showed that participants in the positive and neutral condition did not differ ($p = .127$). Due to the limited efficacy of the method used to induce positive affect, the participants were divided into positive and negative group, based on the median of their self-reported emotional state (Mdn = 7). Independent

samples t-test showed marginal differences between the positive and the negative group ($t(1, 89) = 1.98$, $p = .051$) with the negative group showing a working memory advantage. Two-way factorial ANOVA showed marginal differences regarding the effect of word valence ($F(2, 89) = 2.94$, $p = .056$) but no differences were observed between specific levels of this factor. The interaction between the participants' affect and word valence was also insignificant ($F(2, 89) = 0.06$, $p > .05$). To the authors' knowledge, up to now, no study has combined three procedures for emotion induction (film, music, gift) so it might be the case that this procedure was too artificial and did not elicit intended emotional states for that reason. However, it might be speculated that the observed trend in the results regarding the influence of affect would have been stronger if the experimental manipulation had been more successful.

Keywords: working memory, emotion induction, emotional content, operation span task

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SEMANTIC DYNAMICS AND SENSE UNCERTAINTY EFFECTS – PREDICTIVE POWER AND LIMITATIONS OF THE SSD MODEL

Ksenija Mišić
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade | *ksenija.misic@gmail.com*
Dušica Filipović Đurđević
Laboratory for Experimental Psychology, Belgrade; Laboratory for Experimental Psychology, Novi Sad; Department of Psychology Faculty of Philosophy, University of Belgrade

Years of empirical work have shown that words with multiple related senses (polysemy) are processed faster than unambiguous words, whereas the ones with multiple unrelated meanings (homonymy) are processed slower (Rodd, Gaskell, & Marslen-Wilson, 2002). This was true for the lexical decision task (LDT), however, if different experimental task was employed, presence of those effects would vary. To account for this, Semantic Settling Dynamics (SSD) model was developed (Armstrong & Plaut, 2016) which relies on the hypothesis that different amounts of semantic demands between experimental tasks are the cause of varying effects. Model predicts that polysemes produce a large effect in early phases that decreases with further processing. In order to test this prediction further, we described polysemy by entropy – measure that combines number of senses with the balance of their probabilities. In two experiments, we used the same strategy of prolonging of the processing: we compared a visual LDT with its slowed down version. In our first experiment, slowing down was attempted by reducing stimulus-background contrast and in the second one, we compared visual and auditory LDT (Armstrong & Plaut, 2016; Medeiros & Armstrong, 2017). First manipulation failed to prolong processing, although expected facilitatory entropy effect was present in both experimental conditions (high contrast: $b = -.011$, *S.E.* $= .004$, $df = 220.4$, $t = -2.41$, p $= .017$; reduced contrast: $b = -.012$, *S.E.* $= .003$, $df = 232.4$, $t = -2.748$, $p = .006$). Second manipulation substantially prolonged the processing and the interaction between entropy and the experimental manipulation was significant ($b = .022$, *S.E.* $= .003$, $df = 139.485$, $t = 8.039$, p $= .000$). In visual LDT, expected entropy effect was found ($b = -024$, *S.E.* $= .020$, $df = 142.885$, $t = 30.425$, $p = .000$), while in the auditory LDT (prolonged), there was no such effect ($b = -.003$, *S.E.* $= .005$, $df = 166.99$, $t = -.589$, $p = .557$).

Both results are in the accordance with model predictions – when there was no prolonging of the processing, there was no change in entropy effect, while in the prolonged condition the effect disappeared. According to model background, auditory lexical decision should still produce polysemy effect, while in our experiment no effect was noted in that condition. These

results implicate that SSD model may predict modulation of the entropy effect, however, it is unable to predict the exact effect change which is a great limitation of its predictive power.

Keywords: semantic ambiguity, entropy, polysemy, Semantic Settling Dynamics

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DA LI OČNI POKRETI ODGOVARAJU SADRŽAJU MENTALNIH PREDSTAVA?

Marija Petrović
Filozofski fakultet, Univerzitet u Beogradu | *maka.petrovic@gmail.com*
Tijana Tomić
Filozofski fakultet, Univerzitet u Beogradu
Uroš Savić Kain
Filozofski fakultet, Univerzitet u Beogradu
Ksenija Krstić
Filozofski fakultet, Univerzitet u Beogradu
Vanja Ković
Filozofski fakultet, Univerzitet u Beogradu

Poznato je da postoje veze između očnih pokreta prilikom mentalnog predstavljanja i stvarnog rasporeda objekata u neposrednom iskustvu. Prethodna istraživanja su pokazala da očni pokreti oslikavaju pozicije objekata kada ispitanici gledaju određenu sliku, slušaju određeni opis ili prepričavaju jedno od ova dva (Johansson, Holsanova, & Holmqvist, 2006), kao i da je disperzija očnih pokreta negativno povezana sa skorom na spacijalnom mentalnom predstavljanju (Johansson, Holsanova, & Holmqvist, 2011). Cilj ovog istraživanja je replikacija nalaza Johansona i saradnika. Pošto je navedeno istraživanje prvo koje je demonstriralo ove efekte sa složenim stimulusima, potrebna je replikacija istraživanja, kako bi se utvrdila stabilnost fenomena i stvorila šira empirijska građa.
Ispitanici (N = 36; 86% žena, uzrast 19/20 god.) su bili podeljeni u dve grupe –gledali su sliku ili slušali opis određenog prizora. Njihov zadatak je bio da prepričaju ono što su videli/čuli gledajući u beli ekran, a beležen je obrazac njihovih očnih pokreta. U analizi su praćene globalna korespondencija (GK; usklađenost celokupnog obrasca očnih pokreta) i lokalna korespondencija (LK; očni pokreti samo idu u odgovarajućem pravcu, ali ne oslikavaju opšti raspored prizora) očnih pokreta. Prikupljene su i mere ispitanika na OSIVQ upitniku koji meri kognitivne stilove tj. preferirani tip mentalnog predstavljanja (objektni, spacijalni ili verbalni). Rezultati pokazuju da GK između očnih pokreta i prepričavanja postoji samo u grupi koja je posmatrala sliku (28-68% poklapajućih objekata, $V = 131$, $p < .05$). Kod onih koji su slušali opis prizora postoji značajna samo LK (53% poklapajućih objekata, $V = 154$, $p < .05$). Rezultati pokazuju i da disperzija očnih pokreta nije povezana ni sa jednim od kognitivnih stilova u grupi koja je posmatrala sliku, dok u drugoj grupi postoji umerena negativna korelacija ($r = -.48$) između disperzije i objektnog mentalnog predstavljanja, koje karakteriše živopisnost mentalnih slika. Rezultati originalnih studija su samo delimično potvrđeni i ukazuju na to da je moguće da razlike potiču od modaliteta izlaganja sadržaja, gde se GK pre vezuje za sadržaj koji je izložen vizuelno, te je stoga bliži stvarnom vizuelnom opažanju. Takođe, postojanje veze između spacijalnog mentalnog predstavljanja i disperzije očnih pokreta nije potvrđeno. Uzeti zajedno, ovi rezultati sugerišu da pitanje očnih pokreta i mentalnog predstavljanja još nije sasvim rešeno.

Ključne reči: mentalno predstavljanje, očni pokreti, mentalne reprezentacije, percepcija

This study was a replication of two previous studies which explored the relationship between mental imagery and eye movements (Johansson, Holsanova, & Holmqvist, 2006, 2011). Participants either looked at an image or listened to a spoken description and both groups recalled what they experienced afterwards. Eye movements were recorded at all times. Afterwards, participants completed a questionnaire of preferred mental imagery type. Results show that overall correspondence during recall was only present in the group with the image ($V = 131$, $p < .05$), while the other group only demonstrated directional correspondence between eye movements and recall ($V = 154$, $p < .05$). Dispersion of eye movements was related to object imagery ($r = -.48$), as opposed to spatial imagery in the original study, but only in the group with the spoken description. Hence, the original results were only partially replicated which suggests the relationship between eye movements and mental imagery is not as clear as it seems.

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WHO SAID IT: HOW CONTEXTUAL INFORMATION INFLUENCE PERCEIVED PROFUNDITY OF REAL QUOTES AND PSEUDO-PROFOUND BULLSHIT

Vukašin Gligorić
Department of Psychology, University of Amsterdam | *vukasin.gligoric@student.uva.nl*
Ana Vilotijević
Department of Psychology, University of Belgrade | *ana.vilotijevic96@gmail.com*

In the era of online social networks, bullshit is prevalent in our lives. As prominent New Age figures illustrate, it might be lucrative to practice pseudo-profound bullshit which consists of randomly arranged buzzwords with proper syntactic structure. Psychological research on this topic has only recently begun; for example, neoliberals, those with lower intelligence and paranormal ideation are more prone to this type of bullshit.

Our study had two goals. First, we wanted to examine pseudo-profound bullshit in relation to different contexts and real meaningful quotes. Second, we wanted to replicate findings for neoliberals and to investigate the association with disintegration.

A total of 144 participants (102 females, 42 males, $M_{age} = 24.5$, S = 7.55) completed 5-item support for free-market scale and 20-item disintegration scale. They also rated profundity of 7 meaningful quotes (presented with or without author), 14 items from Bullshit Receptivity Scale (presented with an alleged famous author, isolated or as a vignette) and 4 mundane items presented as quotes. We constructed four forms and randomly included items. Across forms, most of the scales showed satisfactory reliability (18 of 20 had $\alpha s > .62$). Forms did not differ on any of the dependent variables ($Fs < 1.86$, $ps > .14$)

A two-way repeated ANOVA showed the interaction between type of quote (real quote or pseudo-profound) and context (with or without author), $F(1, 143) = 10.66$, $p = 0.001$, $\eta^2 = 0.07$. Real quotes were rated as more profound than the bullshit, $F(1, 143)=138.53$, $p < .001$, $\eta^2 = 0.49$, and quotes with authors were rated as more profound than those without, $F(1, 143) = 7.50$, $p < .01$, $\eta^2 = 0.05$. Pseudo-profound bullshit presented as vignette was not rated differently from bullshit with author ($t(143) = 1.93$, $p = .055$), nor bullshit without author ($t(143) = -1.97$, $p = .05$).

We failed to replicate the relationship with the support for the free market ($r = .05$, $p > .05$) but found the association with disintegration ($r = .29$, $p < .001$). All results held the same pattern when we controlled for the ratings of mundane items as a measure of bias to profundity.

Overall, our results demonstrate that contextual information (such as author's name) affects ambiguous and vague quotes, but do not affect meaningful quotes that have the merit of their

own. This builds on a small amount of literature and helps to understand the bullshit receptivity while offering a new line of research.

Keywords: bullshit, authorship effect, labeling effect, quotes, profundity

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CONTRASTING THE TRUE EXPERIENCE AND THE POSSIBILITY TO EXPERIENCE: THE CASE OF THE NUMBER OF SENSORY MODALITIES

Milica Popović Stijačić
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Novi Sad | *milica.p.stijacic@gmail.com*
Dušica Filipović Đurđević
Department of Psychology, Faculty of Philosophy, University of Belgrade;
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

Embodiment theories revived a stand that modality-specific perceptual information is relevant to our cognitive system. Thus, modality-specific ratings were proposed describing a visual, auditory, olfactory, gustatory and tactile experience with an object. Based on them, several integrative measures of perceptual richness were derived, such as the sum of average scores across modalities (SoM; reflecting intensity) and the number of modalities through which a concept could be experienced (NoM; reflecting diversity). Additionally, it has been suggested that ratings of the actual experience with an object are better predictors of processing time than the ratings of the possibility to experience. Here, we explicitly contrast the two aspects of experience in order to test for the predictions of *hard* embodiment (Perceptual symbol system theory) which would favour actual experience and *soft* embodiment (grounding by interaction hypothesis) favouring the possibility to experience. In order to do so, we focus on a single integrative measure - NoM. Previous studies were not able to disentangle the effects of SoM and NoM due to high collinearity. Thus, we experimentally control for the effect of SoM and test for the effect of NoM. Based on a normative study, we selected 98 Serbian nouns that differed in terms of possibility-to-experience-based NoM (1 vs. 2), while being matched for experience-based NoM (1) and for several relevant control variables: length, familiarity, age of acquisition, emotional valence, arousal, concreteness, imageability. Importantly, the two lists were also matched for SoM, thus focusing our test to a measure of diversity.
Another list was selected to contain 92 words differing in experience-based NoM (1 vs. 2), while being matched for possibility-to-experience-based NoM (2) and the control variables, including SoM. These lists were presented in two Visual Lexical Decision Task experiments, to two groups of native speakers (32; 42). Linear mixed-effects regression fitted to processing latencies showed no effect of possibility-to-experience-based NoM for otherwise matched groups of words: $\beta = 11.99$, $t(88.27) = .76$, $p = .45$. Similarly, there was no effect of the experience-based NoM for words which were matched for other variables: $\beta = 4.26$, $t(89.18) = .26$, $p = .80$. These results show that NoM itself does not seem to be a relevant measure for word processing, nor does the real experience with the concept play a role, concerning this particular measure.

Keywords: embodiment, perceptual strength, perceptual richness, lexical decision task

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CHRONOMETRY AND META-REASONING IN A MODIFIED COGNITIVE REFLECTION TEST

Pavle Valerjev

Odjel za psihologiju, Sveučilište u Zadru | *valerjev@unizd.hr*

The Cognitive Reflection Test (CRT) has become common measurement of analytical thinking and rationality. The original version contains three problems of similar structure. The tasks are designed to induce heuristic-biased thinking which commonly leads to the wrong answer which needs to be overridden. The aim of this study was to introduce additional three items and modify the CRT by including chronometric and metacognitive measures of confidence. Participants (*N*=70) were presented with a problem and four alternatives amongst which one was the correct response, one was based on a heuristic, one was a filler incorrect response and the final alternative was "none of above". Their task was to respond, as fast as possible, by pressing the key corresponding to their preferred response. After each response, participants gave a judgment of confidence on a seven-point scale. Item-level analysis were conducted in order to compare correct and heuristic responses. There was a total of 28.86% correct and 52.86% of heuristic responses (18.28% filler and "none of the above). Two 2 (heuristic vs analytic response) by 6 (CRT item) ANOVAs were conducted on response times and confidence ratings. The response time analysis revealed a significant main effect of response type ($F(1, 327) = 5.60$, $p < .05$, $n_p^2 = .02$) with slightly faster responses for heuristic responses. However, this was qualified by a significant interaction effect ($F(5, 327) = 3.50$, $p < .01$, $n_p^2 = .05$). The only significant difference in response times between correct and heuristic responses was observed in the *Bat and ball* problem. The confidence ratings analysis revealed a significant main effect of response type ($F(1, 327) = 11.62$, $p < .01$, $n_p^2 = .03$) as well as CRT problem ($F(5, 327) = 3.84$, $p < 01$, $n_p^2 = .06$), with both effects qualified by a significant interaction ($F(5, 327) = 3.05$, $p < 05$, $n_p^2 = .04$). Participants were generally more confident when providing correct responses, but this was the case for only three of the six problems. Additionally correlation analysis revealed significant negative correlations between response times and confidence ratings for both correct ($r(115) = -.29$, $p < .01$) and heuristic responses ($r(220) = -.35$, $p < .01$). Shorter response times were accompanied by higher confidence. The results show there is significant variability between the various problems of the modified CRT which will be discussed in light of recent development within the dual-process approach to reasoning.

Keywords: Cognitive Reflection Test, meta-reasoning, metacognition, heuristic bias, analytical thinking

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RELEVANCE OF 'EXPERIMENTAL PHILOSOPHY' TO THE REPLICATION CRISIS: EMPIRICAL FINDINGS AND FURTHER TESTS

Slobodan Perović

Department of Philosophy, Faculty of Philosophy, University of Belgrade | *sperovic@f.bg.ac.rs*

Experimental philosophy is an influential movement in contemporary academic philosophy that has centered on testing people's moral and epistemological intuitions concerning traditional philosophical notions and distinctions. The researchers in the field, typically trained as both psychologists and philosophers or teamed-up with psychologists, have used regular empirical methodologies of psychology and cognitive science in a number of studies performed

across cultures to inquire (in the form of more or less complex but succinct and clear questions), for instance, whether people think a) they have free will, b) that a convincing appearance of an object constitutes knowledge about the object, c) that the existence of god has been proved in a particular proof, etc. The results are then used as a pretext for relevant philosophical analysis. A recent study has shown that the results of studies performed by experimental philosophers have a substantially high reproducibility rate. Forty tests had a 70% reproducibility success (compared to 35% for the Reproducibility Project in psychology).

We offer two possible explanations for the high reproducibility. For one thing, the authors designing and implementing studies in experimental philosophy specialize in philosophy of psychology which is very sensitive to, and to a great extent motivated by, methodological concerns in social sciences (e.g. what counts as evidence, what is statistical significance, etc.). This leads them to be extraordinarily meticulous in implementing their empirical methods and analyzing their data. This is our first hypothesis. Another key factor may be the lack of pressure to churn out empirical results with the frequency of a typical psychology laboratory; the discipline of philosophy concentrates primarily on conceptual analysis, leaving researchers with significantly more time to dedicate to each segment of their empirical studies. This is our second hypothesis.

To verify the first hypothesis, we propose to test whether the results of studies performed by psychologists who also concentrate on methodological questions in their work are significantly more reproducible than those of others. We will construct and use both questionnaires and available data, on individual websites and appropriate e-archives of published papers, on psychologists' relevant work. If the hypothesis turns out to be correct, it is likely that experimental philosophers owe much of the reproducibility of their results to their methodological background and interests. This can have a normative weight in psychology as well – more focus and discussion of methodological questions may be beneficial across the field. We will test the second hypothesis by comparing the average time experimental philosophers take to design and implement a test with the average time that design and implementation takes in psychology laboratories. We will use existing data on timelines of relevant experimental projects, as well as questionnaires if necessary.

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IS THERE THE EFFECT OF MORPHOLOGICAL DIFFERENCES ON THE LEXICAL PROCESSING OF DEVERBAL NOMINALS IN SERBIAN?

Isidora Gatarić
Computing in Social Sciences, University of Belgrade, Serbia | *gataric.isidora@gmail.com*
Sanja Srdanović
Department of Linguistics, Goethe University Frankfurt, Germany
Anja Šarić
Department of Linguistics, Goethe University Frankfurt, Germany

Deverbal nominalization is a process of formation of derived noun out of verbs. According to the previous theoretical and empirical studies, deverbal nominals can be divided into process and result nominals (Zlatić, 1997; Srdanović et al., 2018). In addition to the existence of semantic and syntactic differences between the two types of deverbal nominals, they also differ in specific morphological characteristics in Serbian (Matracki & Kovačić, 2016). According to the morphological characteristics, there are three subgroups of process and result deverbal nominals: (i) result deverbal nominals with the zero suffix, while the process deverbal nominals end with the suffix *-nje* (e.g. *žubor/žuborenje*); (ii) result deverbal nominals differ from the process deverbal nominals in the presence of the *–va* infix (e.g. *rešenje/rešavanje*); (iii) process

nominals end with the suffix *-nje*, while the result nominals end with other derivational suffixes (e.g. *rotiranje/rotacija*). This study was designed to examine whether the morphological features of deverbal nominals affect their lexical processing in Serbian. Consequently, three self-paced reading tasks (related with the three subgroups of deverbal nominals) were conducted, with the sentences where the deverbal nominals were embedded. Two hundred and three students participated in three Experiments (Exp1 = 70; Exp2 = 65; Exp3 =68). The data from all three experiments were analyzed with the Generalized Additive Mixed Models (Wood, 2006; 2011). The results of the final models from all three experiments (Exp$_1$ [β= -.04; SE$_β$ = .02; t= -1.62; Pr(>|t|) = .10]; Exp$_2$ [β = -.04; SE$_β$ = .02; t = -1.90; Pr(>|t|) = .07]; Exp$_3$ [β = .00; SE$_β$ = .01; t = .18; Pr(>|t|) = .85]) suggest that there is no statistically significant effect of morphological differences on the lexical processing of process and result deverbal nominals in Serbian. Taken together, results support a-morphous perspective in the lexical processing of morphologically complex nouns (e.g. Milin et al., 2017), as well as distributed morphology perspective from the theoretical linguistics (Halle, 1990; 1997).

Keywords: derivational morphology, deverbal nominals, lexical processing, a-morphous morphology, distributed morphology

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PHONOLOGICAL SIMILARITY EFFECT IN SERBIAN LANGUAGE: CHECKING RETRIEVAL CUES HYPOTHESIS

Emir Demić
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade | *s.dg.emir@gmail.com*
Ana Avramović
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade
Milica Šimonović
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

With increasing phonological similarity of letters in sequence, the immediate serial recall gets worse. This is known as phonological similarity effect, which occurs also in sequences comprised of both similar and dissimilar letters – although the mistakes occur on similar and not on dissimilar letters. One probable explanation is that retrieval cues for similar letters are not discriminative enough; hence it would be expected to have more mistakes in remembering similar letters. Furthermore, previous research has suggested that similar letters cannot be retrieval cues for dissimilar letters. This study aimed to investigate the retrieval cues hypothesis by strengthening the ties between retrieval cues and similar letters and to examine whether the number of mistakes decreased in that situation. In this experiment, a total of 20 participants attempted to recall sequences of six letters in the order of presentation. Two factors were varied: type of the sequence and type of the presentation. Type of the sequence varied on six levels: SDSDSD, DSDSDS, SSSSSS, DDDDDD, SSSDDD and DDDSSS (s-similar; d-dissimilar), while the type of the presentation varied on two levels: presenting letters in pairs and presenting letters successively. According to retrieval cues hypothesis we would expect: (1) fewer errors in DDDDDD than in SSSSSS sequence in all presentation types; (2) fewer errors on second, fourth and sixth position in DSDSDS sequence presented in pairs than presented successively; (3) no differences in the number of errors on second, fourth and sixth position in SDSDSD sequence between all presentation types. The results show significant effect of type of the sequence ($F(5, 80) = 77.774$, $p = .001$), type of the presentation ($F(1, 16) = 8.032$, $p = .012$) and interaction ($F(5, 80) = 3.009$, $p = .015$). Furthermore, the results for comparing mistakes

on second, fourth and sixth position in DSDSDS and SDSDSD for all types of presentation show the significant effect of the type of the presentation ($F(1, 19) = 7.385$, $p = .014$) with insignificant effect of the type of sequence and insignificant interaction. However, there are significant differences between the two types of presentation for DSDSDS situation and insignificant for SDSDSD situation as well as differences between these two types of sequences presented successively. The results of this experiment support the retrieval cues hypothesis and the statement that similar letters cannot be retrieval cues for dissimilar letters.

Keywords: phonological similarity effect, retrieval cues hypothesis

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THE COGNITIVE PROCESSING OF DEVERBAL NOMINALS IN ENGLISH

Isidora Gatarić
Computing in Social Sciences, University of Belgrade, Serbia | *gataric.isidora@gmail.com*
Sanja Srdanović
Department of Linguistics, Goethe University Frankfurt, Germany
Anja Šarić
Department of Linguistics, Goethe University Frankfurt, Germany
Filip Nenadić
Department of Linguistic, University of Alberta, Canada

Deverbal nominals are derived nouns formed out of verbs, and according to the previous studies conducted in English they can be divided into process and result nominals (Grimshaw, 1990). These two types of deverbal nominals differ in many syntactic and morpho-semantic characteristics. Following Grimshaw's (1990) claims, the crucial difference is the syntactic complexity of these two deverbal nominals: process deverbal nominals take obligatory arguments, while result ones do not. To the best of our knowledge, there are no previous studies in English investigating cognitive processing of deverbal nominals, although all mentioned differences suggest that these two types could be processed differently due to their syntactic and morpho-semantic differences. Consequently, this experiment was designed to investigate if there are detectable differences in the cognitive processing of process and result deverbal nominals in English. Native English speakers ($N = 38$) were tested in a self-paced reading task, were sentences with the process and results deverbal nominals were presented to them. The task of the participants was to read the sentences, word by word, and to press ENTER when they finish their reading. Generalized Additive Mixed Models (Wood, 2006; 2011) were applied to the gathered data, and two separate analyses were conducted (one on the RTs on critical word, and another one for the analysis of RTs on entire sentences). The results from the first GAMM analysis suggest that result deverbal nominals are processed faster than process deverbal nominals ($\beta = -.06$; $SE_\beta = .02$; $t = -3.10$; $Pr(>|t|) = .00$), and the second analysis revealed the same effect when the RTs of the entire sentences were analyzed ($\beta = -.01$; $SE_\beta = .01$; $t = -9.32$; $Pr(>|t|) = .00$). These results represent the first empirical confirmation of the theoretical assumption that the process deverbal nominals are more complex for processing due to their morpho-semantics and syntactic complexity (e.g. Grimshaw, 1990).

Keywords: deverbal nominalization, derived nouns, reading time, self-paced reading task

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IS THERE AN EFFECT OF SYNTACTIC COMPLEXITY ON THE ORDER OF ACQUISITION OF *SE*-VERBS IN SERBIAN?

Nina Ilić

Department of English Studies, Faculty of Philosophy, University of
Novi Sad, Serbia | *nina.ilic.ns@gmail.com*

The results of cross-linguistic research on the acquisition of verbs have not been unanimous. Nativist studies have shown that children are sensitive to syntactic differences from an early age (Snyder, Hyams & Crisma, 1995; Lorusso, Caprin & Guasti, 2005; Costa & Friedmann, 2012), but that the production of certain verb types causes more difficulty (Borer & Wexler, 1992; Babyonyshev et al., 2001). On the other hand, some psycholinguistic studies have shown that the acquisition of verbs can be explained within the usage-based theory (Tomasello, 1992; Lieven, 2008; Anđelković, 2012). The present study was designed to test the order in which different kinds of *se*-verbs are acquired in Serbian. Real reflexive, real reciprocal, and anti-causative verbs were tested. None of the tested types is syntactically simple, because they do not involve a canonical linking of semantic roles and syntactic functions. However, it was expected that anti-causative verbs would be acquired after real reflexive and reciprocal verbs, because they are syntactically more complex. A total of twenty-seven subjects belonging to three age groups (3, 4 and 5 years-nine participants each) took part in the pilot research. The data collection technique was a structured interview with a verb elicitation task. The children were asked to name the activities presented in the pictures. The independent variable was verb type with three levels (real reflexive, real reciprocal and anti-causative verbs). The dependent variable was verb production (coded as target or non-target). The data were analyzed with the Mixed Effects Logistic Regression (GLMER), for each of the three age categories. The results of the first GLMER analysis (age 3) suggest that real reflexive verbs were produced more frequently than anti-causative verbs (β = -1.64; z = -2.58; Pr(>|z|) = .00), as well as reciprocal in comparison with anti-causative verbs (β=-1.31; z=-2.06; Pr(>|z|)=. 03). Furthermore, the second GLMER model (age 4) suggests that real reflexive verbs were produced more frequently than anti-causatives (β = -3.27; z = -2.06; Pr(>|z|) = .03), and the last GLMER analysis (age 5) supports the results of the first GLMER analysis (β = -1.99; z = -2.37; Pr(>|z|) = .01 and β = -1.79; z = -2.20; Pr(>|z|) = .02). Therefore, the results have indicated that anti-causative verbs are the most difficult for children to produce, as expected, which speaks in favour of the nativist hypothesis. More participants should be included in the research in the future in order to obtain more reliable results.

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TROLLEY PROBLEM: PSYCHOPATHY OR VIRTUE?

Ana Keleman
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina | *anakeleman@gmail.com*
Lana Lugonja
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina
Siniša Subotić
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina
Strahinja Dimitrijević
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina

Trolley problem is a classical thought experiment in which one must decide if they will sacrifice one person to save many that would otherwise be killed by a trolley. Versions of this problem are often used as utilitarian dilemma tasks in moral psychology research. However, recent findings showed that judgements from these "sacrificial dilemmas" do not necessarily represent a genuine utilitarian perspective, which aims to maximize a greater good, but they rather reflect sub-clinical psychopathy. We explored this topic by constructing variations of the trolley problem and correlating the judgements with measures of psychopathy and voluntarism. Specifically, we asked 68 college students (75% females; mean age: 19.82 years) to assess a situation in which: (A) They must push one person in front of the trolley to save five people. (B) They are the one being pushed to save five people. (C) They are one of the people being saved because somebody else was pushed to death. For every scenario we measured: (1) an approval of someone else being pushed, (2) an assessment of morality of the action, (3) a level of emotional disturbance caused by the scenario, and (4) a level in which participants were able to imagine themselves in the situation. Participants also answered questions regarding their willingness to do volunteer work, completed a measure of impression management (IM), and psychopathy. A month later, participants made trolley problem judgements and again completed the IM measure. Willingness to do volunteer work (combined) correlated negatively with the psychopathy score ($r = -.35$, $p = .004$) and was functionally uncorrelated with the trolley assessments, except significant positive correlations with 2/3 assessments of emotional disturbance (A3: $r = .24$, $p = .048$; B3: $r = .18$, $p = .153$; C3: $r = .24$, $p = .046$). The test or retest IM levels did not correlate with any of the trolley assessments. The psychopathy showed a positive (albeit not always significant) correlational trend with the endorsements and moral assessments of the scenarios (A) (A1: $r = .27$, $p = .025$; A2: $r = .15$, $p = .207$) and (C) (C1: $r = .23$, $p = .056$, C2: $r = .33$, $p = .006$), and negative trend with the levels of emotional disturbance in all three scenarios (A3: $r = -.32$, $p = .008$; B3: $r = -.27$, $p = .027$; C3: $r = -.33$, $p = .005$). Thus, our results mostly confirm the notion that trolley problem judgements share some significant proportion of variance with psychopathy and are not really a valid measure of moral virtue.

Keywords: trolley problem, utilitarian morality, ethics, virtue, psychopathy

THE EFFECT OF NON-WORD LENGTH ON TYPES OF ERRORS IN REPETITIONS OF SERBIAN PRESCHOOL CHILDREN

Maša Popović
Laboratory for Experimental Psychology, Faculty of Philosophy, University of
Belgrade | *beumas@yahoo.com*
Maja Savić
Laboratory for Experimental Psychology, Faculty of Philosophy; Faculty of Philology,
University of Belgrade
Ana Batas
Faculty of Philology, University of Belgrade
Darinka Anđelković
Laboratory for Experimental Psychology; Institute of Psychology, Faculty of Philosophy,
University of Belgrade

Typical phonological error patterns observed on the word, syllable, and phoneme level in children's language production are sensitive to and vary across (supra)segmental contexts. A valid procedure for investigating the effect of different contexts on errors is the non-word repetition task with varied phonological structures. Continuing on our previous findings (Popović et al., 2017), which show a significant effect of non-word length on total repetition accuracy, the aim of this study was to examine this effect on specific types of errors in repetitions.

The study included 75 monolingual typically developing (TD) Serbian children, aged 3 to 7. The used non-word repetition task consisted of 48 non-words constructed by systematically varying the number of syllables (two, three, and four), and three other phonological parameters: the position of syllable stress, onset and coda. The children's task was to repeat each pre-recorded non-word after hearing it. The repetitions were audio recorded, transcribed, and coded for 16 types of errors on the word, syllable and phoneme level.

Two-way factorial ANOVAs, with factors age and number of syllables (N Syll.), were performed for the six most frequent errors in the repetitions. The following significant effects and interactions are shown for the different errors: *Stress shifting*: age ($F(4, 70) = 8.124$, $p < .001$), N Syll. ($F(2, 140) = 118.5$, $p < .001$), interaction ($F(8, 140) = 2.576$, $p = .012$); *Onset consonant cluster reduction*: age ($F(4, 70) = 13.35$, $p < .001$), N Syll. ($F(2, 140) = 26.92$, $p < .001$); *Coda consonant omission*: age ($F(4, 70) = 8.645$, $p < .001$), N Syll. ($F(2, 140) = 15.84$, $p < .001$); *Coda consonant addition*: age ($F(4, 70) = 7.474$, $p < .001$), N Syll. ($F(2, 140) = 16.89$, $p < .001$), interaction ($F(8, 140) = 3.34$, $p = .002$); *Consonant metathesis*: age ($F(4, 70) = 11.01$, $p < .001$), N Syll. ($F(2, 140) = 86.05$, $p < .001$), interaction $F(8, 140) = 5.650$, $p < .001$); *Phoneme substitution*: age ($F(4, 70) = 30.97$, $p < .001$), N Syll. ($F(2, 140) = 130.5$, $p < .001$), interaction ($F(8, 140) = 2.41$, $p = .018$).

It may be concluded that with increasing non-word length, the repetition accuracy at all three levels (word, syllable, and phoneme) decreases in Serbian TD children, especially at younger ages. Three-year-olds have mastered some parameters of the shortest non-words, but make a large number of all errors on the longer ones. With age, children master word length, and at the age of 7 they make minimal errors, except for phoneme substitutions and stress shifting on the longest four-syllable non-words.

Keywords: phonological development, phonological error patterns, non-word length, Serbian, preschool children

THE EFFECT OF SEMANTIC RELATEDNESS OF AMBIGUOUS WORDS IN THE FREE RECALL TASK

Milica Manojlović
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *milicamanojlovic84@gmail.com*
Ksenija Mišić
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

In this study we focused on semantic ambiguity, namely, the difference between homonyms (multiple unrelated meanings) and polysemous words (multiple related senses). Previous research on processing effects of ambiguity found that polysemous words were processed faster, whereas homonymous were slower compared to unambiguous words (Rodd, Gaskell, & Marslen-Wilson, 2002). However, to the best of our knowledge, the ambiguity effect has never been researched in memory tasks. This study aimed to explore whether relatedness of meanings would have an effect on recall. Having in mind that the effects observed in processing tasks have a tendency to reverse in memory tasks, we predicted the similar reversal in our study. Such is the case with word frequency which facilitates word recognition, but makes the recall of the word harder (Lohnas & Kahana, 2013; Taft, 1979). Additionally, findings on the word processing facilitation by that word's associates (Mayes, Montaldi & Migo, 2007) agree with our ambiguity effect reversal hypothesis. We therefore predicted that homonyms would show the highest recall, followed by unambiguous and ultimately polysemous words.

We constructed a list containing 20 polysemes, 20 homonyms, and 20 unambiguous words that were randomly ordered. Four unambiguous fillers were presented at the beginning and the end of the list to control for the serial order effects. The list was presented to 30 participants in a free recall task. They were told that we are testing reading comprehension and that the task was to read the words carefully. The dependent variables were the percentage of a word recall (by-participant analysis) and the percentage of word group recall (by-stimuli). Two analyses were conducted using by-participant (F1) and by-item (F2) ANOVA. Homonyms were recalled the most, followed by unambiguous words, with polysemes being recalled the least ($F1(2, 58) = 52.640$, $p < .001$, $\eta^2 = .645$; $F2(2, 57) = 6.268$, $p < .003$, $\eta^2 = .180$).

These results are congruent with our hypothesis, and point to the fact that ambiguity affects recall and that the meaning/sense relatedness plays a significant role in the process. When explaining these findings we must also consider temporal dynamics in semantics (Armstrong, 2012). Prolonged processing time allows all meanings of homonyms to achieve maximal activation of word representations, but also their associates during the time of the stimulus presentation, while simultaneously, the same effect decreases for polysemous words.

Keywords: ambiguity, polysemy, homonymy, memory, associates

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COGNITIVE FACTORS OF THE PSEUDO-PROFOUND BULLSHIT PHENOMENA

Sandra Ilić

Laboratory for Experimental Psychology, Faculty of Philosophy, University of
Belgrade | *ilicsandra87@gmail.com*

Pseudo profound bullshit (PPB) pertains to seemingly impressive vague claims, construed without concern for meaning or truthiness but presented as meaningful and true, and as such often deemed profound. With the aim of testing the relationship between proneness to rate PPB as profound, and cognitive (e.g. cognitive reflection and logical reasoning) as well as social-cognitive (authorship) factors, we conducted two studies. Both samples comprised first and second year psychology students (N1 = 79, N2 = 84). In both studies subjects rated the profundity of 12 proverbs, 12 PPB and 12 mundane statements, and again the profundity of the same PPB statements but with assigned authors of different levels of trustworthiness: trustworthy, of questionable trustworthiness, randomly generated name. We collected scores on cognitive reflection test (CRT) as a measure of the tendency to override the first gut answer and engage in further reflection to find a correct one (Study 1), non-numerical CRT (nCRT), actively open-minded thinking beliefs scale (AOTB), and 16 categorical syllogisms (CT) which differed by congruency between the conclusion plausibility and whether it was supported by premises (Study 2). In study 1 participants rated proverbs (M = 3.34, SD = .693) as more profound than PPB (M = 2.33, SD = .703), and PPB as more profound than mundane (M = 1.40, SD = .495) statements. The difference was significant ($F(1.839,139.746) = 210.442$, $p < .001$) and replicated in study 2. The mean profundity ratings of PPB did not correlate significantly with the number of correct answers on CRT, nCRT, congruent and incongruent CT, nor with the scores on AOTB. The repeated measures ANOVA showed significant interaction between the time and the authors' trustworthiness factors ($F(2, 152) = 24.700$, $p < .001$, $\eta^2 = .245$). Compared to the same statements without assigned author, the PPB statements with trustworthy author ($t(76) = -7.226$, $p < .001$) and with randomly generated name ($t(76) = -2.915$, $p = .005$) were rated as significantly more profound, but the statements with author of questionable trustworthiness were not ($t(76) = .416$, $p = .679$). This was replicated in the study 2. It appears that students find PPB statements to be between somewhat and fairly profound, but these ratings are not associated with their tendencies toward or beliefs about analytical reasoning. However, who the author of the PPB is influences the rating - when it comes to wisdom, it is more important who produced the claim than its content.

Keywords: Pseudo-profound bullshit, authorship, cognitive reflection, categorical syllogisms, actively open-minded thinking beliefs.

ZAKLJUČIVANJE O BRZINI I UBRZANJU VERTIKALNOG HICA NAVIŠE: RAZMATRANJA KARAKTERISTIKA ZADATKA

Strahinja Dimitrijević
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka | *strahinja.dimitrijevic@ff.unibl.org*
Stefan Prišić
Faculty of Philosophy, The University of Banja Luka
Nina Tešinić
Faculty of Philosophy, The University of Banja Luka
Milana Damjenić
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka

Za ljudsko znanje o intuitivnoj mehanici karakteristične različite zablude. Osnovni cilj ovog istraživanja bio je da ispitamo da li su ova pogrešna uvjerenja, kada je riječ o brzini i ubrzanju vertikalnog hica naviše, osjetljiva na format zadavanja zadatka. Uzorak se sastojao od 250 studenata (76.7% žena) čiji je zadatak bio da donesu zaključak o tome u kojoj je tački uzlazne putanje lopte bačene vertikalno uvis brzina kretanja najveća, kao i o tome šta se dešava sa ubrzanjem lopte u istoj situaciji. Format zadatka o poziciji tačke maksimalne brzine variran je kroz četiri situacije u neponovljenom eksperimentalnom dizajnu (*stick*-crtež naspram tekstualnog zadatka, te unutar stick-crtež formata tri situacije sa pozicijom ruke bacača na 45, 90 ili 135 stepeni u odnosu na tijelo). Rezultati, dobijeni Fišerovim egzaktnim testom, pokazali su da ne postoji razlika između tri *stick*-crtež situacije kada je riječ o zaključivanju o tački maksimalne brzine, pri čemu su procenti tačnih odgovora bili 12.7%, 14.7% i 19.0%, za 45, 90 i 135 stepeni, respektivno. Razlike nije bilo za tri stick-crtež situacije niti u zaključivanju o ubrzanju lopte, sa procentima tačnih odgovora od 7.9%, 14.5% i 16.1%, za 45, 90 i 135 stepeni, respektivno. Razlike nisu pronađene ni kada se poredi *stick*-crtež sa tekstualnim zadatkom, kako za poziciju maksimalne brzine, tako ni za karakteristike ubrzanja. Rezultati upućuju na zaključak da naše zablude o brzini i ubrzanju vertikalnog hica naviše nisu osjetljive na format prezentovanja zadatka.

Ključne riječi: intuitivna mehanika, vertikalni hitac naviše, karakteristike zadatka

INFERENCES OF VERTICAL PROJECTILE VELOCITY AND ACCELERATION: TASK CHARACTERISTICS CONSIDERATIONS

Human intuitive knowledge about physics mechanics is inherently flawed and characterized by various misconceptions. The primary aim of this study was to examine whether these misconceptions, in particular about velocity and acceleration of vertical projectile, are sensitive to task presentation format. Sample consisted of 250 undergraduate students (76.7% female), whose task was to infer the point of maximum velocity and acceleration characteristics of a ball thrown vertically upwards. Task format was varied in four conditions between-subjects design (stick-drawing vs. textual, with three different positions of stick-figure hand, at 45, 90 or 135 degrees from the body). Results indicated that inferences about maximal velocity point and acceleration characteristics are not influenced neither by stick-figure hand positions, nor by the change in task format, i.e. stick-drawing compared to textual task. Overall results indicate that our misconceptions regarding velocity and acceleration of vertical projectile are not sensitive to task presentation format.

Keywords: intuitive mehanics, vertical projectile motion, task characteristics

ULOGA VELIČINE GRAFEMA U OBRADI LATINIČNOG I ĆIRILIČNOG PISMA

Svetlana Borojević
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina | *svetlana.borojevic@ff.unibl.org*
Sonja Stančić
Laboratory of Experimental Psychology – LEP-BL, Faculty of Philosophy,
University of Banja Luka, Bosnia & Herzegovina

Cilj istraživanja jeste provjera da li se razlika u obradi dva alfabetska sistema srpskog jezika može objasniti specifičnim grafemskim karakteristikama. Identifikacija alfabetskih obilježja predstavlja osnovu za razumijevanje mehanizama prepoznavanja i obrade riječi, jer su grafemi dizajnirani tako da kombinacijom ograničenog broja prekida (završetaka), pravih i zakrivljenih linija prenesu odgovarajuću informaciju. Utvrđeno je da vizuelna degradacija riječi napisanih malim slovima Arial fonta ima različit efekat u latiničnom i ćiriličnom pismu. Kod ćiriličnih riječi dolazi do otežavanja obrade, dok je kod latiničnih riječi obrada otežana samo u slučaju degradiranja donjeg dijela slova (Borojević, Dimitrijević, & Stančić, 2018). Pitanje je da li se takvi efekti dobijaju i na uzorku velikih slova. U zadatku leksičke odluke bilo je 6 situacija dobijenih variranjem dva faktora: pismo (ćirilica, latinica) i vizuelna dostupnost informacija (cijela riječ, gornja polovina, donja polovina). Stimulusi su bili imenice muškog roda u nominativu jednine, dužine 6 različitih karaktera, različite frekvencije, te pseudoriječi iste strukture, svi napisani velikim štampanim slovima, Arial fontom 48. Uzorak je činilo 68 studenata Univerziteta u Banjoj Luci, kojima je prvo naučeno pismo ćirilica, koji ne preferiraju određeno pismo pri čitanju i koji su napravili manje od 30% grešaka. Utvrđena je značajna razlika između eksperimentalnih situacija u brzini obrade (RT) riječi ($F(5) = 360.2$, $p < .001$), pri čemu su Šefeovom post hok analizom prosječna RT svrstana u četiri grupe, i to: (1) cijele latinične (804ms), (2) cijele ćirilične (942ms); (3) vidljiva gornja (1521.8ms) i donja polovina (1553.2ms) latiničnih riječi i (4) vidljiva donja (1827.8ms) i gornja polovina (1948.8ms) ćiriličnih riječi. Značajan efekat dobijen je i kod pseudoriječi ($F(4) = 586.4$, $p < .001$), s tim da razlike u pogledu prosječnih RT nisu značajne između svih eksperimentalnih situacija. Rezultati pokazuju da veličina grafema ima uticaj na obradu riječi u okviru dva pisma. Obrada ćiriličnih riječi, te latiničnih riječi kojima je vizuelno dostupna gornja polovina grafema je zahtjevnija kada su one napisane velikim slovima. S druge strane, cijele latinične riječi kao i latinične riječi kojima je vidljiva donja polovina, se brže obrađuju ako su stimulusi napisani velikim slovima. Dobijene nalaze bi trebalo provjeriti dodatnim istraživanjima u kojima bi se varirali tip fonta, opterećenje u zadatku i/ili frekventnost riječi itd.

Ključne riječi: latinica, ćirilica, obrada riječi, veličina grafema

THE EFFECT OF GRAPHEME SIZE ON PROCESSING OF LATIN AND CYRILLIC WORDS

The graphemes are designed to transmit the appropriate information by combining a limited number of terminations as well as straight and curved lines. It was found that visual degradation of words written in lower case letters has a different effect in two alphabet systems. The question is whether such effects will be obtained on upper case letters. Two factors were varied-alphabet (Cyrillic and Latin) and visual availability of information (visible whole word, visible upper part of the word and visible lower part of the word). A significant difference was found between the experimental situations in the RT ($F(5) = 360.2$, $p < .001$). The results show that processing of Cyrillic words and Latin words with visual accessible upper half of the letter are slower when they are written in capital letters. But, whole Latin words and Latin words which are visible to the bottom half, are processed faster if they are written in capital letters.

Keywords: Latin, Cyrillic, word processing, grapheme size

UTICAJ PERSPEKTIVE AKTERA I POSMATRAČA NA INDUKOVANJE LAŽNIH SEĆANJA O DOGAĐAJU

Una Lazić*
Medicinski fakultet, Univerzitet u Beogradu | *unalazic123@gmail.com*
Ivana Miličić*
Fakultet tehničkih nauka, Univerzitet u Novom Sadu
Ksenija Mišić
Laboratorija za eksperimentalnu psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Predrag Nedimović
Laboratorija za eksperimentalnu psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Sećanja predstavljaju više rekonstrukciju nego reprodukciju događaja, što i potvrđuje postojanje brojnih fenomena modifikacije sećanja među kojima su jedan od najistraženijih lažna sećanja. Lažna sećanja su bogata detaljima, emocijama, puna fikcije i netačnih podataka, što olakšava manipulisanje postojećim informacijama. U nizu istraživanja pokazano je da je moguće izazvati sećanje na nepostojeći događaj, kao i da se pomoću sugestivnih pitanja može izvršiti potpuna izmena sećanja (Loftus & Ketchman, 1994; Loftus & Pickrell, 1995). Uprkos tome što su do sada ispitani mnogi faktori koji utiču na pojavu lažnih sećanja, do sada nije ispitivan uticaj perspektive iz koje se posmatra događaj, odnosno da li smo bili akter ili posmatrač događaja sećanja. Nalazi potekli iz oblasti video igara govore o razlikama u percepciji prostora u zavisnosti od perspektive (El Nasr & Yan, 2006). Iz perspektive aktera veći je fokus na centar ekrana, dok je iz perspektive posmatrača fokus i na centru i na okolini. Stoga je cilj našeg istraživanja bio da ispitamo razlike u učestalosti lažnih sećanja vezanih za centar ili okolinu u zavisnosti od perspektive ispitanika. Pretpostavke su bile da će ispitanici koji su sećanje formirali iz ugla aktera biti skloniji lažnim sećanjima vezanim za okolinu. Sa druge strane, kod ispitanika-posmatrača učestalost lažnih sećanja biće jednaka za centar i okolinu.

Dvema grupama od po 15 ispitanika prikazana su dva videa sa istim događajem. Prva grupa gledala je video u kom se radnja prikazivala iz prvog lica (akter), a drugoj grupi je prikazan video iz trećeg lica (posmatrač). Za indukciju lažnih sećanja korišćen je upitnik konstruisan za potrebe ovog istraživanja koji je sadržao 20 pitanja sugestivnog i nesugestivnog tipa vezanih za radnju (centar) i okolinu snimka.

Analiza podataka je pokazala da je značajan nalaz našeg istraživanja glavni efekat faktora centar/okolina ($F(1, 14) = 8.680$, $p = .011$, $\eta^2 = .383$), dok nije bilo efekta perspektive posmatranja ($F(1, 14) = 2.464$, $p = .139$, $\eta^2 = .150$). Ovaj podatak ukazuje na to da su ispitanici bolje pamtili detalje vezane za centar, bez obzira na perspektivu iz koje su gledali snimak, odnosno posvećivali su više pažnje radnji nego okolini. Takođe, to sugeriše da na učestalost pojave lažnih sećanja ne utiče lice iz kog se ispitanik priseća događaja, već da bitniju ulogu ima pažnja koja se posveti. Uz adekvatnu pažnju vizuelna perspektiva prestaje da ima važnu ulogu u formiranju lažnih sećanja.

Ključne reči: lažna sećanja, vizuelna perspektiva, centar/okolina, pažnja

* označava jednak doprinos autora

False memories represent memories of an event that has never occurred, and they are usually formed using suggestive questions (Loftus & Ketchman, 1994). The influence of visual perspective (actor or spectator) on false memory formation has not been researched so far. Research has shown that we tend to focus on the event (center) from the actor perspective and

we give equal attention to the event and the surroundings from the spectator perspective (El Nasr & Yan, 2006). The aim of this research was to examine the differences in false memory formation depending on the perspective. In a series of analyses, no difference has been found between the actor and the spectator perspective, while the most false memories were related to the details from the surroundings. The results of our research have shown that the attention paid to the event is more important than the visual perspective in false memory induction.

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PSIHOLOGIJA LIČNOSTI

LOKUS KONTROLE I STRAH OD SMRTI

Antonije Jojić
Fakultet za medije i komunikacije | *antonije.jojic@fmk.edu.rs*
Marija Branković
Fakultet za medije i komunikacije | *marija.brankovic@fmk.edu.rs*

Cilj ovog istraživanja je ispitivanje odnosa između lokusa kontrole i straha od smrti. Istraživanja u okviru teorije upravljanja strahom (eng. terror management theory) sugerišu da je odsustvo kontrole jedan od suštinskih aspekata straha od smrti (Fritsche, Fankhanel, & Jonas, 2008) i da bi uspostavljanje osećanja kontrole moglo imati defanzivnu ulogu u umanjenju straha od smrti. U prvoj studiji smo ispitali povezanost lokusa kontrole i straha od smrti, a u drugoj studiji smo eksperimentalno indukovali veći ili manji osećaj kontrole i posmatrali efekte indukcije na intenzitet straha od smrti.

U prvoj studiji, studentima (N = 144) smo zadali Internality, Powerful Others, and Chance skalu Levensonove (IPC skala) za procenu lokusa kontrole, kao i Kolet-Lester skalu straha od smrti (sa 4 subskale: Sopstvena smrt, Sopstveno umiranje, Smrt drugih, Umiranje drugih). Rezultati prve studije su pokazali značajne pozitivne korelacije između lokusa kontrole i aspekata straha vezanih za sopstvenu smrt i umiranje (r = .296, p ≤ 0.01), kao i za smrt i umiranje drugih (*r* = .299, *p* ≤ 0.01) – što je lokus kontrole individue interniji, to je strah od smrti manji. Moguće je da uverenje individue da ona kontroliše svoju okolinu i ishode ima defanzivno dejstvo u susretu sa tematikom smrtnosti.

U drugoj studiji smo eksperimentalno indukovali osećaj veće ili manje kontrole kod studenata (N = 93), uz kontrolnu grupu koja nije bila izložena nikakvoj indukciji. Indukcije su koncipirane u formi uputstava ispitaniku da zamisli i opiše događaj nad kojim je imao potpunu, odn. nikakvu kontrolu. Proverili smo i da li lokus kontrole moderira efekte indukcije. Rezultati su pokazali da je izazivanje većeg osećanja kontrole povezano sa većim strahom od smrti i umiranja drugih (*t*(88) = -1.872, *p* = 0.032), uz odsustvo moderacionog efekta lokusa kontrole. Rezultati studije 1 govore u prilog pretpostavljene povezanosti kontrole i straha od smrti - veći doživljaj kontrole, manji strah. Rezultati studije 2 nas ponovo usmeravaju na teoriju upravljanja strahom i razmatranje mogućnosti o delovanju odbrana koje nismo inkorporirali kao varijable u naše istraživanje. Teorija upravljanja strahom pretpostavlja da se nakon izazivanja misli o smrti kod pojedinca javljaju „socijalne" odbrane, usmerene na vrednovane slike o svetu i sebi, npr. vezanost za značajne grupe. Stoga je preporuka za buduća istraživanja da istraže potencijalne mehanizme odbrane koji bi mogli posredovati odnos kontrole i straha od smrti.

Ključne reči: kontrola, strah od smrti

THE RELATIONSHIP BETWEEN LOCUS OF CONTROL AND FEAR OF DEATH

In our research, we explored the relationship between control and fear of death. The first study explored the correlation between locus of control and fear of death (N = 144). The results showed a positive correlation between external locus of control and fear of one's own death: *r* = .296, *p* < 0.01, as well as fear of death of significant others: *r* = .299, *p* < 0.01. In the second study, we experimentally evoked an enhanced/decreased feeling of control (N = 93) and examined locus of control as a moderator of its effect on death anxiety. Results showed that a greater feeling of control resulted in expressing more fear of death of others (*t*(88) = -1.872, *p* = 0.032), without any moderating effects of locus of control. The relationship between control and fear of death is complex and requires further examination (e.g. of defense mechanisms evoked by the inductions).

Keywords: control, fear of death

PSYCHOMETRIC LIFE-HISTORY MEASURES FAIL TO CAPTURE BIO-DEMOGRAPHIC LIFE-HISTORY EVENTS

Janko Međedović

Institut za kriminološka i sociološka istraživanja | *janko.medjedovic@fmk.edu.rs*

In evolutionary psychology, it is customary to measure life-history via psychometric inventories such as the Arizona Life History Battery (ALHB). This inventory measures seven variables assumed to be the indicators of slow life-history trajectory: Insight/Planning/Control, Altruism, Religiosity, Secure attachment, Parental relationship quality, Family contact and support, and Friends contact and support. This approach has been criticized by behavioral ecologists as invalid: it is argued that these measures are not congruent with real life-history events such as the number of children, age at first birth or pubertal timing. However, an empirical test of this critique has not been conducted yet. Thus, we administered ALHB to the sample of community participants (N = 549; 56% females, M_{age} = 25.5, SD = 3.24). We also collected the information on bio-demographic life-history parameters: age of first menarche (pubertal timing), onset of sexual behavior, number of sexual partners (short-term mating), duration of longest partner relationship (long-term mating), number of children, planned timing of reproduction, expected total number of children and environmental harshness. We found that correlations between these two sets of measures are rare, unsystematic and mostly low in magnitude. Stable patterns of relations emerged only between the measures of environmental harshness, Parental relationship quality, Family and Friends contact and support from ALHAB. Canonical correlation analysis (Rho = .61; λ = .33; χ^2(77) = 122.84; p = .001) showed that the shared percentage of variance between two sets of measures is low (7% of bio-demographic measures' variance was explained by psychometric measures while 8% of psychometric indicators' variance was explained by the variables from the opposite set) and solely attributable to the relations between environmental harshness and social support from ALHB. Research results support the critique of ALHB as the set of measures which lacks validity to capture real life-history parameters. ALHB measures are indeed relevant for understanding life-history variation but they do not represent life-history itself. Study findings warn researchers to use direct measures of biological events in order to measure life-history dynamics.

Keywords: life-history theory; Arizona Life History Battery; life-history measurement; human behavioral ecology

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TIPOLOGIJA IZVRŠILACA POJEDNIH KRIVIČNIH DELA SA ELEMENTIMA NASILJA

Milan Oljača
Odsek za psihologiju, Filozofski fakultet, Univerzitet u
Novom Sadu | *milanoljaca@ff.uns.ac.rs*
Valentina Baić
Kriminalističko-policijski univerzitet u Beogradu | *sonovanja@gmail.com*
Bojana Dinić
Odsek za psihologiju, Filozofski fakultet Univerziteta u
Novom Sadu | *bojana.dinic@ff.uns.ac.rs*

Ideja o važnosti razumevanja kriminalnog ponašanja, koje je primarno uslovljeno dejstvom kognitivnih i konativnih faktora, imala je uticaj na kreiranje tipologije izvršilaca, posebno nasilnih delikata. Adekvatan metodološki okvir za istraživanje ovog fenomena, predstavlja upravo tipološki pristup individualnim razlikama. Cilj ovog istraživanja je ispitivanje psiholoških profila bazičnih dimenzija ličnosti za grupu izvršilaca nasilnih delikata, i njihove

relacije sa vrstom delikta i životnim događajima. Osobine ličnosti merene su Zakermanovim upitnikom za procenu ličnosti (ZKPQ–50–CC), kojim je operacionalizovan Alternativni petofaktorski model ličnosti, a važni životni događaji Upitnikom životnih događaja (LE). Uzorak čini 178 muškaraca, osuđenih za krivično delo ubistvo, teško ubistvo i silovanje, starosti od 23 do 78 godina ($AS = 41.12$; $SD = 11.45$).

Na osnovu najnižeg BIC indeksa, rezultati analize latentnih profila (sprovedene u R okruženju u paketu "mclust") ukazuju na rešenje s dva profila: 1. neadaptirani profil (40%) koji karakteriše izražen skor na Agresivnosti-hostilnosti, povišen na Impulsivnom traženju senzacija i blago povišeni skorovi na Aktivitetu i Neuroticizmu-anksioznosti; 2. hiperadaptirani profil (60%) koji karakteriše povišen skor na Aktivitetu i veoma niski skorovi na Agresivnosti-hostilnosti i Impulsivnom traženju senzacija. Konstelacija osobina unutar izolovanih profila je veoma slična tipovima na opštoj populaciji dobijenim u prethodnim domaćim istraživanjima. Razlike u osobinama ličnosti između profila su sve značajne na nivou $p < .01$ (Koenov d je u rasponu od 0.41 do 3.38), osim u slučaju Socijabilnosti ($d = .09$). Između profila nema značajne razlike u odnosu na vrstu delikta ($\chi^2(1) = 1.05$, $p > .05$), ali ima u odnosu na broj životnih događaja. Osuđenici iz profila neadaptiranih doživljavaju značajno više negativnih kontrolabilnih životnih događaja ($d = 0.43$), dok nema značajnih razlika između profila u slučaju pozitivnih ($d = 0.21$) i negativnih nekontrolabilnih događaja ($d = 0.17$). Rezultati ukazuju na to da postoje dva različita profila ličnosti izvršilaca, koji se ne razlikuju u odnosu na vrstu nasilnog delikta, ali se razlikuju u odnosu na životne događaje. Ovi nalazi mogu biti shvaćeni kao prvi nalazi o prediktivnoj validnosti izolovanih profila osuđenika.

Ključne reči: nasilni krivični delikti, ubistvo, silovanje, tipologija, Zakermanov Alternativni petofaktrski model ličnosti, ZKPQ–50–CC, životni događaji

TYPOLOGY OF PERPETRATORS OF CERTAIN CRIMINAL OFFENSES WITH ELEMENTS OF VIOLENCE

The idea of the importance of understanding criminal behavior, which is primarily conditioned by the effects of cognitive and conative factors, has had an impact on the creation of offenders typology, in particular, related to violent delicts. An adequate methodological framework for exploring this phenomenon is the typological approach to individual differences. The aim of this research was to examine the psychological profiles of basic personality dimensions of offenders convicted for criminal acts with elements of violence, and their relations to the type of criminal offense and life events. Personality traits were measured with the Zuckerman-Kuhlman Personality Questionnaire (ZKPQ–50–CC) that operationalized the Alternative Five Factor Model, whereas important life events were measured with the Life Event Questionnaire (LE). The sample consisted of 178 males, convicted for acts of murder, severe murder, and rape, aged from 23 to 78 ($M = 41.12$; $SD = 11.45$).

In line with the lowest BIC value, the results of the latent profile analysis (conducted in "mclust" R package) indicate a solution with two profiles: 1. an unadapted profile (40%), characterized by a very high score on Aggression-Hostility, a high score on Impulsive Sensation Seeking and slightly increased scores on Activity and Neuroticism-Anxiety; 2. a hyper-adapted profile (60%), characterized by increased scores on Activity and very low scores on Aggression-Hostility and Impulsive Sensation Seeking. The constellation of personality traits of isolated profiles is very similar to personality types obtained in the general population in previous domestic research. Differences in personality traits between profiles were all significant at $p < .01$ (Cohen's d ranged from 0.41 to 3.38), except in Sociability ($d = .09$). There are no significant differences between profiles in the category of criminal offense ($\chi^2(1) = 1.05$, $p > .05$), however, there are differences in a number of life events. Offenders

from unadapted profile experience significantly more negative controllable life events ($d = 0.43$). On the other hand, there were no significant differences between profiles in positive ($d = 0.21$) and negative controllable events ($d = 0.17$). The obtained results point to two different profiles of perpetrators of violent crimes, which are not different in terms of violent act category, yet are differentiated by life events. Differences between profiles in relation to life events can be considered as the first findings of the predictive validity of isolated offender profiles.

Keywords: violent criminal delicts, murder, rape, typology, Zuckerman's Alternative five-factor personality model, ZKPQ–50–CC, life events

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FACILITUJUĆI I INHIBITORNI EFEKTI CRTA LIČNOSTI NA SILOGISTIČKO REZONOVANJE

Nina Hadžiahmetović
Filozofski fakultet, Univerzitet u Sarajevu | *n.hadziahmetovic@gmail.com*
Goran Opačić
Filozofski fakultet, Univerzitet u Beogradu | *opacicg@f.bg.ac.rs*
Predrag Teovanović
Fakultet za specijalnu edukaciju i rehabilitaciju, Univerzitet u
Beogradu | *teovanovic@gmail.com*
Jadranka Kolenović-Đapo
Filozofski fakultet, Univerzitet u Sarajevu | *jadranka.kolenovic-djapo@ff.unsa.ba*

Cilj istraživanja je ispitati da li crte ličnosti iz modela Velikih pet facilituju ili inhibiraju silogističko rezonovanje indikativno za datu crtu ličnosti. Nastojalo se provjeriti da li će osobe sa povišenom crtom ličnosti bolje ili lošije rezonovati na silogističkom sadržaju koji opisuje tu crtu. Ispitano je kako osobe povišenog skora na datoj crti ličnosti rezonuju na sadržaju silogizma koji odgovara smjeru te crte (npr. Savjesnosti) ili njenom opozitu (npr. Nesavjesnosti). Učestvovalo je 300 studenata psihologije prosječne dobi 20.08 ($SD = 2.02$). Velikih pet crta je procijenjeno NEO-PI-R upitnikom, od čega je 25 % najnižih rezultata korišteno kao niski, a 75 % najviših rezultata kao visoki skor na crti. Silogizmi indikativni za crte ličnosti su posebno konstruisani za istraživanje. Pri tome su ajtemi iz Upitnika za procjenu ličnosti NEO-PI-R transformisani u silogističku formu. Na primjer, ajtem "Imam jasne ciljeve i organizovano radim na njihovom ostvarenju" je razložen u silogističku formu: Svi koji imaju jasne ciljeve, organizovano rade na njihovom ostvarenju. Ja organizovano radim na ostvarenju ciljeva. Ja imam jasne ciljeve. Rezonovanje je testirano sa 20 silogizama afirmacije konsekvensa (AK), pri čemu je po 4 zadatka odgovaralo svakoj crti. Od toga je dva bilo indikativno za smjer, a dva za opozit kontinuuma crte. Sve konkluzije su formulisane u prvom licu jednine da bi bile uvjerljive ispitanicima visoko na crti, a neuvjerljive ispitanicima nisko na crti. Cronbach alpha pouzdanost svih mjera se pokazala dobrom. T-test na nezavisnim uzorcima je pokazao da su ispitanici visoko na Neuroticizmu bolje rezonovali na sadržaju indikativnom za crtu Neuroticizam od ispitanika sa niskim Neuroticizmom $t(133) = 1.99$, $p < .05$. Ispitanici niskog skora na Ekstraverziji su bolje rezonovali od ispitanika visoko na Ekstraverziji na introvertovanom sadržaju $t(139) = 2.13$, $p < .05$. Nasuprot tome, ispitanici visoko pozicionirani na Otvorenosti (O+ $t(134) = -3.09$, $p < .01$; O- $t(134) = -2.54$, $p < .05$), Saradljivosti (A+ $t(132) = -1.98$, $p = .05$; A- $t(132) = -2.77$, $p < .01$) i Savjesnosti (C+ $t(136) = -4.25$, $p < .001$; C- $t(136) = -2.71$, $p < .01$) su lošije rezonovali od ispitanika nisko pozicioniranih na ovim crtama na sadržaju oba smjera kontinuuma. Preliminarni rezultati

upućuju na to da bi crte Neuroticizam i Ekstraverzija po sebi mogle da budu facilitatori, dok bi crte Otvorenost, Saradljivost i Savjesnost mogle da budu inhibitori nezavisno od smjera rezonovanja.

Ključne riječi: crte ličnosti, rezonovanje, silogizmi

FACILITATORY AND INHIBITORY EFFECTS OF PERSONALITY TRAITS ON SYLLOGISTIC REASONING

The aim of this research was to assess whether the Big Five personality traits facilitate or inhibit a personality relevant syllogistic reasoning. We wanted to check whether people high on a personality trait would score better or worse on a syllogistic content indicative of that personality trait. So, we tested the reasoning on the personality content-related syllogisms indicative of both ends of a trait continuum. Three hundred students, average age 20.08 years ($SD = 2.02$) participated in this study. The syllogisms were specifically constructed for the purpose of this research so that NEO-PI-R items were transformed in a syllogistic form. The NEO-PI-R questionnaire was used to assess the Big Five personality traits. Low and high personality scores were calculated as 25% lowest and 75% the highest participants in the trait. A total of 20 syllogisms of affirming the consequent (AC) were used. Four syllogisms corresponded to a trait, with two of them being formulated in a trait direction (e.g. All who like to explore new places, are flexible. I am flexible. Therefore, I like to explore new places.), and the other two in a counter-trait direction (e.g. All who do not like poetry, find philosophical discussions boring. I find philosophical discussions boring. Therefore, I do not like poetry.). All conclusions were formulated in the first person to make the content more credible for the participants high in a trait and unbelievable for those low in a trait. Cronbach's alpha reliability of all measures was good. Student t-test for independent groups showed that participants high in Neuroticism scored better than participants low in Neuroticism on Neuroticism-related syllogisms $t(133) = 1.99$, $p < .05$. Those low in Extraversion scored better than those high in Extraversion on introversion-related syllogisms $t(139) = 2.13$, $p < .05$. On the contrary, those high in Openness (O+ $t(134) = -3.09$, $p < .01$; O- $t(134) = -2.54$, $p < .05$), Agreeableness (A+ $t(132) = -1.98$, $p = .05$; A- $t(132) = -2.77$, $p < .01$) and Conscientiousness (C+ $t(136) = -4.25$, $p < .001$; C- $t(136) = -2.71$, $p < .01$) scored more poorly than those low in these traits on the syllogisms related to both ends of a trait continuum. These findings indicate that some traits might be true facilitators (e.g. Neuroticism or Extraversion) or inhibitors (e.g. Openness, Agreeableness, or Conscientiousness) irrespective of the trait valence.

Keywords: personality traits, reasoning, syllogisms

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FACTORIAL VALIDITY OF THE MULTIDIMENSIONAL ASSESSMENT OF INTEROCEPTIVE AWARENESS (MAIA)

Danka Purić
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *dpuric@f.bg.ac.rs*
Biljana Jokić
Center for Study in Cultural Development, Republic of
Serbia | *biljana@zaprokul.org.rs*

The construct of interoceptive awareness has been used in different meanings in various disciplines. One of the most widely used instruments for measuring it is the Multidimensional Assessment of Interoceptive Awareness (MAIA, Mehling et al., 2012). Here, interoception is defined as the process by which the nervous system senses, interprets, and integrates signals coming from within the body, while interoceptive awareness is the conscious level of interoception assumed to be accessible to self-report. MAIA comprises 32 items referring to 8 subscales: Noticing (N), Not-Distracting (ND), Not-Worrying (NW), Attention Regulation (AR), Emotional Awareness (EA), Self-Regulation (SR), Body Listening (BL) and Trust (T). Past studies, in general, confirmed the proposed factorial structure, except for ND and NW. MAIA has been officially translated into Serbian, but not yet validated. Participants in our study were 551 first-year students from the Faculty of Organizational Sciences (62% of females, mean age M = 19.03, SD = .19) who completed an online form of MAIA. Results showed that ND and NW were uncorrelated or negatively correlated with all other subscales (up to $r = -.22$), whereas the other subscales were positively correlated among themselves ($r = .34$ to $r = .60$). Therefore, we tested two sets of confirmatory factor analysis models (using maximum likelihood estimation) - one including all items and the other excluding items referring to the ND and NW subscales. The bifactor model on all items fit the data best, however its fit indices were below recommended values ($\chi^2(432) = 1390.79$, CFI = .81, RMSEA =.064, 90% CI [.060, .067]). A principal component analysis with Oblimin rotation yielded a five-factor solution (Horn's parallel criterion) on all items. The factors corresponded to AR, EA, combined ND/NW and combined SR/BL subscale, while the fifth factor included items from various subscales. Essentially the same factors were obtained when ND/NW items were excluded from the analysis (except for the ND/NW factor).

Our results do not support the proposed factor structure of the instrument. Even though ND and NW subscales were particularly problematic, excluding them did not improve model fit. It appears that a smaller number of factors is sufficient to explain individual differences in interoceptive awareness. Future studies should test the validity of the recently published MAIA-2 (Mehling et al., 2018), which includes five additional ND and NW items.

Keywords: MAIA, interoceptive awareness, factorial validity, CFA, EFA

ANALIZA ODNOSA MOĆI U VIŠEGLASNOM SOPSTVU

Vladimir Džinović
Institut za pedagoška istraživanja, Beograd | *v.dzinovic@gmail.com*

Teorija višeglasja, konstruktivistička metafora zajednice sopstva i fukoovska teorija moći omogućuju da se sopstvo posmatra kao da je sačinjeno od mnoštva različitih ideoloških stanovišta (Bahtin), Ja-pozicija (Hermans), uloga (Mair, 1977) ili subjektivizacija (Fuko, 1997), koje kao glasovi stupaju u raznovrsne dijaloške odnose. Novina koju donosi ovaj rad jeste to što multiplo sopstvo ne posmatramo kao složenu, ali konzistentnu celinu, već više kao promenljivu stratešku situaciju sukoba glasova nejednakih snaga, u kojoj neki glasovi privremeno preuzimaju dominaciju u odnosu na druge koji predstavljaju glasove otpora. U radu se prikazuju dve studije slučaja, u kojima se ilustruje značaj borbe za dominaciju unutar višestrukog sopstva za konstituisanje doživljaja sebe kod uspešnih i neuspešnih učenika. Studije slučaja su deo šireg istraživanja o učeničkom doživljaju školskog uspeha, u kome je učestvovalo 25 učenika srednje stručne škole. Za prikupljanje podataka primenjen je intervju o višeglasnom doživljaju sebe. Intervjuisani učenici su eksplicirali različite perspektive iz kojih doživljavaju sebe kao uspešne ili neuspešne u školi i zapisivali ih u formi glasova koji razmenjuju međusobno poruke, a zatim bili podstaknuti da opišu odnose između tih glasova, sa posebnim osvrtom na saradnju, konflikte i dominaciju. Za analizu podataka je korišćena deduktivna tematska analiza, sa teorijskim kategorijama Struktura i Dinamika (sa dve potkategorije Saradnja spram konflikata i Dominacija spram podređenosti). Prikazane studije pokazuju da doživljaj sebe kao uspešnog ili neuspešnog učenika proističe iz trenutnog odnosa snaga, koji podrazumeva da jedan glas ili grupa glasova zauzimaju poziciju iz koje su u mogućnosti da nametnu određeni narativ o sebi. Međutim, u oba slučaja postoji stalna tendencija glasova otpora da uzurpiraju postojeću stratešku situaciju i afirmišu alternativne narative o sebi, što doživljaj sebe kod učenika čini tenzičnim, promenljivim i kontekstualizovanim. Takođe, pokazalo se da višeglasno sopstvo uspešnih učenika odlikuje postojanje snažnog, operativnog glasa, koji je u stanju da u dijaloškom odmeravanju snaga sa drugim glasovima obezbedi sprovođenje u delo vrednosti koje se tiču posvećenosti, odgovornosti i istrajnosti. U slučaju neuspešnih učenika, takav glas ne uspeva da obezbedi dovoljno moći da nametne svoju perspektivu, pa primat preuzimaju glasovi koji se opiru perspektivama koje promovišu obrazovne vrednosti.

Ključne reči: višestruko sopstvo, višeglasje, moć, zajednica sopstva, studija slučaja

Theory of polyphony, constructivist metaphor of the community of self and Foucault's theory of power allow the self to be viewed as being constituted from a multitude of different ideological standpoints (Bakhtin, 1929/1984), I-positions (Hermans & Kempen, 1993), roles (Mair, 1977) or subjectivizations (Foucault, 1972), which as voices enter into diverse dialogues. The novelty brought about by this work is that we do not regard the multiple self as a complex but consistent whole, but rather as an ever changing strategic situation involving the struggle between voices of unequal forces, in which some voices temporarily dominate over others that are counter-voices. The paper presents two case studies, which are the result of a broader research on students' perceptions of the school success, in which 25 students from a secondary vocational school participated. In the data collection process interviews about the students' polyphonic identity were conducted. Interviewees explicated different perspectives from which they perceive themselves as successful or unsuccessful in school and recorded them in the form of voices, and then they were encouraged to describe the relationship between these voices, with particular reference to co-operation, conflicts and domination. For the data

analysis a deductive approach to thematic analysis is used, with the theoretical categories of Structure and Dynamics (with two subcategories Collaboration versus conflicts and Domination versus subjection). The studies show that the sense of self as a successful or unsuccessful student stems from the current relationship of power, which implies that a single voice or group of voices occupy a position from which they are able to impose a certain self-narrative. However, in both cases there is a constant tendency of counter-voices to usurp the existing strategic situation and affirm alternative self-narratives, making the sense of self tense, changeable and contextualized. It also turned out that the polyphonic self of successful students is characterized by the existence of a strong, operational voice, which is able to ensure the implementation of values relating to commitment, responsibility and persistence in a dialogical struggle with other voices. In the case of unsuccessful students, such a voice fails to provide enough strength to impose its perspective, so primacy is taken over by voices resisting perspectives that promote educational values.

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OBRASCI PARTNERSKE AFEKTIVNE VEZANOSTI U PROSTORU LIČNOSTI OPISANOM OSOBINAMA ALTERNATIVNOG PETOFAKTORSKOG MODELA

Đorđe Čekrlija
Filozofski fakultet, Banja Luka
Dajana Vrhovac
Filozofski fakultet, Banja Luka
Lana Vujaković
Filozofski fakultet, Banja Luka

Cilj studije je ispitati da li se ispitanici sa različitim obrascima partnerske vezanosti značajno razlikuju u osobinama ličnosti. Ličnost je opisana osobinama Alternativnog Petofaktorskog Modela, a obrasci partnerske afektivne vezanosti operacionalizovani modelom Bartholomewove i Horowitza.

Ispitano je 259 učesnika (185 žena) starosti od 20 do 68 godina. Osobine ličnosti su procijenjene upitnikom Zuckerman-Kuhlman-Aluja Personality Questionnaire-Revisited Form (ZKA–PQ–RF), koji ima pet skala: Ekstraverzija, Neuroticizam, Traganje za Senzacijama, Aktivitet i Agresivnost. Skale sadrže po četiri subskale koje omogućavaju procjene faceta. Pouzdanost skala se kreće od .51 do .78. U procjeni partnerske afektivne vezanosti je korišten upitnik Relationship Questionnaire (RQ) koji uključuje četiri stavke koje opisuju: sigurni, izbjegavajući, preokupirani i dezorganizovani obrazac. Podatak o dominantnom obrascu partnerske afektivne vezanosti je dobijen ispitanikovim izborom jednog od četiri obrasca koji ga najbolje opisuje. U analizi podataka je korištena diskriminativna analiza. Procjene osobina ličnosti su predstavljale kriterijske varijable, a dominantni obrazac partnerske vezanosti zavisnu varijablu. Potom su faceti osobina koje su identifikovane kao značajni prediktori afektivne vezanosti uzeti kao nezavisne varijable.

Diskriminativnom analizom je identifikovana jedna značajna diskriminativna fukcija ($R = .38$; $\lambda = .83$; $\chi^2(15) = 46.614$; $p = .000$) koju primarno određuju Neuroticizam (.95) i Agresivnost (.50). Vrijednosti centroida pokazuju da na diskrinativnoj funkciji najviše skorove postižu ispitanici sa preokupirnim obrascem. Naredna diskriminativna analiza sa facetima Neuroticizma kao prediktorima ($R = .40$; $\lambda = .81$; $\chi^2(12) = 52.688$; $p = .001$) je pokazala da su

svi faceti Neuroticizma značajni prediktori partnerske vezanosti: Zavisnost (.93), Depresivnost (.78), Nisko samopouzdanje (.73) i Anksioznost (.69). Diskriminativna analiza sa facetima agresivnosti kao prediktorima ($R = .33$; $\lambda = .88$; $\chi^2(15) = 32.772$; $p = .001$) su značajni prediktori faceti Hostilnost (.95) i Ljutnja (.57). Centroidi pokazuju da i na ovim diskriminativnim funkcijama najviše skorove imaju ispitanici sa preokupiranim obrascem.

Osobina Neuroticizma se nameće kao glavni prediktor obrasca partnerske afektivne vezanosti. Ipak, u ukupnoj interpretaciji rezultata treba računati na specifičnost korištene skle afektivne vezanosti. Za potpuniji zaključak potrebno je u procjeni afektivne vezanosti koristiti upitnike koji uz obrasce omogućavaju i procjenu dimenzija partnerske afektivne vezanosti.

Ključne riječi: partnerska afektivnva vezanost, osobine ličnosti

ADULT ATTACHMENT STYLES DESCRIBED BY PERSONALITY TRAITS FROM THE ALTERNATIVE FIVE FACTORIAL MODEL

The research aim was to examine differences in personality traits between respondents different by dominant style of adult attachment.

259 respondents (185 female) between 20 and 68 years were examined. Personality traits were assessed using Zuckerman-Kuhlman-Aluja Personality Questionnaire-Revisited Form (ZKA-PQ-RF) and adult attachment were assessed using Relationship Questionnaire (RQ).

In the data analysis discriminant analysis were performed. In the first analysis personality traits were predictors while dominant attachment pattern was dependent variable. In the second discriminant analysis Neuroticism facets were predictors, while in the third discriminant analyses Aggressiveness facets were predictors. ´

Discriminant analysis with personality traits defined as predictors identified one significant discriminant function ($R = .38$; $\lambda = .83$; $\chi^2(15) = 46.614$; $p = .000$) which is primarily defined by Neuroticism (.95) and Aggressiveness (.50). Values of the centroid indicate that respondents with preoccupied attachment pattern achieve highest scores on the discriminant function.

Findings suggested that Neuroticism was the most important predictor of the partner's attachment styles. For the more detailed conclusion questionnaires which allow estimation of the adult attachment attachment dimensions should be used.

Keywords: adult attachment styles, personality traits, AFFM

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APPLICATION OF NEURAL NETWORKS IN PREDICTION OF USING PSYCHOACTIVE SUBSTANCES – A COMPARISON WITH OTHER STATISTICAL TECHNIQUES

Nenad Jurić
Filozofski fakultet, Univerzitet u Novom Sadu | *nenad1126@gmail.com*
Tanja Jevremov
Filozofski fakultet, Univerzitet u Novom Sadu | *tanja.jevremov@ff.uns.ac.rs*

In recent years, the popularity of artificial neural networks has significantly grown in various fields. Due to the nature of data used in psychology, this technique could probably contribute by providing a better classification of new cases, and better prediction. The question is whether this technique is better than others that are usually used for this purpose? This study is an attempt to answer this question in the context of predicting usage of psychoactive substances. In the majority of research papers, substance addiction is examined with the aim to predict relapse of people who have already had a problem with the substance abuse. A different approach was applied in this paper. The research was done on the sample taken from general

population (2721 answers were collected from Internet), while predicted variables were types of substances (cigarettes, alcohol, "light" drugs, and "heavy" drugs), and their frequency of use (e.g: only on special occasions or every day). Predictions were done on demographic variables, and on data from the self-assessment of the Big-5 Personality Inventory (Goldberg, 1990), generalized self-efficacy scale (Schwarzer & Jerusalem, 1995), and PWI-A, subjective wellbeing scale (The International Wellbeing Group, 2013). Applied statistical techniques were artificial neural networks (ANN), multinomial logistic regression (MLR), and canonical discriminatory analysis (CDA). Only continuous variables were used for CDA. All three analyses were conducted in the statistical software SPSS 21.0. The techniques were compared by a number of correct case classifications.

The results have shown that all three analyses provided the best classification for "heavy" drugs variable with ANN and MLR, being much better in comparison to CDA (83% and 85% for the first two, and 47% for CDA). CDA had the worst results for other variables as well. Prediction done by ANN was slightly worse than MLR in this study, especially in the classification of "light" drugs. Self-efficacy and subjective wellbeing variables contributed the most to this classification.

It could be assumed that acquired results depend a lot on the characteristics of the method of ANN used, and in future research papers, it would be beneficial to use different ANN architecture, with more hidden layers and improved activation functions.

Keywords: artificial neural networks, classification methods, use of psychoactive substances

SHOULD THEY STAY, OR SHOULD THEY GO: DROP OUT IN HIGHER EDUCATION

Ksenija Krstić
Department of Psychology, Faculty of Philosophy, University of Belgrade
Oliver Tošković
Department of Psychology, Faculty of Philosophy, University of Belgrade
Ivana Stepanović Ilić
Institute of Psychology, Faculty of Philosophy, University of Belgrade
Marina Videnović
Institute of Psychology, Faculty of Philosophy, University of Belgrade

Dropping out of higher education is a global phenomenon and it affects virtually all universities. Due to its economic and academic consequences, at the individual and societal levels, dropping out from HE is a major concern for the educational system and policy-makers. Research suggests that drop out is a complex and multifactorial problem, which although universal, is specific in different cultural and institutional contexts. The main aim of this research is to determine factors which have the most predictive value for students' study satisfaction and drop out intentions. A sample of 673 students (mean age 21.39, 79% females, 96% from state university, 95% on bachelor studies; 70% on social science). A self-description questionnaire included 22 dimensions of students' perceptions of their study.

Based on twosteps cluster analysis we can identify a group of students at risk od dropout (N=206). ANOVA showed two groups differs on almost all investigated dimensions, except funding and extrinsic motivation. Multiple regression model ($F = 16.564$, $df = 28$, $p = .000$) showed that 39% of drop out intentions can be explained by following dimensions: help-seeking, self-efficacy, attainment, emotional positivity, emotional support, self-evaluation certainty, living conditions, grades and funding. Various socio-demographic variables: parental education, special educational needs and variables describing the type of studies did not show a significant prediction. Around 72% of students' study satisfaction can be explained ($F = 62.334$, $df = 28$, $p = .000$) by: study organisation, self-evaluation certainty, emotional positivity, intrinsic motivation, intelectual development, relevance to practice and living conditions.

Dimensions relevant for prediction of students' study satisfaction and drop out intentions refer to few institutional (e.g. study organization, practical relevance), and mostly to individual factors (e.g. students' motivation, help seeking behavior, self-efficacy, living conditions). Individual-related factors, developed in specific context, are main predictors of students' drop out from HE. Understanding of these factors can improve system of early detection of students at-risk of dropping out. Results also imply that prevention measures should be focused primarily on students.

Keywords: drop out, higher education, individual and institutional factors, prediction

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THE FIRST TEST OF THE ELECTRONIC MATERIALS IN SERBIA: COMPARISON BETWEEN CLASSICAL AND DIGITAL KNOWLEDGE TESTS FOR PRIMARY SCHOOL STUDENTS

Ivana Stepanovic Ilic
Institute of Psychology, Faculty of Philosophy. University of Belgrade | *istepano@f.bg.ac.rs*
Marina Videnovic
Institute of Psychology, Faculty of Philosophy. University of Belgrade
Milica Simic
Pharma Swiss

The usage of electronic materials in education and their advantages/deficiencies in comparison with traditional learning materials are widely discussed (Woody et al., 2010; Daniel & Woody, 2013; Horne et al., 2016). However, there is a lack of systematic research comparing electronic and traditional learning materials, especially in younger primary school students. This is the first research in Serbia dedicated to electronic learning materials for knowledge testing. The main goal was to compare knowledge testing by classical paper tests with digital materials with various tasks forms providing feedback regarding pupils' performance. The sample consists of 447 pupils (227 from II and 220 from IV grade) from 5 primary schools in Belgrade. Pupils' knowledge was tested by electronic and classical tests within three subjects (mathematics, Serbian language, science). Each class involved in the research was divided into 3 groups: one group solved the paper version, while the other two groups solved parallel digital test versions (on tablet or computer) designed by M-author software. The study design was balanced regarding the test type and school subjects. Within younger sample there is no difference between students' achievement on the paper and electronic test version (tablet or computer) examining Serbian language, while mathematics ($F(212, 1) = 6.981$, $p = .009$) and science ($F(205, 1) = 24.196$, $p = .000$) tests pupils better performed in the electronic form. Further analysis comparing each test type (paper, tablet, and computer) was performed. Within older sample pupils had better results on the electronic materials than on the classical tests for all three subjects (Math. ($F(210, 1) = 46.572$, $p = .000$; Serb. ($F(214, 1) = 14.367$, $p = .000$; Sci. ($F(209, 1) = 62.170$, $p = .000$) and further tests comparing different test materials were also done. The findings suggest that older students better use feedback provided by electronic materials which enables them to correct mistakes and score better on electronic tests. This indicates that older students are more resourceful and probably have larger experience with electronic devices which was confirmed by the examiners observations about various difficulties that younger pupils experienced, especially with computers. Although born with electronic devices primary school students have insufficient experience with their usage in educational purposes which should be seriously considered and dealt with during digitalization of learning practice.

Keywords: electronic and classic knowledge tests, primary school students

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EFIKASNOST VASPITAČA U IDENTIFIKACIJI INTELEKTUALNO DAROVITE DECE PREDŠKOLSKOG UZRASTA

Jelena Blanuša
Visoka škola strukovnih studija za obrazovanje vaspitača i trenera,
Subotica | *jelena.blanusa@gmail.com*
Nadežda Rodić
Visoka škola strukovnih studija za obrazovanje vaspitača i trenera,
Subotica | *nadezdarodic@yahoo.com*
Jasmina Knežević
Visoka škola strukovnih studija za obrazovanje vaspitača i trenera,
Subotica | *jmknezevic@gmail.com*

Iako se identifikacija darovite dece pokazuje značajnom temom na školskom uzrastu, rano prepoznavanje darovitosti čini se izuzetno važnim za postavljanje adekvatnih ciljeva u vaspitno-obrazovnom radu. Cilj našeg istraživanja bio je ispitati uspešnost vaspitača u prepoznavanju intelektualno darovite dece predškolskog uzrasta.

Uzorak u istraživanju činilo je 98 dece uzrasta od 5 do 6,5 godina iz 6 različitih predškolskih ustanova iz Subotice i Novog Sada. Intelektualne sposobnosti dece procenjene su Progresivnim matricama u boji, a procena darovitosti svakog deteta dobijena je od strane vaspitača na petostepenoj skali procene. Pored opšte darovitosti, vršena je procena logičko-matematičke i lingvističke darovitosti.

Korelaciona analiza pokazala je da ne postoji značajna povezanost između procene darovitosti dobijene od strane vaspitača i intelektualnih sposobnosti dece ($r = 0.06$). Dodatno, ne postoje značajne korelacije intelektualne sposobnosti ni sa procenom logičko-matematičke ($r = 0.11$) i lingvističke darovitosti ($r = -0.06$).

Rezultati istraživanja pokazali su da vaspitači ne prepoznaju na adekvatan način intelektualno darovitu decu, što znatno može otežati ranu identifikaciju darovite dece. Vrlo niski koeficijenti korelacije pokazuju da procena darovitosti ni na koji način ne zavisi od intelektualnih sposobnosti dece, čak ni kada su vaspitači eksplicitno upitani da procene matematičko-logičku sposobnost koja se meri Progresivnim matricama u boji, već da se prilikom procene vaspitači oslanjaju na neke druge informacije. Ovakvi rezultati su u skladu sa ranijim studijama u kojima je zabeležena niska uspešnost nastavnika u identifikaciji darovite dece školskog uzrasta i dodatno ukazuju na značaj razmatranja ove teme pre polaska u školu.

Ključne reči: darovitost, identifikacija, intelektualne sposobnosti, vaspitači

This study aimed to examine efficacy of preschool teachers in detecting intellectually gifted children. Measures of intellectual ability of 98 children (age 5 – 6,5) were obtained using Raven's coloured progressive matrices. General giftedness, but also logical-mathematical and linguistic giftedness measures, were obtained by teachers' estimation on 5-point scale.

Results of correlation analysis showed no significant correlation between teachers' examination of giftedness and intellectual ability of children – neither logical-mathematical nor linguistic. Those results are similar to previous results obtained for primary-school children and indicate on teachers low efficacy in the detection of gifted children also on early age.

PRIMENJIVOST ATOP SKALE MEĐU UČENICIMA MLAĐEG ŠKOLSKOG UZRASTA U SRBIJI

Gordana Miščević Kadijević
Učiteljski fakultet, Univerzitet u Beogradu, Srbija | *gordana.miscevic@uf.bg.ac.rs*
Nikoleta Gutvajn
Institut za pedagoška istraživanja, Beograd, Srbija | *gutvajnnikoleta@gmail.com*

U istraživanjima se ukazuje na pozitivnu povezanost ranih iskustava stečenih u prirodnom okruženju sa iskazanim stavovima i ponašanjima u kasnijim fazama života, kao i na činjenicu da deca imaju sve manje direktnih kontakata sa prirodnim okruženjem. U Srbiji učitelji realizuju nastavu u prirodi, ali nema dovoljno podataka o povezanosti primene navedenog pristupa i učeničkih percepcija o boravku u prirodi. U Sjedinjenim Američkim Državama je za decu uzrasta 9 – 13 godina konstruisana ATOP skala (engl. Attitudes Toward Outdoor Play). Sačinjena je od 12 stavki raspoređenih u dve celine. Prva celina, koji čini 7 stavki, odnosi se na izjašnjavanje o pozitivnim stranama boravka i igranja u prirodi, dok se druga, koji čini preostalih 5 stavki, odnosi na izjašnjavanje o potencijalnoj brizi ili strahu koji se može javiti pri boravku u prirodnom okruženju. U ovom istraživanju ispitivali smo primenjivost te skale u našoj sredini. Stavke smo preveli na srpski jezik, i koristili u izvornom značenju, osim kod tvrdnje "Ne volim igranje napolju u prirodi jer mogu da sretnem ljude koji se drogiraju" date u vidu "Ne volim igranje napolju u prirodi jer mogu da sretnem ljude koji se čudno ponašaju". Kao i u originalnom instrumentu, deca su stepen slaganja sa datim tvrdnjama iskazivali birajući jednu od sledeće četiri opcije: "u opšte se ne slažem", "ne slažem se", "slažem se" ili "u potpunosti se slažem", koje su redom kodirane brojevima 1 – 4. Uzorak je činilo 252 učenika četvrtog razreda iz dve beogradske osnovne škole. Prvo je testirana dvofaktorska struktura instrumenta (pozitivne strane boravka u prirodi naspram potencijalne brige ili straha pri boravku u prirodi). Takva struktura je zaista bila prisutna, ali je varijansa ukupnog skora objašnjena ovim faktorima bila svega 40%. Pouzdanosti odgovarajućih setova stavki (Kronbah alfa) bile su oko granice prihvatljivosti 0.70:0.67 za stavke koje se odnose na pozitivne strane boravka u prirodi; 0.72 za stavke koje se odnose na potencijalnu brigu ili strah pri boravku u prirodi. Iako je istraživanje u osnovi pokazalo da bi se ATOP skala mogla primenjivati među decom mlađeg školskog uzrasta u Srbiji, takva preporuka ipak zahteva veću empirijsku potporu.

Research on schoolchildren's perceptions about spending time in a natural environment is scarce. Developed in the U.S. for schoolchildren between 9 and 13, ATOP (Attitudes Toward Outdoor Play) scale is used to express views about positive sides of outdoor activities and potential concerns/fears regarding such activities. This study examined the applicability of this scale in Serbia. To this end, the scale was translated into the Serbian language and administered in two elementary schools in Belgrade. By using a sample of 252 fourth graders, it was found that (1) a two-factor model regarding these views (positive sides vs. concerns/fears) could be applied, (2) the reliabilities of two sub-scales regarding positive sides and concerns/fears were around 0.70 (i.e. 0.67 and 0.72, respectively). Although the study showed that the ATOP scale could be applied among younger schoolchildren in Serbia, such a recommendation still requires more empirical evidence.

Ključne reči: ATOP skala, osnovna škola, aktivnosti u prirodi, percepcije učenika

UTICAJ INTERNET PRETRAGE NA PROCENU SOPSTVENE BAZE ZNANJA

Kristina Mojović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beograd | *mojovickristina@gmail.com*
Zorana Jolić Marjanović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Ovaj rad se bavi proučavanjem efekata upotrebe modernih tehnologija, tačnije internet pretrage, na sticanje i proveru znanja. Polazeći od Vegnerovog koncepta transaktivne memorije – pojave „deljenja" znanja između više osoba i oslanjanja na informacije koje poseduju druge osobe sa kojima smo u komunikaciji – razmatramo ulogu interneta kao člana transaktivnog memorijskog sistema (Wegner, Giuiliano, & Hertel, 1985). Sprovedena su dva eksperimenta s ciljem da se utvrdi da li se efekati dobijeni u američkoj populaciji, a koji se tiču uticaja internet pretraživanja na procenu sopstvenog znanja iz domena opšte informisanosti i poverenja koje imamo u svoje kognitivne sposobnosti beleže i u domaćoj populaciji (Ward, 2013). U prvom eksperimentu je učestvovalo 80 ispitanika podeljenih u dve grupe, prosečnog uzrasta 24 godine (M = 24.33, SD = 2.20). Prvi eksperiment je uspešno replicirao originalno istraživanje, i sprovedena ANOVA je ukazala na postojanje razlike u ispoljavanju efekata internet pretrage između grupa koje koriste Gugl pretraživač (poznat i često korišćen, pa iz tog razloga potencijalni partner u TMS) i nepoznati internet pretraživač sa kojim se ispitanici retko sreću ($F(1, 78) = 5.64$, $p = .020$, $\eta^2 = .07$). Razlike su se ogledale u učestalijoj pogrešnoj proceni izvora informacija u grupi koja je koristila Gugl, odnosno pripisivanju znanja pohranjenog na internetu sopstvenom korpusu znanja. Drugi eksperiment je imao za cilj da proveri efekte koje internet pretraga ima na doživljaje slike o sebi, odnosno na jedan njen aspekt koji se tiče poverenja u sopstvene kognitivne sposobnosti, tzv. kognitivno samopouzdanje. Učestvovalo je 240 ispitanika, takođe prosečnog uzrasta 24 godine (M = 23.58, SD = 2.79). Suprotno očekivanju da će ispitanici koji dobiju instrukciju da pretražuju internet da bi odgovorili na pitanja iz opšte informisanosti imati više kognitivno samopouzdanje, posebno u domenu koji se tiče adekvatnog „lociranja" informacija i njihovog efikasnog nalaženja, nisu ustanovljene značajne razlike u kognitivnom samopouzdanju ispitanika koji su pretraživali internet i onih koji su na pitanja odgovarali samostalno. Diskutovana je replikabilnost nalaza u domaćoj populaciji kroz poređenje sa efektima dobijanim u drugim sredinama.

Ključne reči: transaktivni memorijski sistem, internet pretraga, Gugl efekat, kognitivno samopouzdanje

The aim of this study was to exam the effects of Internet search on acquisition and verification of knowledge. Two experiments were conducted to verify the replicability of findings obtained in the American population (Ward, 2013). The first experiment successfully replicated the original results, and showed that respondents who were using Google for searching the answers incorrectly „locate the source" of the information and attribute the knowledge they found on the Internet to their own knowledge base. Another experiment questioned the effect of Internet searches on cognitive self-esteem. The results obtained were not consistent with the original research and no differences were found between the respondents who searched the Internet and those who answered the questions independently. The results are discussed in relation to the theoretical assumptions about Transactive Memory System (Wegner, Giuiliano, & Hertel, 1985) and in comparison with the effects obtained in other cultures.

Keywords: Transactive Memory System, Internet search, Google effect, cognitive self-esteem

POL KAO DETERMINANTA UČESTALOSTI KVALITATIVNIH POKAZATELJA KVALITETA PISANJA UČENIKA RAZREDNE NASTAVE

Marina Vujanović
Osnovna škola "Miodrag Matić" | *milivojevicmarinam@gmail.com*
Danijela Ilić-Stošović
Fakultet za specijalnu edukaciju i rehabilitaciju Univerziteta u Beogradu

Kako bi se ispitao kvalitet pisanja učenika razredne nastave, posmatrani su kvalitativni pokazatelje koji mogu ukazivati na postojanje teškoća u pisanju učenika osnovnoškolskog uzrasta. Učestalost deset indikatora čitljivosti napisanog teksta posmatrana je kod 1156 učenika razredne nastave, a istraživanje je sprovedeno tokom školske 2015/2016. godine u osam beogradskih osnovnih škola. Za procenu kvaliteta pisanja koiršćen je MekMaster protokola za procenu pisanja (The McMaster Handwriting Assessment Protocol) koji je prilagođen srpskom govorno-jezičkom području. Dobijeni rezultati pokazuju da se kod učenika razredne nastave najčešće beleži nepriklada ili nedosledan pritisak (12,5%), kao i pogrešno/neprecizno oblikovana slova (7,1%). Ukoliko se učešće definisanih indikatora kvaliteta pisanja posmatra u odnosu na pol učenika, dolazi se do saznanja da 88,7% devojčica ne beleži nijedan indikator koji ukazuje na lošiji kvalitet pisanja, dok je broj dečaka kod kojih se ne beleži nijedan posmatrani indikator znatno niži (73,8%), pri čemu se teškoće u čitljivosti rukopisa u mnogo većem procentu javljaju kod dečaka. U postignućima dečaka i devojčica prisutne su visoko statistički značajne razlike u većini ispitivanih parametara, a najveća razlika u zastupljenosti ovih indikatora zabeležena je u prisustvu neprecizno i/ili nepravilno oblikovanih slova ($\chi^2(1) = 27.775$, $p = .000$), neprekidnog i/ili nedoslednog pritiska ($\chi^2(1) = 27.014$, $p = .000$), nedosledne veličine slova ($\chi^2(1) = 17.746$, $p = .000$), loše orijentacije u odnosu na liniju ($\chi^2(1) = 15.364$, $p = .000$), nedoslednog razmaka između slova i reči ($\chi^2(1) = 9.701$, $p = .001$) i pogrešnog položaja slova u reči ($\chi^2(1) = 4.461$, $p = .030$). S obzirom na to da dobijeni rezutlati pokazuju da postoje razlike u kvalitetu pisanja dečaka i devojčica nižih razreda osnovne škole, prilikom prilagođvanja nastavnog sadržaja učenicima koji imaju teškoća da pišu čitko, kroz mere individulaizacije i/ili individualni obrazovni plan, mora se uzeti u obzir i ovaj činilac, kako bi se učenici omogućilo da budu što uspešniji u procesu savladavanja veštine pisanja.

Ključne reči: kvalitativni pokazatelji, pisanje, pol, teškoće u pisanju, učenici.

GENDER AS DETERMINANT OF PRESENCE QUALITY INDICATORS OF THE WRITING QUALITY AT STUDENT ELEMENTARY SCHOOL

The frequency of the ten indicators of the legibility of written text that may indicate to the existence of writing difficulties was observed in 1156 elementary school students, and the research was conducted during the school year 2015/2016. in eight Belgrade elementary schools. The McMaster Handwriting Assessment Protocol is used to evaluate the quality of writing. The obtained results show that the most frequent are recorde unsuitable or inconsistent pressure (12.5%), as well as wrong/imprecise fonts (7.1%). The absence of indicators who indicating poorer quality of writing is recorded in 88.7% of girls and 73.8% of boys. In the achievements of boys and girls, the greatest difference in the representation of these indicators was recorded in the presence of incorrectly shaped letters ($\chi^2(1) = 27.775$, $p = .000$), unsuitable and/or inconsistent pressure ($\chi^2(1) = 27.014$, $p = .000$), inconsistent font size ($\chi^2(1) = 17.746$, $p = .000$), poor orientation to the line ($\chi^2(1) = 15.364$, $p = .000$), inconsistent spacing between

letters and words ($\chi^2(1)$ = 15.364, p = .000) and the wrong position of the letter in the word ($\chi^2(1)$ = 4.461, p = .030).

Therefore, when adapting teaching content to students who have difficulty in writing legibility, gender must be considered as a factor.

Keywords: qualitative indicators, students, writing, gender, writing difficulties.

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PSIHOLOŠKI KAPITAL KAO ČINILAC AKADEMSKE USPEŠNOSTI STUDENATA ROMSKE NACIONALNOSTI

Nataša Simić
Filozofski fakultet, Univerzitet u Beogradu | *nsimic@f.bg.ac.rs*
Jelena Vranješević
Filozofski fakultet, Univerzitet u Beogradu
Milan Stančić
Filozofski fakultet, Univerzitet u Beogradu

Mali broj istraživanja bavio se faktorima akademske uspešnosti pripadnika marginalizovanih grupa, te i osoba romske nacionalnosti. Kako u Srbiji 1% Roma studira (spram 42% mladih iz većinske populacije), cilj nam je bio da utvrdimo koje lične karakteristike i iskustva iz škole i porodice imaju akademski uspešni mladi Romi (koji studiraju) i da li se te karakteristike i iskustva razlikuju u odnosu na studente iz većinske populacije. U istraživanju je učestvovalo 207 studenata (64,7% ženskog pola), od toga 89 studenata romske nacionalnosti. Ispitanici su u trenutku istraživanja mahom bili na četvrtoj godini studija na nekom od društveno-humanističkih fakulteta. Na nivou porodice, analizirani su obrazovni status roditelja i finansijski status porodice; na nivou škole – učestalost iskustva diskriminacije u osnovnoj i srednjoj školi, a na nivou ličnosti – akademska rezilijentnost (procenjivana skalom Martina i Marša, α = .91), optimizam i vera u sebe (procenjivane skalama Furlonga i saradnika, α = .69 i .84). Utvrđeno je da majke studenata romske nacionalnosti najčešće imaju završenu osnovnu školu, očevi – četvorogodišnju srednju školu, a finansijski status porodice je veoma nepovoljan. Svaki šesti student Romske nacionalnosti bio je svakodnevno ili veoma često žrtva diskriminacije u osnovnoj školi, dok je njih 4,6% imalo takvo iskustvo u srednjoj školi. Poređenjem odgovora dve grupe ispitanika dobijeno je da da majke i očevi studenata iz većinske populacije u proseku imaju viši nivo obrazovanja ($t(204)$ = -9.46, p < .00 i $t(197)$ = -5.59, p < .00), i da je njihov finansijski status značajno viši ($t(205)$ = -7.27, p < .00). Studenti Romi bili su značajno češće žrtve diskriminacije i u osnovnoj ($t(205)$ = 2.00, p < .05) i u srednjoj školi ($t(205)$ = 2.03, p < .05) od studenata iz većinske populacije. Studenti Romi imaju značajno veću akademsku rezilijentnost ($t(204)$ = 2.99, p < .00), veru u sebe ($t(201)$ = 2.17, p < .05) i optimizam ($t(202)$ = 2.98, p < .00) od kolega iz većinske populacije. Uprkos iskustvima diskriminacije, koja su se u dosadašnjim istraživanjima pokazala kao prediktor niske rezilijentnosti, i uprkos nepovoljnom socioekonomskom i obrazovnom statusu, koji je prediktor niskih akademskih postignuća, studenti Romi iz našeg uzorka imaju visoku akademsku rezilijentnost, optimizam i veru u sebe. Zaključujemo da su, uprkos početnim nepovoljnijim uslovima (u porodici i školi), Romi koji studiraju uspeli da izgrade visok psihološki kapital. Dalje su razmatrani činioci koji su tome doprineli.

Ključne reči: psihološki kapital; diskriminacija; akademska uspešnost; studenti; Romi

Given that 1% of Roma living in Serbia attends a college (versus 42% of youth from the general population) and that few studies investigated factors of academic success of youth from marginalized groups, our aim was to determine what personal characteristics, school and family experiences characterize Roma attending college and if there are any differences compared to students from general population. We analyzed family educational and financial status, frequency of discriminatory experience in primary and secondary school, academic resilience, optimism and belief in self. In total 89 Roma college student and 118 college students from general population filled in the questionnaire. Significant differences between two groups were obtained for all analyzed variables. It can be concluded that, despite low family's educational and financial status, and discrimination in school, Roma college students have developed high level of psychological capital. Factors that might have contributed to such a capital are furthered elaborated.

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RELATIONSHIP BETWEEN LIFE STRESSORS, DEPRESSIVENESS, AND SCHOOL ACHIEVEMENT IN LATE ELEMENTARY AND LATE HIGH SCHOOL STUDENTS

Siniša Subotić
Association of Psychologists of Republic of Srpska; University of Banja Luka,
Bosnia & Herzegovina | *sinisa.subotic@pmf.unibl.org*
Sanja Radetić Lovrić
Association of Psychologists of Republic of Srpska; University of Banja Luka,
Bosnia & Herzegovina | *sanja.radetic-lovric@ff.unibl.org*
Vladan Gajić
Association of Psychologists of Republic of Srpska; University of Banja Luka,
Bosnia & Herzegovina | *ajemvladan@gmail.com*
Aleksandar Golubović
Association of Psychologists of Republic of Srpska; University of Banja Luka,
Bosnia & Herzegovina | *aleksg95@gmail.com*
Dejan Sibinčić
Association of Psychologists of Republic of Srpska; University of Banja Luka,
Bosnia & Herzegovina | *dejansib996@gmail.com*

Life stressors tend to be linked with depressiveness and both can negatively influence school functioning and achievement. We wanted to explore the association between life stressors and depressiveness and to examine how they are related to school achievement (i.e., grade point average, GPA) in late elementary school (ES) versus late high school (HS) age students. We used representative samples of 497 ES 9th grade students and 513 4th grade HS students from the Republic of Srpska. Life stressors were assessed via a 28-item check list of various (di)stressful events. In addition to self-report depressiveness scores and the GPA, we also assessed students' Big 5 personality traits and general intelligence. The results show that when adjusted for the personality, gender, and intelligence (notable covariate effects: N: β = .29, $p < .001$; C: β = -.18, $p < .001$; A: β = -.11, $p = .001$; female gender: β = .06, $p = .034$; being in HS: β = .06, $p = .034$), stressors predicted higher depressiveness: β = .19, $p < .001$, and this effect was not moderated by the ES-HS status ($\beta < .001$, $p = .996$). Depressiveness directly predicted lower GPA: β = -.08, $p = .025$, while stressors had borderline direct negative effect: β = -.06, $p = .078$ (notable covariate effects: intelligence: β = .27, $p < .001$; female gender: β = .28, $p < .001$; C: β = .11, $p = .001$). These effects were also not moderated by the ES-HS status (β = -.02, $p = .441$, and β =.004, $p =.883$, respectively). Furthermore, there was a small but significant negative indirect effect of stressors through depressiveness on the GPA: β = -.015, 95% CI [-.029, -.001]. While the strength of this indirect effect did not vary significantly between the ES and HS groups (p = .624), the effect was more reliably obtained in the HS group: β = -.03, 95% CI [-.062, -.003], than in the ES group: β = -.02, 95% CI [-.053, .014]. It can be concluded that life stressors and depressiveness are similarly related to each other and they represent similar risk factors for lower GPA in both late elementary and late high school students. The effect of depressiveness is more direct, while the effect of life stressors is more indirect, partially manifested through depressiveness. Although small, these effects persist regardless of gender, intelligence, and personality differences. Thus, an efficient detection and management of students' depressiveness would be a uniquely important strategy for supporting students' achievement that would be equally relevant in both elementary and high school.

Keywords: life stressors, depressiveness, school achievement, Big 5 personality, intelligence

RAZUMEVANJE PISA 2012 REZULTATA U KONTEKSTU INDIVIDUALNIH, ŠKOLSKIH I SOCIO-EKONOMSKIH PREDIKTORA

Isidora Micić
Laboratorija za razvojnu psihologiju, Odeljenje za psihologiju, Filozofski fakultet, Beograd
Jasmina Šljivić
Laboratorija za razvojnu psihologiju, Odeljenje za psihologiju, Filozofski fakultet, Beograd
Lea Gorišek
Laboratorija za razvojnu psihologiju, Odeljenje za psihologiju, Filozofski fakultet, Beograd
Ljubica Conić
Laboratorija za razvojnu psihologiju, Odeljenje za psihologiju, Filozofski fakultet, Beograd
Svetlana Pavlović
Laboratorija za razvojnu psihologiju, Odeljenje za psihologiju, Filozofski fakultet, Beograd

Cilj obrazovnog sistema je podsticanje pozitivnog razvoja učenika, opremljenog ključnim kompetencijama. Uzevši u obzir kompetitivno tržište rada i razvoj tehnologije koja odmenjuje čoveka u obavljanju kognitivno nezahtevnih poslova, rezultati učenika iz Srbije na dosadašnjim PISA testiranjima pokazuju da je postiguće naših učenika značajno ispod OECD proseka, odnosno da je za oko pola standardne devijacije niže u odnosu na internacionalno prosečno postignuće. Cilj istraživanja je, stoga, da se osvetle odnosi individualnih karakteristika učenika i nastavnika, socio-demografskog konteksta i postignuća, kako bi se prethodno dobijani rezultati objasnili. U sekundarnoj analizi PISA 2012 podataka, konstruisan je path model kako bi se ispitale relacije između učeničkih uverenja, stavova i motivacije za učenje matematike, iskustva sa matematikom, odnosa nastavnik-učenik, nastavničkog stila podučavanja, socio-demografskih varijabli i postignuća ostvarenog na PISA testiranjima. Analize su rađene na uzorku od 4684 učesnika PISA 2012. Analiza mera podesnosti za testirani Path model pokazala je da se on nalazi u granicama prihvatljivog (CFI = .92; RMSEA = .049; TLI = .88), sa izuzetkom χ^2 koji ima nešto višu vrednost (CMIN = 12.36). Iako bez direktnog uticaja na postignuće, intrinzička i ekstrinzička motivacija imale su posredni uticaj preko učeničke procene samoefikasnoti. Pokazan je uticaj intrinzičke motivacije na učeničku samoefikasnost (β = .24, *p*=.00), kao i medijatorski uticaj samoefikasnosti na motivaciju i postignuće (β = .29, *p* = .00). Ulogu medijatora je imala i matematička anksioznost sa negativnim uticajem na učeničko postignuće (β = -.20, *p* = .00). Učenička anksioznost u velikoj meri je zavisila od atribucije neuspeha (β = .38, *p* = .00), ali i spremnosti učenika da se posveti matematici u budućnosti (β = .15, *p* = .00). Intrinzička motivacija ima direktne uticaje na individualne karakteristike i uverenja, za koje je pokazano da su ključne varijable za akademsko postignuće učenika. Pored samoefikasnosti, važne su i namera za bavljenjem matematikom (β = -.37, p = .00), istrajnost (β = -.23, p = .00) i otvorenost za rešavanje problema (β = .20, p = .00). Uticaji odnosa sa profesorima i školske klime na postignuće bili su od sekundarnog, posrednog značaja, pre svega preko iskustva i upoznatosti sa matematičkim zadacima i konceptima, ali i preko individualnih učeničkih uverenja, kao što su samoefikasnost (β=-.18, p= .00) i atribucija neuspeha (β = -.19, p = .00). Socio-demografske varijable imale su značajne direktne uticaje na postignuće, ali i na učeničku samoefikasnost, kao i matematičku anksioznost, što još jednom otvara pitanje pravednosti obrazovanja u Srbiji. Opisani model mogao bi predstavljati korisno sredstvo za razumevanje matematičkog postignuća učenika u Srbiji na PISA testovima, a posledično i sredstvo za eventualno poboljšanje postignuća, usmeravanjem pažnje na one aspekte modela koji su se pokazali da najviše doprinose učeničkom postignuću.

Ključne reči: obrazovno postignuće, učenička uverenja, sociodemografske varijable, PISA, path model

UNDERSTANDING PISA 2012 RESULTS IN THE CONTEXT OF INDIVIDUAL, SCHOOL AND SOCIO-ECONOMIC PREDICTORS

PISA results for Serbia showed that students' achievement is significantly below the OECD average, that is, about half of the standard deviation below the international average achievement. Aim of this research was to explore relations between individual characteristics of students and their teachers, socio-demographic context and students' achievement. In the secondary analysis of PISA 2012 results, Path model was conducted in order to examine relations between students' beliefs, attitudes and motivation for learning mathematics, previous experience with mathematics, student-teacher relation, teaching style, socio-demographic variables and results achieved from PISA test. Analysis was conducted on the sample of 4684 students PISA 2012. The path model showed satisfactory fit to the data (CFI = .92; RMSEA = .049; TLI = .88), with the exception of Chi square which had somewhat higher values (CMIN = 12.36). The greatest predictors of student's achievement on PISA test were students' self-efficacy ($\beta = .29$, $p = .00$), mathematical anxiety ($\beta = -.20$, $p = .00$), intent to engage in mathematics ($\beta = -.37$, $p = .00$), perseverance ($\beta = -.23$, $p = .00$) and openness for problem solving ($\beta = .20$, $p = .00$). Described model could be useful for understanding mathematical achievement of students in Serbia on PISA tests. Consequently, it could be mean for eventual improvement in education, by focusing on those aspects of the model that have affected students' achievement the most.

Keywords: educational achievement, student beliefs, socio-demographic variables, PISA, path model

PERCEPCIJA

A NEURAL NETWORK MODEL OF PERCEPTION OF SPATIAL RELATIONS

Dražen Domijan
Filozofski fakultet, Sveučilište u Rijeci | *ddomijan@ffri.hr*

Although perceptual organization of a scene according to Gestalt rules involves sophisticated computations, it is not sufficient to extract all information that is of interest to the observer. For instance, perception of spatial relations between distal image parts, such as whether they are connected or not or whether they lie inside or outside of the same bounding surface, cannot be computed by any kind of spatially limited feature detectors and it cannot be extracted from any Gestalt grouping rule. Shimon Ullman suggested that human observers comprehend spatial relations by applying visual routines on the representation offered by the early vision. Visual routines refer to a set of cognitive operations that engage attention to bind together parts of the scene that remained ungrouped by the early visual representation. Attention labels distant features to render their spatial relations explicit. Such process is referred to as incremental grouping. In this work, a model of the recurrent competitive map is developed to simulate dynamics of object-based attention and incremental grouping. The model is capable of simultaneous selection of arbitrary many winners based on a top-down guidance. In the model, local excitation opposes global inhibition and enables enhanced activity to propagate within the interior of the object. The extent of local excitatory interactions is modulated in a scale-dependent manner. Furthermore, excitatory interactions are blocked at the object's boundaries by the output of the contour detection network. Thus, the proposed network implements a kind of multi-scale attentional filling-in. Computer simulations showed that the model is capable of distinguishing inside/outside relationships on a variety of configurations. It exhibits a spatial distribution of reaching times to points on the object that is consistent with recent behavioral findings. This means that the speed of activity propagation in the interior of the object is modulated by the proximity to the object's boundaries. Moreover, the same model can be applied in solving the task of finding the appropriate route on the map. The proposed model shows how elaborated version of the winner-take-all network can implement a complex cognitive operation such as incremental grouping.

Keywords: Object-based Attention, Incremental Grouping, Spatial Relations, Neural Network

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SIMETRIJA I KOMPAKTNOST KAO ČINOCI VIZUELNOG PRETRAŽIVANJA

Jelena Mrčarica
Fakultet za medije i komunikacije, Univerzitet Singidunum, Beograd | *jelmrch@gmail.com*

Ispitivano je koji je faktor prevalentan u zadacima vizuelne pretrage: kompaktnost ili simetrija. Napravljena su četiri seta od po 16 stimulusa (2 nivoa kompaktnosti ili simetrije * 2 nivoa prisustva mete * 4 nivoa obima seta) za četiri izvedena eksperimenta. Prvi eksperiment je ispitivao efekat kompaktnosti na lakoću diskriminacije kod figura ispunjenih belom bojom u odnosu na crnu pozadinu, dok je drugi eksperiment ispitivao efekat kompaktnosti kod figura oivičenih samo konturom. Treći i četvrti eksperiment ispituju efekte vertikalne i dvostruko dijagonalne simetrije kod kompaktnih i nekompaktnih formi. Ispitanici su imali zadatak da detektuju prisustvo stimulusa mete. Obim seta u svakoj situaciji je bio variran na četiri nivoa – 3, 6, 9 i 12. Korišćen je potpuno ponovljen faktorijalni nacrt tipa 2x2x4, gde je 22 ispitanika randomizirano bilo izloženo situacijama sva četiri eksperimenta. Rezultati pokazuju da je

faktor obima seta statistički značajan: porastom obima seta, raste i vreme reakcije na detektovanu metu (E1: $F(3, 63) = 4.28$, $p < .05$; E2: $F(3, 63) = 6.08$, $p < .05$; E3: $F(3, 63) = 31.84$, $p < .05$; E4: $F(3, 63) = 19.12$, $p < .05$). U Eksperimentima 1 i 2, faktor kompaktnosti se nije pokazao kao statistički značajan, dok rezultati Eksperimenata 3 i 4 pokazuju efekat simetrije u smislu da se brže detektuju figure sa dvostrukom dijagonalnom simetrijom u odnosu na jednu vertikalnu osu simetrije (E3: $F(1, 21) = 10.23$, $p < .05$; E4: $F(1, 21) = 18.58$, $p < .05$). Interakcija faktora simetrije i kompaktnosti pokazuje da se brže pretražuju dvostruko dijagonalno simetrične i kompaktne figure u odnosu na vertikalno simetrične i nekompaktne ($F(1, 42) = 5.45$, $p < .05$). Kada se stimulusi iz sva četiri eksperimenta rasporede po dimenzijama ispunjenosti figure i kompaktnosti, efekat kompaktnosti se javlja jedino u interakciji sa faktorom simetrije, tako što se kompaktnije forme detektuju brže nego nekompaktne ($F(1, 21) = 65.30$, $p < .05$). Navedeni rezultati govore u prilog principa minumuma ili maksimalne jednostavnosti. Kompaktne figure koje odlikuje veća jednostavnost, su samim tim i regularnije, čime nose manju količinu informacija i odgovaraju stanjima manjeg energetskog ulaganja perceptivnog sistema, te je i vreme reakcije brže pri njihovom detektovanju.

Ključne reči*: kompaktnost, simetrija, princip minimuma, vizuelna pretraga

SYMMETRY AND COMPACTNESS AS FACTORS IN VISUAL SEARCH TASKS

The purpose of this research was to examine which factors prevail in visual search tasks: compactness or symmetry. The repeated measures factorial design was used where four experiments were carried out in a randomized order with varying the set size. The results show that by increasing the set size in the number of elements, RT also increases. The effect of symmetry showed that double-diagonal symmetry forms are being detected faster in respect to a vertical axis of symmetry. Interaction of symmetry and compactness factors shows faster detection of double-diagonal symmetrical and compact forms in comparison to the vertically symmetrical and non-compact forms. The detection of compact forms is faster than of the non-compact ones. These results support the principle of a minimum or maximum simplicity. Compact forms are characterized by greater simplicity; they are saturated with less information and respond to conditions of lower energy investments by the perceptual system.

Keywords: compactness, symmetry, the principle of a minimum, visual search tasks

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VISUAL LOCALIZATION OF ANGLES: THE ANGLE SHIFTING EFFECT

Marin Dujmović
School of Psychological Science, University of Bristol | *marin.dujmovic@bristol.ac.uk*
Pavle Valerjev
Odjel za psihologiju, Sveučilište u Zadru | *valerjev@unizd.hr*

The aim of this study was to determine the existence, and measure the size, of a shift in perceived angle apex when compared to the actual location in two-dimensional space. To our knowledge, this angle shifting effect has not been described in psychological literature. Our previous experiments provided inconsistent results. Two alternative forced choice experiments determined that there was a significant shift of angle apex location towards the inner surface of the angle. The same shift was not found in visuo-motor localization experiments. For the current study we conducted two experiments using the psychophysical method of constant

stimuli. In the first experiment participants ($N = 35$) were shown two fins (100 pixels or 6.02 degrees of visual angle) which formed a right angle for 500 ms. This was followed by a masking stimulus of the same duration. Finally, participants were shown a single dot and their task was to judge whether the presented dot was to the left or to the right of the apex of the previously presented angle. The target stimuli set consisted of seven dots spread over 30 pixels in equal increments with the middle dot appearing at the exact location of the angle apex. The leftmost and rightmost dots appeared 15 pixels to the left and right of the actual angle apex. Results showed that the point of subjective equality (PSE) was shifted by 13.77 pixels (0.41 degrees of visual angle) towards the inner surface of the angle. The offset was significant when compared to a fixed value corresponding to the objective point of equality ($t(16) = 5.58$, $p < .01$). However, a portion of the participants appeared to have a PSE which exceed the spread of stimuli values. A second experiment was conducted in order to determine whether this was due to methodological issues. For the second experiment ($N = 34$) we increased the spread to 60 pixels in equal increments between the seven target stimuli and the mask stimulus duration was increased to 750 ms. Results showed that the PSE was shifted towards the inner surface of the angle. The effect was indeed slightly larger than the most extreme stimulus from the first experiment (16.08 pixels equating to 0.48 degrees of visual angle). The effect was again significant ($t(25) = 7.25$, $p < .01$). There seems to be a perceived shift of angle apex location towards the inner surface of the angle. These findings have clear implications which count a partial explanation of the Muller-Lyer illusion as one of the most interesting.

Keywords: angle shifting effect, angle perception, vertex localization, spatial perception

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ZNAČAJ VIZUELNE PAŽNJE ZA PROCESE LOKALIZACIJE I IDENTIFIKACIJE U VIZUELNOJ PERCEPCIJI

Svetlana Borojević
Univerzitet u Banjoj Luci, Filozofski fakultet, Laboratorija za eksperimentalnu psihologiju LEP-BL | *svetlana.borojevic@ff.unibl.org*

Lokalizacija i identifikacija su ključni procesi u obradi vizuelnih informacija. Lokalizacija se odnosi na određivanje pozicije stimulusa unutar globalnog koordinantnog sistema koji definiše raspored svih njegovih sastavnih dijelova, dok identifikacija predstavlja „viši i precizniji" nivo percepcije kojim se utvrđuju različita svojstva stimulacije u cilju stavaranja cjelovitog percepta. Postoje neujednačena shvatanja o tome da li su ovi procesi funkcionalno nezavisni i da li se odvijaju u ranim fazama viđenja, bez učešća pažnje. U ovom istraživanju se nastoji utvrditi odnos lokalizacije i identifikacije stimulusa, kao i zavisnost ovih procesa od pozicije stimulusa kroz specifičnu eksperimentalnu proceduru ispitivanja *sljepila usljed nepažnje. Sljepilo usljed nepažnje* je pojava neregistrovanja zbivanja unutar vizuelnog polja usljed obavljanja drugog zadatka, tj. distrakcije pažnje ispitanika. Ovakva procedura omogućava ispitivanje uloge pažnje u različitim procesima vizuelne percepcije. U eksperimentu je korišten zadatak procjene dužine linija osmišljen od strane Mekove i Roka. U istraživanju je učestvovalo 126 ispitanika, studenata Univerziteta u Banjoj Luci. Svaki ispitanik je prošao ukupno četiri izlaganja, pri čemu je u posljednjem izlaganju, pored linija čija se dužina procjenjivala, prezentovan i kritični stimulus. Varirana je pozicija izlaganja stimulusa sa dva nivoa (centar i periferija). Praćena je tačnost lokalizacije kritičnog stimulusa, definisanja određivanjem kvadranta u kom je stimulus prikazan, kao i tačnost identifikacije, određena odabirom kritičnog stimulusa u nizu ponuđenih oblika. Jedna grupa ispitanika je prvo radila zadatak lokalizacije, a druga grupa zadatak identifikacije. Rezultati pokazuju da je broj tačnih lokalizacija veći od broja tačnih

identifikacija. McNemar hi-kvadrat test pokazuje da je ova razlika statistički značajna (p = .002). Proces lokalizacije je moguć i bez aktivnog učešća pažnje. Međutim, identifikacija stimulusa u uslovima nepažnje je moguća ali zavisi od pozicije prikazivanja stimulusa. Uticaj spacijalnih faktora na proces identifikacije se može objasniti metaforom reflektora. Nije utvrđen efekat redoslijeda zadataka na tačnost lokalizacije i identifikacije.

Ključne riječi: lokalizacija, identifikacija, vizuelna pažnja, sljepilo usljed nepažnje

THE ROLE OF VISUAL ATTENTION TO LOCALIZATION AND IDENTIFICATION PROCESSES IN VISUAL PERCEPTION

Localization refers to determining the position of the stimulus within a global coordinating system that defines the layout of all of its constituents, while identification is a "higher and more precise" level of perception, which determines the different stimuli properties in order to make the whole percept. This research seeks to examine the relationship between the localization and the identification of the stimulus, as well as the dependence of these processes on the position of the stimulus through the specific experimental procedure of inattentional blindness. One group of participants first performed the localization task, and the other group performed identification task. The results show that the number of correct answers in localization task is greater than in identification task. The process of localization is possible without an active involvement of attention, but the identification in inattention conditions is also possible, but depends on the position of the stimulus.

Keywords: localization, identification, visual attention, inattentional blindness

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REACH OUT I'LL BE THERE – ANISOTROPY OF PERCEIVED HAND LENGTH

Tijana Todić Jakšić
Faculty of Philosophy, Kosovska Mitrovica, University of Priština | *tijana8504@yahoo.com*
Oliver Tošković
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

Previous researches have shown that vertical distances are perceived as larger from physically equal horizontal distances. The difference occurs due to the integration of information from visual, proprioceptive and vestibular systems which are responsible for perception and action coordination. The basic premise is that movements directed upward require more effort and elongation of perceived distance helps in performing of the action. One of the possible ways to correct distance perception might be achieved through changing perception of the arm length used to perform the movements. With this in mind, we have intended to examine the ways in which examinees perceive their arm length on horizontal and vertical axis. The research included 13 participants of both genders, from 18 to 28 years of age. Their task has been to navigate the experimenter to put stimuli at certain, vertical or horizontal distance in such a way that examinee would have been able to reach it with the tips of his/her fingers. Half of the experimental situations involved disorienting of examinees in order to investigate the impact of vestibular information on perception of one's arm length. Results show statistically significant effect of direction (F = 4.75, df = 1, 13, p = .048), disorientation (F = 5.207, df = 1, 13, p = .040) as well as their interaction (F = 8.224, df = 1, 13, p = .013). Further analysis (Sidak post-hoc tests) show that arm length is perceived differently on vertical and horizontal axis, but only if examinees were not disoriented. In this case examinees perceived their arm

length as shorter on vertical axis then on horizontal axis. Disorienting of examinees diminishes differences in perceived arm length between two directions. In other words, after disorientation perceived arm length on vertical axis is elongated and becomes similar to perceived arm length on horizontal axis. To conclude, the same arm is truly perceived as shorter on vertical axis which is in accordance with previous hypothesis on perception and action coordination. Hence, if examinees use arm length as some sort of subjective measure unit and if it is perceived as shorter on vertical axis, then physically same distance on vertical axis will seem larger because it would contain more subjective measure units. It is interesting that the difference in perceived arm length is reduced with disorientation of the examinees, which leads to conclusion that vestibular information are important for space and distance perception.

Keywords: perception and action, arm length, disorientation

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HOW TO TRAIN YOUR ANISOTROPY: TRAINING EFFECTS ON PERCEIVED DISTANCE ANISOTROPY

Aleksandra Milosavljević
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade | *aleksandra_milosavljevic@yahoo.com*
Oliver Tošković
Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade

People tend to perceive distances on vertical direction as longer than physically equal distances on horizontal direction. This phenomenon is called perceived distance anisotropy, and it is shown in both physical and virtual reality. One possible explanation might be in relation between perception and action: perceived distance anisotropy can help to adjust action performance with effort on certain direction. In line with this explanation, we can ask would it be possible to change perceived distance anisotropy through training of certain action. We separated participants in two groups. First group (13 participants) went through 20 minutes training of shooting the target as precise as they can. The target was set on vertical and horizontal direction, on 1m, 2m and 3m, distances from participants' eyes, and they were throwing darts to hit it. The second part of experiment was done after the training, using virtual reality display, Oculus Rift DK2. In this part participants were matching distances of two spherical stimuli, on vertical and horizontal direction. As standard distances we used 1m, 2m and 3m. Second, control group (12 participants) only matched stimuli distances in VR. Two-way ANOVA showed significant main effect of stimuli distance, such that further stimuli are perceived as further ($F = 160.33$, $df = 2;46$, $p < 0.01$); direction, vertical distances are perceived as larger than horizontal ($F = 48.039$, $df = 1, 23$, $p < 0.01$); and interaction of distance and direction ($F = 5.561$, $df = 2, 46$, $p < 0.01$). Group (training/control) did not show significant main effect, or any interactions with other factors. This result indicates that training session did not affect matching stimuli distances on two directions in VR. We also calculated training score for each participant from the first group as a sum of target hits (those closer to the center carried more points). When this score was included in analysis, as a covariate, results did not change. Also, training score did not significantly correlate with stimuli distance matching, meaning that participants who scored more points during training session were not more successful in matching stimuli distances. The lack of difference between training and control group indicates stability of anisotropy effects and their relative independence from training.

Keywords: perceived distance anisotropy, perception and action, training, virtual reality

SENSITIVITY OF CONFIDENCE JUDGMENTS ACROSS DURATIONS

Ljubica Jovanovic
Laboratoire des systèmes perceptifs, Département d'études cognitives,
École normale supérieure Paris, PSL University | *lj.m.jovanovic@gmail.com*
Pascal Mamassian
Laboratoire des systèmes perceptifs, Département d'études cognitives,
École normale supérieure Paris, PSL University

Human perceptual decisions are followed by confidence in making the correct choice. Here, we asked how well humans can estimate likelihood of their performance in a duration discrimination task. We investigated whether metacognitive assessment is different for subsecond and suprasecond durations.

On each trial, we presented sequentially two white discs of size 4 degrees of visual angle. The duration of the first disc was constant across trials, and the duration of the second was varied in six different steps. Participants decided which of the two discs was presented for a longer duration. After two consecutive trials, participants indicated which of the two trials they believe their decision was more likely to be correct (confidence forced-choice judgement). In different blocks of we tested discrimination and confidence inference for three different durations: 200, 500 and 1400 ms. The sample consisted of sixteen young adults. In each block, participants completed 210 confidence judgements (420 duration discrimination trials).

We calculated the sensitivity of the temporal discrimination as the slope of the psychometric function fitted to perceptual decisions. As expected, discrimination sensitivity was lower for longer durations. Metacognitive performance was estimated by comparing the sensitivity of perceptual decisions that were chosen as more likely to be correct, to the overall sensitivity irrespective of the confidence choices. Sensitivity was reliably better for trials chosen as more likely to be correct ($F(2, 93) = 46.43$, $p < 0.01$, $R^2 = 0.49$). When choosing between two physically identical trials, participants could reliably estimate in which of the two intervals their performance was better. Interestingly, the confidence gain was greater for the longest durations, that were estimated with greatest uncertainty ($F(2, 45) = 3.66$, $p < 0.05$, $R^2 = .14$).

Our results indicate that humans are able to reliably estimate their sensory noise when estimating durations. In addition, metacognitive judgements are recalibrated for different levels of temporal uncertainty.

Keywords: duration discrimination, confidence, time perception

PSIHOLOGIJA RADA

POVEZANOST EMOCIONALNE INTELIGENCIJE I USPEŠNOSTI U DIREKTNOJ PRODAJI

Ana Ivanov
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu | *anaivanov70@gmail.com*
Ivana Petrović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Prodajna snaga i njen učinak su centralne za uspeh skoro svake firme. Sve se više ističe odnos prema klijentima, kao posledica sve većeg broja radnih pozicija koje zahtevaju kontakt i svakodnevnu komunikaciju sa klijentima. Emocije su važan faktor ponašanja, pa i u toku radnog vremena. Različite pozicije zahtevaju zaposlene sa različitim nivoom razumevanja i upravljanja emocijama, pa je Emocionalna inteligencija (EI) naročito važna u prodaji. Glavni cilj ovog istraživanja jeste ispitivanje specifičnog doprinosa EI i doprinosa njenih pojedinačnih aspekata u razumevanju uspešnosti u direktnoj prodaji, predstavljenoj kroz subjektivne i objektivne mere. Uzorak je činilo 92 zaposlenih u direktnoj prodaji u oblasti telekomunikacija. Ispitanika muškog pola bilo je 65 (70.7%). EI procenjena je pomoću upitnika Crte emocionalne inteligencije (Trait Emotional Intelligence Questionnaire, TEIQue). Uspešnost u prodaji konceptualizuje se na različite načine, pa je pored kvantitativne mere u vidu ostvarenih bonusa na mesečnom nivou, prevedena i upotrebljena skala Subjektivne uspešnosti u prodaji (Sales Performance, SUP). Rezultati analiza pokazuju da TEIQue na nivou faceta poseduje zadovoljavajuću pouzdanost (α = .88), kao i SUP (α = .89). Faktorska struktura TEIQue dobijena u okviru ovog istraživanja nije u skladu sa očekivanom strukturom. Dalje analize su pokazale značajnu predikciju skorova na skali SUP uz pomoć ukupnog skora TEIQue, koji objašnjavaju čak 38% varijanse (R^2 = .38, $F(4, 87)$ = 13.35, $p < .01$). Iznos novčanih bonusa na mesečnom nivou i skorovi na TEIQue skali dele 18.1% varijanse (R^2 =.181, $F(4, 87)$ = 4.82, $p < .01$).
Ispitivanje odnosa aspekata EI i uspešnosti pokazalo je njihovu povezanost, gde se javio veći procenat deljene varijanse kada govorimo o SUP instrumentu. Značajan doprinos faktora TEIQue – Dobrostanja i Socijabilnosti dovodi do zaključka da osobe koje su društvene i uspešne u formiranju odnosa sa drugima, a sa druge strane zadovoljne svojim životom sebe vide i kao uspešnije u prodaji. EI može pomoći prodavcima da budu bolji u razumevanju složenih emocija i upravljanju sopstvenim emocijama. Ova sposobnost može omogućiti prodavcima da se odvoje od negativnih afektivnih stanja kada je to potrebno i usvoje odgovarajuće emocionalne reakcije. Bitna implikacija ovog istraživanja jeste mogućnost uticanja na razvijanje EI kod prodavaca.

Ključne reči: emocionalna inteligencija, subjektivna uspešnost, direktna prodaja, bonusi

THE RELATION BETWEENEMOTIONAL INTELLIGENCE AND PERFORMANCE IN DIRECT SALES

Salespeople and their performance are central to the success of every company. Success can be influenced by emotions and Emotional Intelligence (EI), which is particularly important in sales. Objective of this research is to examine the contribution of EI and its aspects in understanding the performance in direct sales, presented through subjective and objective measures. EI is evaluated using the TEIQue, which represents the operationalization of EI as a trait. Sales performance is measured by Subjective Sales Performance scale (SSP) and monthly bonuses. Analyses showed a significant prediction of SSP scores with TEIQue as predictor, which explains 38% variance (R^2 = .38, $F(4, 87)$ = 13.348, $p < .01$). The amount of the bonus

and the scores on TEIQue scale share 18.1% of the variance (R^2 = .181, F(4, 87) = 4.822, p <.01).An important implication of this research is possibility to develop EI in salespersons and improve sales performance.

Keywords: emotional intelligence, subjective performance, direct sales, bonuses

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ADAPTACIJA I VALIDACIJA INSTRUMENATA ORIJENTACIJA KA KLIJENTIMA- ORIJENTACIJA KA KUPCIMA I SUBJEKTIVNA USPEŠNOST U PRODAJI

Ana Ivanov
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu | *anaivanov70@gmail.com*
Ivana Petrović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Odnos prema klijentima dobija na značaju, što je posledica sve većeg broja uslužnih delatnosti. Koncept orijentacije ka kupcima može se razmatrati kao antecedent uspešnosti i kao njena mera. Cilj ove studije jeste validacija instrumenata Orijentacija ka kupcima – orijentacija ka prodaji (OKOP) i Subjektivne uspešnosti u prodaji (SUP). Kako do sada nisu postojali pandani ovih instrumenata prilagođeni našem govornom području, prevedeni su, a zatim validirani na srpskoj populaciji. Uzorak je činilo 184 zaposlena u direktnoj prodaji u oblasti telekomunikacija, od čega je 107 (58.2%) ispitanika bilo muškog pola. Ispitanici su popunjavali instrument OKOP koji se sastoji od 24 ajtema grupisanih u dva faktora i SUP sa 31 ajtemom i sedam subskala.

Rezultati su pokazali zadovoljavajuće metrijske karakteristike. Pouzdanost instrumenta SUP iznosi .90. Faktorska struktura je nešto drugačija od očekivane. Dobijenih 8 faktora ukupno objašnjava 63.72% varijanse, od kojih pet odgovara teorijskim faktorima: Prodajni ciljevi, Kontrola troškova, Tehničko znanje, Prodajna prezentacija i Pružanje informacija. Ostala tri faktora predstavljaju spoj po dva faktora izvorna i nazvani su Proaktivnost i inicicijativa, Poštovanje pravila i Razumevanje potreba. Pouzdanost instrumenta OKOP iznosi .83. Faktorska analiza izdvojila je dva faktora koja objašnjavaju ukupno 36.55% varijanse i konzistentni su sa očekivanjima.

Kako je u upotrebi i skraćena verzija instrumenta OKOP, proverene su i njene metrijske karakteristike, kao i faktorska struktura. Pouzdanost je i pored smanjenja broja ajtema ostala zadovoljavajuća (α = .84). Izdvojila su se dva faktora koji ukupno objašnjavaju 72.06% varijanse. Razmatranjem matrice strukture i sklopa zaključuje se da sadržaj faktora odgovara teorijskoj raspodeli ajtema po faktorima.

Detaljnijim razmatranjem odnosa SUP i SOCO skale, može se primetiti da SUP značajno pozitivno korelira sa orijentacijom ka kupcima (r = .28, p = .000), dok je korelacija sa orijentacijom ka prodaji nulta. Ovo se može dovesti u vezu i sa teorijskim očekivanjem povezanosti uspešnosti u prodaji i usmerenosti na kupca, a ne na samu prodaju.

Rezultati pokazuju da OKOP skala može da bude u upotrebi i u okviru istraživanja srpskog govornog područja. SUP skala se takođe može koristiti simultano sa drugim merama u istraživanjima, što je važno jer može pružiti uvid u aspekte uspeha koji nisu vidljivi kroz brojeve ili menadžerske procene, kao i u poređenje između različitih kompanija.

Ključne reči: orijentacija ka kupcima, orijentacija ka prodaji, uspešnost, direktna prodaja, validacija

ADAPTATION AND VALIDATION OF CLIENT ORIENTATION – CUSTOMER ORIENTATION AND SUBJECTIVE SALES PERFORMANS SCALES

Relationship with clients is gaining in importance. Concept of Customer Orientation (CO) can be considered as an antecedent and measure of performance. The aim of this study is to validate instruments Customer Orientation – Sales Orientation (SOCO) and Subjective Sales Performance (SSP).

The reliability of the SSP was .90. The resulting factor structure was slightly different than expected, showing eight factors which explain 63.72% of the variance. The reliability of the SOCO was .83. Factor analysis separated two factors explaining a total of 36.55% variance. Short form was also analysed. Reliability remained at the same level and same two factors explained 72.06% of variance.SSP correlated positively with the CO score ($r = .28$, $p = .000$), while the correlation with SO was equal to zero. Results showed that SOCOand SUP scales can be used in researchs simultaneously with other measures.

Keywords: customer orientation, sales orientation, performance, direct sales, validation

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MOTIV POSTIGNUĆA I PROKRASTINACIJA STUDENATA

Ana Stojanović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *stojanović21ana@gmail.com*
Ana Kovačević
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Sofija Milosavljević
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Jovana Tasić
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Motiv postignuća se najjednostavnije opisuje kao tendencija ljudi da ulože napor da postignu i ostvare nešto što se smatra vrednim i uz pomoć čega će se istaći pred drugima. Međutim, motiv postignuća se u literaturi različito definiše i u istraživanjima se često ispituju samo njegovi pojedini aspekti. Prema jednom od modela, orijentacija ka cilju je definisana preko 2x2 okvira koji ukršta dve dimenzije kompetentnosti – definiciju i valencu, obrazujući četiri komponente: *usmerenost ka uspehu kroz vičnost*, *izbegavanje neuspeha kroz vičnost*, *usmerenost ka uspehu kroz učinak* i *izbegavanje neuspeha kroz učinak*. Sa druge strane, u našoj sredini se prilikom proučavanja motiva postignuća radije koristi model motiva postignuća koji se sastoji od četiri komponente: *takmičenje sa drugima*, *istrajnost u ostvarivanju cilja*, *ostvarivanje ciljeva kao izvor zadovoljstva* i *orijentacija ka planiranju*. Drugi konstrukt kojim se ovo istraživanje bavilo jeste prokrastinacija, koja predstavlja dobrovoljno odlaganje važnih obaveza i njihovu zamenu nevažnim zadacima koji donose trenutno zadovoljstvo. Problem kojim se ovo istraživanje bavilo jeste ispitivanje povezanosti različitih modela koji opisuju usmerenost ka cilju sa tendencijom ka odlaganju važnih obaveza. Cilj ovog istraživanja bio je ispitati na koji način su faktori četvorokomponentnog modela motiva postignuća i komponente modela 2x2 orijentacije ka postizanju cilja povezani sa tendencijom ka prokrastinaciji, kao i da li su dva pomenuta modela potpuno svodivi jedan na drugi. Prigodan uzorak činili su 383 studenta, oba pola. Rezultati su pokazali da su svi faktori četvorokomponentnog modela – takmičenje sa drugima ($r(383) = -0.103$, $p < .01$), ostvarivanje ciljeva kao izvor zadovoljstva ($r(383) = -0.343$, $p < .05$), orijentacija ka planiranju ($r(383) = -0.175$, $p < .05$), istrajnost u ostvarivanju ciljeva

(r(383) = -0.220, $p < .05$) – i samo jedna komponenta 2x2 modela – usmerenost ka uspehu kroz vičnost (r(383) = -0.238, $p < .05$) – značajno negativno povezani sa prokrastinacijom. Četvorokomponentni model motiva postignuća i model 2x2 orijentacije ka postizanju cilja u ovom istraživanju pokazali su izvesna značajna preklapanja i povezanosti, ali se četvorokomponentni model pokazao daleko korisnijim u ispitivanju prokrastinacije od modela 2x2, s obzirom da su svi faktori ovog modela bili značajno povezani sa tendencijom ka prokrastiniranju.

Ključne reči: prokrastinacija, motiv postignuća, četvorokomponentni model motiva postignuća, orijentacija ka postizanju cilja.

Achievement motivation is described as one's tendency to make an effort to achieve something that is considered valuable, while procrastination represents voluntary postponing of important responsibilities and replacing them with unimportant tasks that cause short-term satisfaction. The goal of this research was to investigate whether two different models of achievement motivation – the four-component model and the 2x2 achievement goal framework – are significantly associated with procrastination. Additionally, the relationship between two models was analyzed. The voluntary sample consisted of 383 students of both genders. The results showed that every component of the four-component model of achievement motivation and only one component of the 2x2 achievement goal framework were significantly negatively associated with procrastination. These two models showed certain significant correlations in this study, but overall, the four component model of achievement motivation was more useful in understanding the construct of procrastination.

Keywords: procrastination, achievement motivation, four-component model of achievement motivation, achievement goal framework

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FUTURE WORK SELF, CAREER ADAPTABILITY AND WORK ENGAGEMENT AMONG YOUNG EMPLOYEES

Anja Balažević
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *anjabalazevic@gmail.com*
Svetlana Čizmić
Department of Psychology, Faculty of Philosophy, University of Belgrade

The new and changed career concept, as well as the increasing uncertainty and insecurity of the jobs, raise questions about what qualities should young people develop in order to achieve their career goals and aspirations. For young people who are entering the work life is important to behave proactively and to work hard to achieve success by developing career competencies. This work examines relationship between future work self (as an aspect of self-concept related to personal aspirations for future work life), career adaptability and work engagement among young people who are currently employed at their first job. The instruments used in this study were: 1. *Future work self* (Strauss, Griffin and Parker), 5 items, 5 point Likert scale from 1-strongly disagree to 5-strongly agree; Career Adapt-Abilities Scale (Savickas and Portfeli), 35 items, on scale from 1-not strong to 5-strongest*; 3. The Utrecht Work Engagement Scale* (Schaufeli and Bakker), 17 items, on scale from 0-never to 6-always. The sample consisted of 151 respondents, aged 23 to 29, currently employed at their first job. Positive correlations were found between future work self and work engagement ($r = 0.48$, $p < .01$), between future work

self and career adaptability ($r = 0.43$, $p < .01$), as well as between career adaptability and work engagement ($r = 0.40$, $p < .01$). Also, results reveal that career adaptability moderates relationship between future work self and work engagement ($b = .27$; $p < .01$, Sobel test, $z = 3.04$, $p < 01$). Therefore, career adaptability is a mechanism through which the future work self affects work engagement. The findings suggest that young people who have a clear picture of what do they want to become in the future are more willing to adapt and make additional efforts at work in order to achieve their own professional goals.

Keywords: future work self, career adaptability, work engagement, young employees, Serbia

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DRIVERS AND BARRIERS OF THE INTENTION OF USING E-BANKING SERVICE AMONG OLDER ADULTS

Branislava Vidanović
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *branislavavidanovic@gmail.com*
Svetlana Čizmić
Department of Psychology, Faculty of Philosophy, University of Belgrade

Research shows that besides recognizing the benefits of using electronic services, older adults use them less than young people. E-banking is one of the services whose use is insufficiently represented among the elderly. The aims of this study were to investigate the relationship between drivers and barriers of the intention of using e-banking service among older adults as well as examining the connection of this intent with the attitudes towards computers. The theoretical basis of the research is the Unified Theory of Acceptance and Use of Technology (for drivers) and the Theory of Resistance to Innovation (for barriers). The sample was made of 86 respondents, of the average age of 62 years. For measuring drivers and barriers of the intention of using e-banking service and for measuring intention of using e-banking service it was used adopted version of the questionnaire which measures drivers and barriers of online shopping intention among older adults (Lian and Yen), 31 items, 5-point Likert scale. Drivers were assessed by dimensions: performance expectation, effort expectation, social influence and facilitating conditions while barriers were assessed by dimensions: usage, value, risk, tradition and image. The intention of using e-banking service was measured by 3 items. For measuring attitudes towards the computers it was used adopted version of Computer Attitude Measure for Young Students (CAMYS, Asil, Teoand Noyes), 12 items, 5-point Likert scale. The results showed that only 28% of respondents use e-banking services. Also, the results confirmed that all drivers were positively related to the intent of using e-banking services, whereby facilitating conditions factor accomplishes the strongest positive correlation with the intention ($r = .77$, $p < .01$). Dimension tradition' was barrier that had the strongest negative correlations with the intention of using e-banking ($r = -.69$, $p < .01$). Correlations between all drivers and barriers and the intention of using e-banking services were stronger on the sub-sample of men. As it was expected, attitudes towards computers positively correlated with intention of using e-banking. These correlations were also stronger among men ($r = 0.80$, $p < .01$) than among women ($r = .63$, $p < .01$). From the obtained results it may be concluded that older adults are less likely to use e-banking service, but there are many factors that can be influenced to change this situation.

Keywords: e-banking, older adults, attitudes towards computers, drivers, barriers

IRREGULAR WORKING TIME ARRANGEMENT, EMPLOYEES' WELL-BEING AND ACCIDENTS AT WORK

Milica Vukelić
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *mbvukeli@f.bg.ac.rs*
Ivana Petrović
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *ipetrovi@f.bg.ac.rs*

Having optimal balance between working and non-working time is essential for employees' well-being. Some recent research investigated the relations between different measures of irregular working time arrangement and specific health outcomes on European level. The aim of this study was to analyze the relation between irregular working time arrangement, well-being and frequency of accidents at work among employees in Serbia. Research was based on Eurofound's Sixth European Working Conditions Survey (EWCS–15), Serbian sample. For irregular working time arrangement we have analysed following indicators: longer working hours (48h / more than 48 per week), shift work (not / having shifts), night work (not / working at night between 10 and 5 pm) and Sunday work (not / working on Sundays). Well-being was covered with The World Health Organization's Five Well-Being Index (WHO-5), incorporated within EWCS–2015 (Cronbach's alpha 0.88) and with one item estimating general health (How is your health in general?, 1 – very bad, 5 – very good). Accidents at work were measured by one item (How many of days of absence resulted from accident(s) at work; 0 – no accidents and 1 – more than one day). The Serbian representative sample consisted of 1033 employees (49.3% female) average age 45.29 (SD = 13.89) from different sectors and industries. The results showed that employees with longer working hours (48 hours or more per week) had lover well-being ($F(1, 1024) = 7.661$, $p = .006$, partial $\eta^2 = 0.01$), and there was no significant difference regarding their health. The employees who worked in shifts had worse general health ($F(1, 1020) = 15.921$, $p = .000$, partial $\eta^2 = 0.01$), but there were no statistically significant differences regarding their well-being. Those who worked at night had somewhat worse health ($F(1, 1011) = 7.249$, $p = .007$, partial $\eta^2 = 0.01$) and differences regarding the well-being were insignificant. The employees who work on Sundays had both lower well-being ($F(1, 988) = 7.315$, $p = .007$, partial $\eta^2 = 0.01$) and worse general health ($F(1, 993) = 5.826$, $p = .016$, partial $\eta^2 = 0.01$). Contrary to some other research, there were no statistically significant relation between irregular working time arrangement and accidents at work. The results were discussed within the current European trends as well as some socio-economic specificities.

Keywords: irregular working time arrangements, well-being, accidents at work, Serbia, EWCS–2015

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THE RELATIONSHIP BETWEEN WEBSITE DESIGN AND PURCHASE INTENTION IN ONLINE SHOPPING: THE MEDIATING ROLE OF TRUST AND IRRITATION

Nikola Drndarević
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *thanness@gmail.com*
Svetlana Čizmić
Department of Psychology, Faculty of Philosophy, University of Belgrade

Development of e-commerce and design industry in the online environment focuses the importance on the relationship between the website design characteristics and the purchase intention. It is not quite clear in the literature whether the website design directly influences purchase intention or is this relationship mediated by some underlying mechanisms, and whether these relations are the same for men and women. The aim of this research was to analyze the relationship between website design (navigational, informational and visual design) and purchase intention mediated by trust and irritation, as well as to test this model within the subsamples of men and women. Online survey was distributed with items adapted from Ganguly, Dash, Cyr and Head research: website design (9 items), online trust (7 items) purchase intention (3 items); and from Gau and Wu research: 3 items for perceived irritation. Online survey completed 206 participants (56% women), aged 16 – 56. The results of Structural Equation Modeling show relations between online trust and purchase intention ($\beta = .628$, $p < .001$), as well as absence of relations between irritation and purchase intention. In the relationship between navigational design and purchase intention, trust had partial mediating role ($\beta = .482$, $p < .01$), while the irritation was shown not to have a mediating role. Results also show gender differences, with the most prominent divergence in the relation between informational design and purchase intention (for men: $\beta = .628$, $p < .01$, for women: ns) and navigational design and purchase intention (for women $\beta = .684$, $p < .05$, for men: ns). These results suggest that gender differences should be taken into account when designing a website and that irritation was not a relevant factor. The findings were discussed in the context of underlying mechanisms that can shape purchase intentions. This research builds on previous findings, introducing gender differences as well as irritation as a mediator.

Keywords: online shopping, design characteristics, trust, irritation, gender differences

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THE EFFECTS OF BRAND POPULARITY AND THE BIG FIVE ON PERCEIVED QUALITY OF REFRESHMENT PRODUCTS: AN EXPLORATORY STUDY

Biljana Mirkovic
Faculty of Philosophy, University of Banja Luka | *biljana.mirkovic@ff.unibl.org*
Siniša Lakić
Faculty of Philosophy, University of Banja Luka

With this study we primarily wanted to examine whether brand popularity can be an important factor when making quality assessments about refreshment products. Specifically, we explored the effect of brand popularity on general quality evaluation of different potato chips and energy drinks products in two separate studies. To this end, in both studies we used 2x3 repeated measures design where we manipulated the brand awareness condition (blind-test vs. brand names revealed) and where we used three brands from different ordinal categories of popularity (highly advertised brand, moderately advertised brand, lowly advertised brand) for both potato

chips and energy drinks. In addition, we were interested in exploring whether the Big Five traits can explain some variance of the effect, so we also administered the Ten-Item Personality Inventory (TIPI), a brief 10-item measure of the Big Five. Both studies were conducted on convenience samples, each comprising of 136 university students. The first task for the participants was to blind-taste all products, upon which they tasted them with brands revealed. We observed a significant awareness x popularity interaction for potato chips products ($F(2, 268) = 11.23$, $p < .001$, $\eta^2 = .08$); namely, the highly advertised brand received better evaluation when the brand was revealed ($t(134) = 2.13$, $p = .035$, $d = 0.18$), whereas the lowly advertised brand was assessed worse ($t(134) = -4.22$, $p < .001$, $d = -0.36$). Taken together, the rating adjustment effect was obvious ($t(134) = 4.47$, $p < .001$, $d = 0.39$, $BF_{10} = 886.0$). We observed an analogous but insignificant trend for energy drinks products ($F(2, 270) = 1.77$, $p = .172$, $\eta^2 = .01$), where the magnitude of the combined adjustment effect was smaller and statistically inconclusive ($t(134) = 1.75$, $p = .082$, $d = 0.15$, $BF_{01} = 2.37$). Interestingly, moderately popular brands were rated equally with both types of products. When it comes to the Big Five traits as predictors of the change in ratings dependent on the awareness condition, only neuroticism was found to be a plausible correlate ($r_s(132) = .21$, $p = .015$, $BF_{10} = 3.54$) when participants assessed potato chips. Within the energy drinks study, the largest correlation was again obtained for neuroticism, but its magnitude was weaker and statistically inconclusive ($r_s(134) = .11$, $p = .209$, $BF_{01} = 2.36$). Our results on a relatively small sample and with a very short Big Five questionnaire suggest that brand popularity might affect the perceived quality of refreshment products. Simultaneously, emotionally labile persons might be less consistent in rating the quality of refreshment products.

Keywords: brand popularity, brand awareness, Big Five, perceived quality, refreshment products.

RAZVOJNA PSIHOLOGIJA

THE SIGNIFICANCE OF EMOTIONAL REGULATION FOR THE ACADEMIC ACHIEVEMENT OF ADOLESCENTS

Barbara Blažanin
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u Beogradu | *barbara.blazanin@gmail.com*
Ksenija Krstić
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Research showed that negative emotions followed by non-adaptive emotional regulation could have negative impact on student achievement (Davis & Levine, 2013; Desiatnikov, 2014). These are important findings, as PISA results continuously indicate high presence of anxiety and low achievement among our students. Research aims were: To observe the variability of emotions and emotional regulations for 3 months; to explore the relation of negative emotions, emotional regulation and academic achievement. First, students completed questionnaire about academic motivation and socio-demographic variables. The aim was to take these effects into account, when measuring impact of emotions and emotional regulation. Main part of the research consisted of weekly diaries that were completed by 119 Belgrade high school students for 9 weeks. Students evaluated intensity of their emotions in school on a 5-point Likert scale. Afterwards, they had to recognize the way emotions were regulated, by checking 3 from the list of strategies and report about weekly math grades. Descriptive statistics showed that all emotions were fairly stable for 3 months. On average, positive passive emotions had the highest intensity (satisfaction M = 3.5, SD = .59; relaxation M = 3.5, SD = .69). Among negative emotions, only boredom had greater presence (M = 2.8, SD = .74). These findings were only partially in accordance with the previous studies, as many scholars reported dominance of negative emotions. When it comes to emotional regulations, the study showed primarily presence of cognitive change (43%) for regulating negative active emotions (anxiety and anger) and attentional deployment (68%) for regulating negative passive emotions (boredom, sadness, and helplessness). For the purpose of the second research aim, path analysis was conducted. The path model showed a satisfactory fit (χ^2 = 1.63, CFI = .84, TLI = .80, RMSEA = .07). Motivation (β = .27, p = .001), last year grade (β = .57, p = 001) and negative passive emotions (β = -.12, p = .05) had a significant impact on academic achievement. This study confirmed negative influence of negative passive emotions on achievement. High presence of boredom and positive deactivating emotions indicate widespread passivity among adolescents in terms of emotional states and the way they are coping with emotions. Having in mind potential negative effects of passive emotions on academic achievement, there is need for further exploration of emotions among adolescents in school context.

Keywords: Emotions, emotional regulation, academic achievement

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RAZLIKE U USPEŠNOSTI LOGIČKOG REZONOVANJA I EGZEKUTIVNIH FUNKCIJA IZMEĐU ADOLESCENATA I ODRASLIH

Bojana Bjegojević
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *bbojana13@gmail.com*
Olga Dubljević
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *ogd992@gmail.com*

Poznato je da se sposobnost logičkog rezonovanja progresivno poboljšava tokom adolescencije sve do oko osamnaeste godine života, što korelira sa sazrevanjem prefrontalnog korteksa odgovornim za najviše oblike kognicije kao što su zaključivanje, planiranje i egzekutivne funkcije. Postavlja se stoga pitanje da li se uspešnost rezonovanja kod adolescenata značajno razlikuje u odnosu na odrasle ispitanike i da li se može dovesti u vezu sa razlikama u razvijenosti egzekutivnih funkcija. Sprovedeno istraživanje je dakle, imalo za cilj da proveri postoje li razlike između odraslih ispitanika i adolescenata u: 1) uspešnosti u zadatku rezonovanja; 2) razvijenosti egzekutivnih funkcija za koje se pretpostavlja da su mu u osnovi, kao i 3) da se ispita mogućnost predviđanja uspešnosti u rezonovanju na osnovu postignuća na testovima egzekutivnih funkcija. Uzorak je činilo 20 odraslih ispitanika (uzrasta 20-29 godina) i 20 adolescenata (13-14 godina), balansiranih po polu. Uspešnost logičkog rezonovanja ispitivana je na tzv. Zadatku četiri karte (Wason Selection Test, WST). Od egzekutivnih funkcija isptane su sposobnost inhibitorne kontrole operacionalizovana kroz vreme reakcije na Strupovom testu (Stroop Color-Word Test) i sposobnost premeštanja pažnje procenjena na osnovu vremena reakcije na TMT testu (Trail Making Test, forme A i B). Dobijene su značajne razlike između adolescenata i odraslih ispitanika u uspešnosti na WST tj. zadatku rezonovanja ($\chi^2(1) = 4.800, p = .028$), kao i u testovima egzekutivnih funkcija inhibicije i premeštanja pažnje ($F(2, 37) = 15.94, p = .001$; Wilks $\Lambda = .54$, parc. eta kvadrat $\eta^2 = .46$). Podaci ukazuju na to da uspeh na zadacima egzekutivnih funkcija nije značajan prediktor uspešnosti u rešavanju zadatka rezonovanja ($\chi^2(2) = 3.089, p > .05$). Dobijeni rezultati ukazuju na značaj uzrasnih, odnosno razvojnih razlika u uspešnosti logičkog zaključivanja tj. rezonovanja, kao i u uspešnosti egzekutivnih funkcija inhibicije i premeštanja pažnje. Nalazi ne pružaju potporu mogućnosti predviđanja uspeha u apstraktnom logičkom rezonovanju na osnovu razvijenosti pomenutih egzekutivnih funkcija, mada je ovaj zaključak ograničen samo na korišćeni tip zadatka rezonovanja.

Ključne reči: logičko rezonovanje, egzekutivne funkcije, adolescencija

The purpose of this research was to determine whether adolescents' performance in a reasoning task and in the tests of underlying executive functions differs from that of adult subjects. We also explored the possibility of predicting the performance in the reasoning task based on the achievement in the tests of executive functions. The sample consisted of 20 adult subjects and 20 adolescents (gender ratio balanced). Logical reasoning ability was assessed through Wason Selection Test (WST). Executive functions including inhibitory control and attention shifting performance were estimated through reaction time on Stroop Color-Word Test and Trail-Making-Test respectively. Significant differences were found between the groups in WST achievement ($\chi^2(1) = 4.800, p < .05$), and in both executive functions tests' performance ($F(2, 37) = 15.94, p = .001$; Wilks $\Lambda = .54$), the latter not being a significant predictor of successfulness in the reasoning task ($\chi^2(2) = 3.089, p > .05$).

Keywords: logical reasoning, executive functions, adolescence

DRUŠTVENE MREŽE KAO DOMINANTNO POLJE INTERAKCIJE IZMEĐU ADOLESCENATA: NAVIKE KORIŠĆENJA I PROBLEM SAMOPREDSTAVLJANJA

Bojana Vujović
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *boka.fska@gmail.com*
Adrijana Ćetković
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *aadrijanacetkovic@gmail.com*
Nikola Sabljić
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *n.sabljic0@gmail.com*

U skladu sa širenjem sve popularnijeg trenda korišćenja društvenih mreža i sve češćom pojavom diferencijacije publike kojoj je prezentovani sadržaj namenjen, javlja se potreba istraživača za upoznavanjem navika adolescenata po pitanju korišćenja društvenih mreža, ali isame prirode dinamike socijalnih interakcija na digitalnim platformama. U cilju rasvetljavanja socijalnih procesa koji se odvijaju na sve prisutnijem virtuelnom nivou komunikacije i otkrivanja mehanizama njihovog delovanja, sprovedeno je kvalitativno istraživanje eksplorativnog tipa u vidu dve fokus grupe na uzorku od 10 srednjoškolaca (uzrast 16 god.) i 10 studenata Filozofskog fakulteta (20 god). Glavne teme obuhvaćene fokus grupombile suučestalost korišćenja društvenih mreža, tip aktivnosti i izbor sadržaja, razlike između online i offline selfa i socijalnih odnosa, kao i značaj koji društvene mreže danas imaju kod mladih. Prikupljeni podaci analizirani su kvalitativno, primenom metode tematske analize. Ispitanici oba uzrasta navode da »previše« koriste društvene mreže, a kao razlozikorišćenja izdvojili su se komunikacija, razonoda i informisanje. Srednjoškolci su smatrali da je "onlajn self" neka vrsta idealizacije sopstvene ličnosti, dok su studenti zastupali stav da online self predstavlja realan, možda malo „doteran" prikaz osobe. Ispitanici navode da dešavanja u „onlajn" svetu utiču na dešavanja u realnom svetu, i obrnuto, kao i da je stupanje u komunikaciju sa nepoznatom osobom lakše putem društvenih mreža. Ispitanici su istakli da društvene mreže čine neizostavni deo njihove svakodnevice, kako u kontekstu akademskih obaveza tako i održavanja društvenog života koji zavisi od prisustva na socijalnim mrežama. Kao negativne aspekte, ispitanici navode traćenje vremena, netačno zaključivanje o stabilnosti socijalnih odnosa, razvijanje kompleksa (posebno vezano za fizički izgled) i sticanje lažne slike o svetu. Dobijeni nalazi biće diskutovani usvetlu teorija socijalnog konstruktivizma. Osvrnućemo se i na implikacije i potencijalne smernice za dalje bavljenje ovom temom, kao i na ograničenja fokus grupe kao tehnike ispitivanja ovog domena socijalnog funkcionisanja.

Ključne reči: društvene mreže, self koncept, samopredstavljanje, komunikacija, adolescencija

SOCIAL NETWORKS AS A DOMINANT FIELD OF INTERACTION BETWEEN ADOLESCENTS: HABITS OF USING SOCIAL MEDIA AND SELF-REPRESENTATION PROBLEM

In line with the increased usage of social networks, a need for investigating adolescents' social media habits on digital platforms has appeared. Two focus groups, on a sample of 10 high school students (age 16) and 10 students of Faculty of Philosophy (age 20), have been conducted. Main topics were frequency of using social networks and various activities, differences between online and offline self and social relations, as well as significance of social networks. Respondents of both sexes address the problem of overusing online platforms, and the main reasons are communication, entertainment and informing. Obtained data will be

discussed in the light of social constructivism theories. We will also talk about implications and potential guidelines for further research, as well.

Keywords: social networks, self-concept, self-representation, communication, adolescence

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PUBLIC FIGURES AS IDOLS OF SECONDARY SCHOOL STUDENTS IN SERBIA

Ivana Stepanovic Ilic
Institute of Psychology, Faculty of Philosophy, University of Belgrade | *istepano@f.bg.ac.rs*
Tijana Nikitivic
Department of psychology, Faculty of Philosophy, University of Belgrade

The idols categorization offers an insight into adolescents' values. It is also interesting to track changes in the certain categories preferences and to identify new categories. Hence, our research aim is to classify adolescents' idols and to determine their preferences, to compare that categorization with previous research (Lin & Lin, 2007; Popadic, 2003; Stepanovic et al., 2009, 2017) and to relate idols preferences with socio-demographic variables. The sample includes 1383 secondary school students (1st and 3rd grade) from 10 Serbian towns. Adolescents (60% of the sample) named 431 public persons. The main idols' categories are show business stars, sportsmen, artists and scientists, entrepreneurs, politicians and fictional characters. The categorization is same as in the recent research (Stepanovic et al., 2017) and similar to the others (Lin & Lin, 2007; Stepanovic et al., 2009). Additional subcategories are identified within show business class: fashion models and reality stars, which appeared in the previous study (Stepanovic et al., 2017) but their popularity now rises (reported by percentage of respondents who admire these subcategories), and the new subcategory of social media influencers. The admiration of show business models is higher while sportsmen are less preferred than earlier. However, Novak Đokovic is the most popular role model appreciated by 3.6% of students. Politicians, artists and scientist are rarely admired, as in the previous studies. The preferences of entrepreneurs and fictional characters are stable and low. There are no significant differences among 1st and 3rd graders regarding idols' preferences, while gender and school type matters. Grammar school students admire scientists, artists and entrepreneurs more than vocational school students who prefer sportsmen and fictional characters ($\chi^2 = 19.134$, $df = 5$, Cramer's $V = 0.12$, p = .002). Gender is strongly associated with idol's gender preference ($\chi^2 = 340.715$, $df = 1$, Cramer's $V = 0.64$, p = .000). Boys almost always name male idols (96%), while 34% of girls have male idols. Gender differences exist also regarding idols' categories preferences ($\chi^2 = 110.146$, $df = 5$, Cramer's $V = 0.37$, $p = .000$). Girls admire show business stars, artist and scientist more than boys. Boys, more than girls prefer sportsmen, politicians, rulers and entrepreneurs. The results suggest strong and growing influence of the contents presented on the Internet and social networks on adolescents' idols preferences.

Keywords: public figures, idols, adolescents

PERCEPCIJA RODITELJSKOG PONAŠANJA KAO PREDIKTOR AKADEMSKE SAMOEFIKASNOSTI U RANOJ ADOLESCENCIJI

Jovana Šupić
Katedra za psihologiju, Filozofski fakultet, Univerzitet u
Istočnom Sarajevu | *jovanasupic@gmail.com*
Sretenka Petrović
Katedra za psihologiju, Filozofski fakultet, Univerzitet u Istočnom Sarajevu
Bojana Marinković
Katedra za psihologiju, Filozofski fakultet, Univerzitet u Istočnom Sarajevu

Problem ovog istraživanja je ispitati da li je percepcija roditeljskog ponašanja značajan prediktor akademske samoefikasnosti ranih adolescenata. Definisan je na osnovu dosadašnjih psiholoških istraživanja koja su pokazala da je početak razvoja samoefikasnosti pojedinca vezan za rano porodično okruženje. Naime, roditelji kroz svoju emocionalnost i kontrolu koje predstavljaju temeljne dimenzije roditeljstva mogu podstaći razvoj samoefikasnosti djeteta pružajući mu stimulativno okruženje i podstičući njegovo aktivno istraživanje. Na ovaj način dijete razvija sposobnosti koje će mu omogućiti uspješno rješavanje zadataka različite kompleksnosti. Samoprocjena stečenih sposobnosti naročito je izražena u kontekstu obrazovanja i leži u osnovi akademske samoefikasnosti. Ovaj oblik samoefikasnosti odnosi se na percipiranu mogućnost snalaženja u učenju i školskom gradivu, te na ispunjavanje školskih očekivanja.

Cilj istraživanja je ispitati da li se skup prediktora roditeljskog ponašanja koji čine emocionalnost, bihejvioralna i psihološka kontrola, pokazuje statistički značajnim za formiranje akademske samoefikasnosti ranih adolescenata. Uzorak čine 243 učenika osnovne škole (55.1% djevojčica i 44.9% dječaka), uzrasta od 11 do 14 godina. Za potrebe istraživanja korišteni su sljedeći instrumenti: skala za mjerenje akademske samoefikasnosti koja je dio upitnika *SEQ–C* namijenjenog za mjerenje dječje akademske, socijalne i emocionalne samoefikasnosti; upitnik za procjenu roditeljskog ponašanja *CRPBI–57* koji mjere tri temeljne bipolarne dimenzije roditeljskog ponašanja-emocionalnost, bihejvioralnu i psihološku kontrolu. Metrijske karakteristike korištenih instrumenata pokazale su zadovoljavajuće vrijednosti. Rezultati višestruke regresije sa šest dimenzija roditeljskog ponašanja kao prediktorima i akademskom samoefikasnošću kao kriterijumom ukazuju da model ($F(6) = 10.15$, $p < .05$) objašnjava 20.7% varijanse akademske samoefikasnosti. Najveći doprinos predikciji (7%) daje majčina emocionalnost ($\beta = .38$, $p < .05$). Dobijene vrijednosti ukazuje na to da je za pozitivnu procjenu vlastitih aktivnosti, te postizanje boljih rezultata u obrazovanju, važan primjeren nadzor dječjih aktivnosti, vjera u njihove sposobnosti, ali prije svega emocionalna toplina, prihvatanje i razumijevanje od strane roditelja. Ovakav odnos značajno doprinosi kvalitetu učenja i pozitivnim aspektima učeničkog samopoimanja.

Ključne riječi: akademska samoefikasnost, dimenzije roditeljskog ponašanja

PERCEPTION OF PARENTAL BEHAVIOR AS A PREDICTOR OF ACADEMIC SELF-EFFICACY IN EARLY ADOLESCENCE

The aim of the research is to examine whether the set predictors of parental behavior, which consists of emotionality, behavioral control and psychological control is statistically significant for the formation of academic self-efficacy of early adolescents. The sample was consisted of 243 elementary school students, aged 11 to 14 years. For the purposes of this research were used: the questionnaire CRPBI–57 of children's perception of parents behavior; the SEQ–C

questionnaire which measures children's self-efficacy; The results of multiple regression with six dimensions of parental behavior as predictors and academic self-efficacy as a criterion indicate that the model ($F(6) = 10.15$, $p < .05$) explains 20.7% of the variance of academic self-efficacy. The greatest contribution to the prediction (7%) gives the mother's emotionality ($\beta = .38$, $p < .05$). This means that parent's control is important for the development of children academic self-efficacy, but parental love and acceptance are more important.

Keywords: academic self-efficacy, dimensions of parental behaviour

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KAKO SAIGRAČI UTIČU NA DOŽIVLJAJ FIZIČKE SPOSOBNOSTI MLADIH SPORTISTA U ADOLESCENCIJI?

Jovana Trbojević
Filozofski fakultet, Odsek za psihologiju, Univerzitet u
Novom Sadu | *jovana.trbojevic88@gmail.com*
Jelica Petrović
Filozofski fakultet, Odsek za psihologiju, Univerzitet u Novom Sadu

Tokom adolescencije vršnjaci predstavljaju značajnu socijalnu grupu čije mišljenje i stavove adolescent vrednuje i usvaja, a na osnovu kojih poredi i formira lični identitet. U sportu, vršnjačku grupu čine saigrači koji svojim ponašanjem i socijalnim znakovima mogu kreirati motivacionu klimu koja je usmerena na postignuće ili učenje. Motivaciona klima usmerena na postignuće podrazumeva da se vrednuje rivalstvo, kritikovanje saigrača i podsmevanje. Saigrači ne pružaju emocionalnu podršku jedni drugima, već su usmereni na lični doživljaj uspeha. Sa druge strane, motivaciona klima usmerena na učenje podrazumeva da se vrednuje razvoj veština, kooperativnost, trud i rad. Saigrači predstavljaju uzor jedni drugima i daju podršku u kritičnim trenucima. Doživljaj fizičke sposobnosti se u adolescenciji značajno menja u skladu sa telesnim promenama kroz koje adolescent prolazi. Na doživljaj fizičke sposobnosti u velikoj meri utiču upravo vršnjaci, samim tim ovo istraživanje se bavi ispitivanjem relacija opažane motivacione klime kreirane od strane saigrača na doživljaj fizičke sposobnosti u adolescenciji. Uzorak se sastojao od 287 ispitanika (143 dečaka), prosečnog uzrasta od 13.7 godina, iz različitih klubova sa teritorije Vojvodine. Ispitanici su aktivno trenirali košarku, odbojku i rukomet u proseku 4 godine. Tokom jeseni 2017. godine popunjavali su upitnike Opažena motivaciona klima kreirana od strane saigrača (Ntoumanis & Vazou, 2005) koja izdvaja pomenute dve motivacione klime; i skraćenu subskalu Opažena fizička sposobnost iz upitnika Fizička samoefikasnost (Ryckman et al., 1982). Rezultati linearne regresione analize pokazuju da motivaciona klima usmerena na postignuće i na učenje predstavljaju značajan prediktorski set ($F(2) = 24.61$, $p=.00$) koji objašnjava 17.3% varijanse opažene fizičke sposobnosti. Kao značajan individualni prediktor izdvojila se motivaciona klima usmerena na učenje ($\beta = .428$, $p = .00$). Adolescencija je razvojni period obojen vršnjačkim odnosima, gde pripadnost socijalnoj grupi dobija na značaju, te na formiranje identiteta kao i slike o sebi utiče vrednosni sistem socijalne grupe. Unutar sporta, poseban značaj ima upravo fizički self i percepcija mladog sportiste o sopstvenoj fizičkoj kompetenciji. Saigrači, vrednovanjem emocionalne povezanosti i prihvatanja članova grupe, doprinose jačanju fizičkog selfa budući da mladom sportisti pružaju podršku i siguran prostor za razvoj. U radu su razmatrane praktične i teorijske implikacije rezultata.

Ključne reči: fizička sposobnost, motivaciona klima, saigrači, adolescencija, omladinski sport.

HOW DO TEAMMATES INFLUENCE YOUNG ATHLETES PERCEPTION OF OWN PHYSICAL ABILITIES?

In sports, teammates represent relevant social group, who can create a motivational climate that is ego or task oriented, and through it affect athlete's self-image and perception of physical abilities in sports. This research examines the relations between perceived motivational climate created by teammates and young athlete's perception of his/hers physical abilities. The sample consisted of 287 participants (basketball, volleyball, and handball players), average aged of 13.7 years, from various sports clubs, who completed Perceived Motivational Climate Created by Teammates Questionnaire (Ntoumanis & Vazou, 2005), and shortened Physical self-efficacy Questionnaire (subdimension Physical ability) (Ryckman et al., 1982). The results of the linear regression analysis show that the ego and task oriented motivational climate represent a significant predictor set ($F(2) = 24.61$, $p = .00$, $R^2 = .173$). A task oriented motivational climate ($\beta = .428$, $p = .00$) singled out as a significant individual predictor. When teammates provide support, and encourage each other's development, athletes perceive themselves as physically competent.

Keywords: physical ability, motivational climate, teammates, adolescence, youth sports.

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INTIMATE RELATIONSHIPS AND LIFE SATISFACTION IN CHILDLESS COUPLES

Matija Svetina
Univerza v Ljubljani | *m.svetina@ff.uni-lj.si*
Katja Guštin
Zavod za zaposlovanje RS
Vislava Globevnik Velikonja
UKC Ljubljana

Couples in early adulthood are generally expected to become parents; not all, however, follow this path. Couples may for some reason postpone pregnancy, decide to remain childless, or fail to get pregnant. Although there is a lot of data to suggest that involuntary childlessness relates to many negative psychological outcomes at individual level, its impacts to marital communication patterns are not agreed. The main aim of the current study was to gain insight into communication patterns, coping styles, and partnership-related satisfaction in childless couples. The sample included 47 heterosexual couples who did not have children nor did they plan to have some in a short term, and 64 childless heterosexual couples who failed to achieve pregnancy and were engaged into in-vitro-fertilisation (IVF) treatment. The age range of the participants was 20 to 40 years of age. A battery of self-report measures were used to assess marital coping styles (MCI), quality of relationship (QRI), self-esteem (ASSEI) and life satisfaction (QLS). A series of 2 (Group: couples in IVF treatment vs. voluntary childless couples) X 2 (Gender) ANOVA was run to inspect for effects of group, gender, and interaction; Bonferroni correction was used. The results revealed potentially destructive pattern of marital communication and problem solving in couples undergoing IVF treatment. First, the couples in IVF treatment exhibited seemingly more positive pattern of marital problem solving, including less conflicts, $F(1, 209) = 35,29$, $p < .001$, and more positive related approaches to solve problems, $F(1, 207) = 15.53$, $p < .001$. Second, ANOVA yielded an important insight in terms of gender and interaction too: whereas childless women generally showed higher levels of self-blame than childless men, $F(1, 209) = 31.39$, $p < .001$, involuntary childless women (IVF treatment group) showed higher levels of avoidance as a marital coping style than voluntary childless women, $F(1, 209) = 12.02$, $p < .01$. The results indicated that

involuntary childlessness led to the decrease of externalization – (e. g. conflict) in both genders, and to the increase of internalisation-related behaviour (e.g. avoidance) in women. The data yielded potentially damaging pattern of communication in involuntary childless couples, suggesting that seemingly positive marital style might be due to maladaptive internalisation-related behaviour. Implications for interventions are discussed.

Keywords: childlessness, infertility, in-vitro-fertilisation, coping

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IDENTIFIKACIJA SA RODNIM ULOGAMA – RAZVOJNA PERSPEKTIVA

Nataša Simić
Filozofski fakultet, Univerzitet u Beogradu | *nsimic@f.bg.ac.rs*

Rodne uloge odnose se na skup osobina ličnosti, stavova i oblika ponašanja koji se unutar društva smatraju poželjnim za određeni rod. Stepen identifikacije sa ovim ulogama utiče na mentalno zdravlje i različite oblike ponašanja osobe. Iako se veliki broj istraživanja bavio kroskulturalnim razlikama u percepciji rodnog identiteta i uloga, te i promenama u identifikaciji sa rodnim ulogama od 70-ih do danas, malo studija je imalo razvojnu perspektivu. Stoga je cilj ovog istraživanja bio da se proveri da li postoje razlike u identifikaciji sa rodnim ulogama između adolescenata različitog uzrasta i pola. Kratka forma upitnika Bem Sex-Role Inventory (α = .77), kojim se procenjuju maskulinost i femininost, zadata je učenicima petog razreda osnovne škole (N = 80, prosečnog uzrasta 10.82 god, 52.5% devojaka) prvog razreda gimnazije (N = 104, prosečnog uzrasta 14.8 god, 67.3% devojaka) i četvrtog razreda gimnazije (N = 102, prosečnog uzrasta 17.74 god, 68.6% devojaka). Instrukcija je bila da na sedmostepenoj skali Likertovog tipa učenici procene u kojoj meri svaki od opisa (koji odražavaju maskulinost ili femininost) opisuje njih kao osobu. ANOVA je pokazala da ne postoje statistički značajne razlike u skorovima na maskulinosti i femininosti kod ispitanika muškog pola različitog uzrasta. Kod ispitanika ženskog pola dobijene su razlike na skali femininosti – najmlađe ispitanice imaju statističi značajno više skorove od starijih ispitanica (F(2, 179) = 5.05, p = .007). Poređenjem ispitanika muškog i ženskog pola u svakoj od uzrasnih grupa dobijeno je da u najmlađoj grupi devojčice imaju statistički značajno više skorove na femininosti od dečaka (t(78) = -3.91, p = .000), u grupi petnaestogodišnjaka – nema razlika ni na jednoj od skala, dok je u najstarijoj grupi utvrđena statistički značajna razlika na skali maskulinosti (t(100) = 2.51, p = .014). Zaključujemo da se je kod adolescenata različitog uzrasta identifikacija sa rodnom ulogom stabilna, dok se kod adolescentkinja primećuje trend smanjenja identifikacije sa sopstvenom rodnom ulogom, što je u skladu sa nalazima ranijih studija. Uz to, sa godinama dečaci počinju da se razlikuju od devojčica po tome što se „približavaju" osobinama opažanim kao tipičnim za muškarce (maskulinost). Praktične implikacije dobijenih nalaza su dalje razmatrane.

Ključne reči: rodne uloge, maskulinost, femininost, adolescenti, razvoj

The aim of this study was to explore the way gender role identification develops during adolescence. Bem Sex-Role Inventory was filled in by elementary school fifth graders (N = 80, M_{age} = 10.82), high school first graders (N = 104, M_{age} = 14.8) and high school fourth graders (N = 102, M_{age} = 17.74). ANOVA showed no statistically significant differences on either masculinity or femininity in the male subsample across three age groups, while the youngest female participants had statistically significantly higher scores on femininity compared to other age groups (F(2, 179) = 5.05, p = .007). Gender differences appeared in the youngest group,

where females scored higher on femininity than males ($t(78) = -3.91$, $p = .000$) and in the oldest age group, where males scored higher on masculinity than females ($t(100) = 2.51$, $p = .014$). Practical implications of such findings are further explored.

UZRASNE I POLNE RAZLIKE U OSEĆANJU DOBROBITI TOKOM ADOLESCENCIJE I NJEGOVA POVEZANOST SA AKADEMSKIM USPEHOM

Nataša Simić
Filozofski fakultet, Univerzitet u Beogradu | *nsimic@f.bg.ac.rs*

Fizičke, kognitivne i socijalne promene tipične za adolescenciju često su uzork distresa, te i smanjenog osećanje dobrobiti adolescenata. Kako je nisko osećanje dobrobiti jedan od faktora rizika za razvoj depresije, bolesti zavisnosti i samopovređivanje, važno je istraživati promene u osećanju dobrobiti tokom adolescencije i proveriti da li je određena grupa adolescenata pod posebnim rizikom. Neka istraživanja su pokazala da devojke, usled većih socijalnih pritisaka, posebno u vezi sa izgledom, imaju niže osećanje dobrobiti. Cilj ovog istraživanja bio je da se proveri da li postoje uzrasne i polne razlike u osećanju dobrobiti kod adolescenata. Kako većina istraživanja pokazala da je osećanje dobrobiti povezano sa školskim iskustvima, dodatni cilj je bio utvrditi da li i u našem uzorku postoji povezanost između osećanja dobrobiti i akademskog uspeha, kao i da li se taj odnos razlikuje u zavisnosti od uzrasta i pola. U istraživanju je učestvovalo 80 učenika petog razreda osnovne škole ($M_{god} = 10.83$), 104 učenika prvog razreda gimnazije ($M_{god} = 14.8$), 102 učenika četvrtog razreda gimnazije ($M_{god} = 17.74$) i 113 studenata ($M_{god} = 22.58$). Primenjen je Indeks lične dobrobiti (Cummins & Lau, 2005; $\alpha = .85$), na kome su ispitanici procenjivali stepen slaganja sa sedam ajtema na jedanaestostepenoj skali Likertovog tipa. Pitani su i za akademski uspeh na kraju prethodnog razreda, odnosno tokom studija. Dvofaktorskom analizom varijanse, utvrđen je statistički značajan zaseban uticaj uzrasta ($F(3, 398) = 12.44$, $p = .000$). Naknadno poređenje pomoću Tukejevog testa pokazalo je da se dve namlađe grupe međusobno značajno ne razlikuju ($M_{11\ god} = 8.95$, $SD = 1.05$; $M_{15\text{-}god} = 8.49$, $SD = 1.32$), ali da se statistički značajno razlikuju od dve starije grupe, koje se, pak, međusobno značajno ne razlikuju ($M_{18\text{-}god} = 7.96$, $SD = 1.62$; $M_{22\text{-}god} = 7.61$, $SD = 1.52$). Zaseban uticaj pola nije dostigao statističku značajnost ($F(1, 398) = 2.34$, $p = .07$), kao ni uticaj interakcije između uzrasta i pola ($F(3, 398) = 2.47$, $p = .06$). Povezanost između osećanja dobrobiti i akademskog uspeha značajna je samo kod devojaka ($r = .29$, $p = .000$) i kod osamnaestogodišnjaka, pri kontrolisanju efekata pola ($r = .20$, $p = .043$). Nalaz o smanjenju osećanja dobrobiti sa uzrastom u skladu je, dok je izostanak polnih razlika u suprotnosti sa nalazima većine studija. Radi preveniranja negativnih efekata smanjenja osećanja dobrobiti, značajno je organizovati programe podrške za studente i maturante, sa fokusom na devojke koje ostvaruju niža akademska postignuća.

Ključne reči: osećanje dobrobiti, adolescenti, pol, uzrast, akademski uspeh

AGE AND GENDER DIFFERENCES IN SUBJECTIVE WELLBEING DURING ADOLESCENCE AND ITS RELATIONSHIP WITH ACADEMIC SUCCESS

The aim of this study was to explore the differences in the subjective wellbeing between adolescents of different age and gender, and to determine if there is a correlation between

wellbeing and academic success. Personal Wellbeing Index (Cummins & Lau, 2005; α=.85) was filled in by eleven- (N = 80), fifteen- (N = 104), eighteen- (N = 102) and twenty two-year-old (N=113) students. Statistically significant differences in wellbeing in four age groups have been determined (F(3, 398)=12.44, p=.000). Main efects of gender and age x gender interactions were not significant. Correlation between wellbeing and academic success was significant only for girls ($r = .29, p = .000$) and eighteen-year olds, when controlling for gender ($r = .20, p = .043$). Results are in line with findings from previous studies that wellbeing decreases with age, while the lack of gender differences constrasts most previous findings. Practical implications of such results are further discussed.

Keywords: wellbeing, adolescents, gender, age, academic success

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ADOLESCENTS' HOBBIES AND THEIR WELL-BEING

Teodora Vuletić
Laboratorija za razvojnu psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *teodoravu@gmail.com*
Zora Krnjaić
Institut za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *zkrnjaic@f.bg.ac.rs*

The research is a part of broader study that investigated adolescents' leisure activities in the context of positive youth development. The sample included 1358 secondary school students from 10 Serbian towns. The aim of this work is to determine if there are correlations between adolescents' hobbies and 5 aspects of well-being.This work concerns creative activities, operationalized through hobbies (blog writing, creative writing, drawing/painting, graphic design, composing/playing music, making jewelry/clothes, computer related activities and artistic photography). Practicing these individual intrinsic leisure activities is important for develoving adolescents` interests and talents. Among other questions in applied questionnaire about leisure activities, students estimated how often they engage in mentioned hobbies and answered about their well-being on The EPOCH scale (Likert-type, 1–5). The EPOCH scale includes 20 items, 4 for each of the following aspects: engagement (E), perseverance (P), optimism (O), connectedness(C) and happiness (H). The results show that adolescents who practice hobbies more have higher scores on: E ($r = .080, p = .004$), P ($r = .105, p = .000$) and C ($r = .087, p = .005$). Certain connections between practicing specific hobbies (recoded to yes/no) and well-being aspects are established: a) blog and: P ($r_{pb} = .079, p = .005$), C ($r_{pb} = .062, p = .025$); b) writing and: E ($r_{pb} = .055, p = .047$), H ($r_{pb} = -.073, p = .009$); c) drawing/painting and: O ($r_{pb} = -.057, p = .041$), H ($r_{pb} = -.102, p = .000$); d) graphic design and E ($r_{pb} = .086, p = .002$); e) music and E ($r_{pb} = .108, p = .000$); f) making jewelry and clothes and P ($r_{pb} = .089, p = .001$); g) computer related activities and: E ($r_{pb} = .074, p = .002$), O ($r_{pb} = .056, p = .044$); h) photography and: E ($r_{pb} = .070, p = .011$), P ($r_{pb} = .076, p = .006$). Higher scores in E, P and C for adolescents who are engaged in hobbies are expected, concerning hobbies as individual, unstructured, intrinsically motivated activities. Data show that E is the most dominant aspect of well-being among adolescents who practice investigated hobbies, followed by P. H is the only aspect with exclusively negative connections, while O has both positive and negative values. Painting distinguishes as the sole hobby with only negative value of well-being aspects.

Results point to the importance of further investigation of well-being aspects in positive development of adolescents and to the different well being experiences of adolescents who practice various hobbies.

Keywords: adolescents, hobbies, well-being, EPOCH scale, leisure time

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MUSIC AS A SYMBOLIC RESOURCE IN INTERNATIONAL STUDENTS' TRANSITIONS

Tijana Nikitović
Laboratory for Developmental Psychology, Faculty of Philosophy, University of Belgrade | *tijana.nikitovic@gmail.com*
Biljana Stanković
Department of Psychology, Faculty of Philosophy, University of Belgrade | *biljana.stankovic@f.bg.ac.rs*

By moving to study abroad individuals face great challenges to adapt to a new socio-cultural environment besides academic ones (Mori, 2000). This process can be viewed as a developmental transition, in which internalized cultural elements, i.e. novels or music can be mobilized as means of coping with new challenges. Drawing from socio-cultural theory and previous research on symbolic resources (Zittoun, 2006), this study explores which roles music, a type of cultural element, performs in the case of Serbian students adapting to a new environment. In order to better understand the different functions of music for our participants, we applied a qualitative methodology framework in form of semi-structured interviews that were transcribed and analysed using thematic analysis. Interviews were conducted with nine participants (five men), aged 22–25. All participants were Serbian, and have spent an average of three years abroad, mostly in different European countries. From the analysis four main themes, which were consistent with Zittoun's (2006) findings, emerged: music as a resource for a) constructing and maintaining interpersonal relationships, b) regulating emotional states, c) maintaining a connection with the past and d) regulating cultural identity. Music performed certain functions for all participants, namely by having a very prominent role in forming new relationships, mostly with other international students. In these cases, participants exchange music and use Serbian rock, turbo-folk, rap or world music as a window into their own culture. On the other hand, music is also used as a way of connecting with other students from the Balkan region. Furthermore, music, typically turbo-folk, is used as a "cure" for onsets of nostalgia, mainly by playing a consoling role. For some participants, Yugoslavian pop songs are a way to connect to fond childhood memories. Finally, a core role of music is the maintenance and development of cultural identity during the process of adaptation to a new socio-cultural context. For example, listening to rap music is a way to stay in touch with changes in Serbian subculture one still feels to be a part of.

These findings suggest that while young men and women use similar types of music for building and maintaining social relations which might be primarily shaped by dominant cultural norms, some more psychologically central functions of music use are shaped primarily by previous personal experiences and constructed meanings.

Keywords: music, symbolic resources, culture, transitions, qualitative analysis

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BEAUTY STANDARDS AND PROVOCATIVE TV CONTENT: DO PERSONALITY TRAITS NAVIGATE THE PREFERENCE OF FEMALE BEAUTY?

Katarina Rančić
Faculty of Philosophy, University of Belgrade | *katarinarancic@yahoo.com*
Ksenija Krstić
Faculty of Philosophy, University of Belgrade | *kkrstic@f.bg.ac.rs*

Substantial empirical evidence, accordant with social learning (Bandura, 1961) and ecological systems theory (Bronfenbrenner, 1979), suggests detrimental effects that different media content might have on young people, especially when it comes to aggressive role-models and female beauty ideals (Akert, Vison, & Aronson, 2013; Clay; Dohnt & Tiggemann, 2006; Linder & Gentile, 2009). Moreover, certain findings show a significant role of Big Five in mediating plastic surgery acceptance explained by the internalisation of mass media images (Swami, Chamorro-Premuzic, Bridges, & Furnham, 2009). Considering provocative content presented by media ("reality shows"), the aim of the study was to discover 1) whether the exposure to such content affects beauty standards of young people and 2) are exposure to the provocative content and internalised beauty ideals associated with HEXACO personality traits. Participants (n = 224; 13–27y.o., 75% female) rated photographs of *Natural* and *Provocative prototypes* on dimensions of *Beauty* and *Attractiveness*. Additional indicator of beauty ideals was *plastic surgery acceptance.* Scores of photograph evaluations were divided into three groups by preference intensity for both *Preference for "Natural"* and *Preference for "Artificial"*. Neither Canonical discriminant analysis, nor MANOVA has shown significant associations between two preference factors and personality traits. However, there are significant correlations between *Exposure* and: *Preference for "Artificial"* ($r = .13, p < .05$), *Preference for "Natural"* ($r = -.14, p < .05$) and *Openness* ($r = -.18, p < .01$). *Openness* is also negatively associated with *Preference for "Artifical"* ($r = -.14, p < .05$), while positively correlated with *Preference for "Natural"* ($r = .22, p < .01$). Regarding *Plastic Surgery Acceptance* among girls, MANOVA has shown no differences in personality traits between those who accept and those who reject the idea of aesthetic surgery, yet there is a significant difference in *Exposure* in favour of those who are positively inclined towards popular aesthetic trends ($F(1) = 4.79, p < .05$). Results will be discussed in the light of potential effects that exposure to controversial content might have on young people with additional focus on *Opennes* as a mediator. Lack of evidence of personality traits as discriminators between the groups with different beauty preferences highlights the relevance of socialization and the hypothesis that no one is inherently immune to the promoted beauty trends.

Keywords: beauty standards, provocative TV content, personality traits

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SOCIJALNA PSIHOLOGIJA

THE STRATEGIES OF INTERETHNIC INTERACTION IN SERBIA

Jelena Živković

Moskovski državni pedagoški univerzitet | *jelenagent@gmail.com*

The research of interethnic interaction strategies in Serbia was conducted within the study of socio-psychological features of interethnic attitudes in Serbia. Interaction strategy is seen as a set of interethnic attitudes toward own and other ethnic group, that express a desired type of interaction.

We used modified J. Berry's scale to establish preferences of the acculturation strategies of the minority groups (integration, separation, assimilation, marginalization) and acculturation expectations of the majority population (multiculturalism, segregation, melting pot, exclusion). The sample included 536 representatives of ethnic groups in Serbia: Serbs (N = 316), Bosniaks (N = 115) and Croats (N = 105).

The analysis of the preferred strategies in every group showed that the Serbs and Croats prefer multiculturalism/integration strategy (Serbs: M = 4.10, SD = 0.78; Croats: M = 3.71, *SD*=0.82), which implies that minorities adopt elements of the dominant culture while retaining their own cultural identity. The Bosniaks prefer separation strategy – isolation from the dominant culture (M = 3.41, SD = 0.97), and also express, yet significantly less, integration strategy (M = 3.16, SD = 0.85, $t(114) = 2$, $p < 0.05$). This can be interpreted as "maneuvering identity". Undesirable strategies for all groups are marginalization/exclusion (Serbs: M = 1.73, SD = 0.68; Bosniaks: M = 1.64, SD = 0.74; Croats: M = 1.70, SD = 0.58) and assimilation/melting pot (Serbs: M = 1.95, SD = 0.75; Bosniaks: M = 1.65, SD = 0.68; Croats: M = 1.46, SD = 0.58), and for the Serbs and Croats – separation/segregation (M = 2.10, SD = 0.71; M = 2.62, SD = 0.94).

The analysis of the statistically significant differences between groups showed that multiculturalism/integration ($F(1, 534) = 86.0$, $p < .001$) and assimilation/melting pot strategies ($F(1, 534) = 37.8$, $p < .001$) are significantly more expressed among Serbs as majority population, then among Bosniaks and Croats as minority groups, while with the separation strategy is the opposite: it is significantly more expressed among ethnic minorities then among Serbs ($F(1, 534) = 154.7$, $p < .001$).

We can conclude that the preference of the multiculturalism strategy, i.e. integration, implies the groups' readiness for interaction, which is the basis of every multicultural society. But an obstacle to that can be the minority groups' tendency to separate. Therefore it is important, for the sake of successful interaction of ethnic groups in Serbia, to choose a strategy that will be equally accepted by both the majority and minority groups, because only as such it can be implemented in the society.

Keywords: strategije međuetničke interakcije, multikulturalizam, Srbija

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GATEWAYS OR HYBRIDS: HOW DO WE ACTUALLY PERCEIVE GROUPS WITH DUAL IDENTITIES?

Milica Ninković
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *milicadninkovic@gmail.com*
Iris Žeželj
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Studies of groups with dual identifications (who simultaneously belong to groups perceived as adversarial, for example) have shown that these groups can act as a gateway between the two groups they represent. If a person simultaneously belongs to perceiver's ingroup and outgroup, perceiving them equally identified with both fosters positive attitudes towards outgroup. However, another line of research showed that dual identity is often recognized as a non-identity, hybrid state, hence perceived as a threat to an ingroup identity. A potential cause of this gap can be the perception of compatibility between the two identities (bicultural identity integration (BII)). We hypothesized that varying the BII presentation would lead to a different perception of dually identified groups.

In the experimental setting, participants read a bogus newspaper article describing children from Serb-Bosniak mixed marriages as being equally identified with both their parents' ethnic groups, however perceiving them as (a) compatible (CID) or (b) incompatible (IID). In the control condition, participants read an article on an irrelevant topic. We measured if the groups differed in their perception of the dually identified group: (a) as a bridge between the two groups they represent and (b) as a potential traitor of the ingroup, both on 6-point Likert scale. Drawing from a convenient sample of 196 ethnic Serbs, aged 19–38 (M = 21.3(2.68)), we registered marginal main effect of the manipulation on perception of dual identity as a bridge ($F(2, 193) = 2.752$, $p = .066$, $\eta^2 = .028$). Planned contrast test revealed that the effect was due to the difference between CID (M = 4.39, SD = 1.18) and IID (M = 3.98, SD = 0.97) ($p = .026$, 95% CI [0.029–0.715]); dual identity conditions together did not significantly differ from the control condition ($p = .313$, 90% CI [-0.488–0.161]). Similar pattern emerged for the perception of dual identity as a traitor ($F(2, 193) = 3.038$, $p = .050$, $\eta^2 = .031$), where CID group scored significantly less (M = 1.58, SD = 1.12) than IID (M = 2.05, SD = 1.25) ($p = .013$, 95% CI [-0.881–-0.062]), with no significant difference between experimental and control group ($p = .33$, 90% CI [-0.523–0.184]).

Our results confirm that identity integration leads to (non)acceptance of the dually identified groups. Strong dual identification itself is not always enough for a group to be a gateway group, and future studies should consider the perceived relations between the identities.

Keywords: ethnic identity, dual identity, mixed marriages, intergroup relations, Bosniaks, Serbs

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KOGNITIVNI I EMOCIONALNI PREDIKTORI RELIGIJSKIH ORIJENTACIJA

Miloš Pralica
Centar za zaštitu mentalnog zdravlja, JZU "Dom zdravlja"
Prijedor, BiH | *milospralica41@gmail.com*
Srđan Dušanić
Filozofski fakultet Univerziteta u Banjoj Luci | *srdjan.dusanic@ff.unibl.org*

Psihološka istraživanja ukazuju na važnost kognitivnih i emocionalnih procesa u ispoljavanju religioznih orijentacija. U globalu, religioznost često karakteriše kognitivna rigidnost i niska potreba za kritičkom evaluacijom informacija. S druge strane, religiozni pojedinci, navode veći stepen emocionalne stabilnosti i funkcionalne obrade afekta. Ovakve relacije uveliko zavise od prirode religioznosti, spremnosti na kritičku analizu religijskih informacija i preispitivanje. U okviru istraživanja religioznosti postoje različiti konstrukti kojima se religioznost ispituje. U ovom istraživanju pažnju smo posvetili konstruktu religijske „potrage" koja podrazumijeva preispitivanje, sumnju i otvorenost ka promjeni u domenu religije, te konstruktu potpuno suprotne prirode, doslovna vjera ili „ortodoksnost", koji se odnosi na nekritično, doslovno tumačenje biblijskih tekstova, uz izbjegavanje religijske sumnje. Kako ove religijske konstrukte, koji sa jedne strane podrazumijevaju otvorenost za sumnju i preispitivanje, a sa druge doslovno prihvatanje religije, predviđaju određeni kognitivni i emocionalni konstrukti, tema je našeg istraživanja. Uzorak u istraživanju je činilo 400 ispitanika (300 ispitanica). Ispitanici su popunili upitnik religijskog preispitivanja (quest), doslovnog tumačenja vjere (orthodoxy), te upitnik Potrebe za kognicijom (NFC) i upitnik Emocionalne obrade (EPS). Rezultati regresione analize pokazali su pozitivnu značajnu predikciju religijske potrage skalama Potrebe za kognicijom ($\beta = .13$, $p < .01$) i Emocionalne obrade ($\beta = .13$, $p < .01$). S druge strane, kao značajan negativan prediktor doslovnog tumačenja vjere (orthodoxy) pokazala se skala Potrebe za kognicijom ($\beta = -.21$, $p < .01$), dok skala Emocionalne obrade nije predstavljala značajan prediktor. Rezultati potvrđuju prethodno postavljene pretpostavke o ulozi kognitivnih i emocionalnih procesa u otvorenosti za preispitivanje religijskih pitanja sa jedne, i religijskoj zatvorenosti, sa druge strane. Implikacije rezultata su elaborirane u diskusiji.

Ključne reči: Potreba za kognicijom, emocionalna obrada, religioznost, Orthodoxy, Quest

Psychological research points to the importance of cognitive and emotional processes in the manifestation of religious orientations. In this research, we examined the prediction of Religious Quest and Orthodoxy by Need for Cognition scale (NFC) and Emotional Processing Scale (EPS). The sample consisted of 400 respondents (300 women). Respondents completed a questionnaire of Religious Quest and Orthodoxy, as well as EPS and NFC questionnaire. The results of the regression analysis showed a positive significant prediction of Quest by NFC ($\beta = .13$, $p < .01$) and EPS ($\beta = .13$, $p < .01$). On the other hand, NFC ($\beta = -.21$, $p < .01$) was a significant negative predictor of Orthodoxy, while EPS was not a significant predictor. The results confirm the previous assumptions about the role of cognitive and emotional processes in religious openness on one side, and rigidity, on the other. The implications of results are elaborated in the discussion.

DESNIČARSKA AUTORITARNOST I ORIJENTACIJA NA SOCIJALNU DOMINACIJU KAO PREDIKTORI PREDRASUDA PREMA SPECIFIČNIM DRUŠTVENIM GRUPAMA

Miloš Pralica
Centar za zaštitu mentalnog zdravlja, JZU "Dom zdravlja"Prijedor, BiH | *milospralica41@gmail.com*
Srđan Dušanić
Filozofski fakultet, Univerzitet u Banjoj Luci, BiH | *srdjan.dusanic@ff.unibl.org*
Vladimir Turjačanin
Filozofski fakultet, Univerzitet u Banjoj Luci, BiH | *vladimir.turjacanin@ff.unibl.org*

Konstrukti desničarske autoritarnosti (RWA) i orijentacije na socijalnu dominaciju (SDO) odnose se na trajne, socijalno oblikovane vrijednosti i stavove i predstavljaju značajne prediktore predrasuda prema različitim društvenim grupama. Prema modelu dualnih procesa, ovi konstrukti predviđaju distance prema specifičnim grupama. Dok RWA predstavlja prediktor distanci prema opasnim grupama (budući da autoritarci svijet vide kao opasno mjesto za njihove vrijednosti), SDO predviđa distance prema podređenim grupama (kroz viđenje svijeta kao neminovno hijerarhijski ustrojenog). Zajednički, konstrukti predviđaju predrasude prema disidentskim grupama (koje se percipiraju i kao opasne po sistem i kao podređene). Osnovni problem našeg istraživanja bio je provjera ovog modela u bosanskohercegovačkom kontekstu. Uzorak je činilo 346 srednjoškolaca iz Republike Srpske (169 ženskih ispitanika), koji su popunjavali upitnik sa skalama RWA, SDO i stavova prema grupama (npr. dileri droge, narkomani, imigranti, mentalno zaostali, feministkinje, homoseksualci, prostitutke). Rezultati faktorske analize su se poklopili sa faktorskom strukturom dobijenom u prethodnim istraživanjima, sa tri faktora: opasne, podređene i disidentske grupe. Regresiona analiza pokazala je da dimenzija društvene dominacije predviđa distance prema opasnim (β = -.27, p < .01) i podređenim grupama (β = .23, p < .01), dok su distance prema disidentskim grupama predviđali dominantno desničarska autoritarnost (β = -.33, p < .01), uz značajnu predikciju društvene dominacije (β = .17, p < .01). Rezultati generalno potvrđuju model dualnih procesa u našem kontekstu. Implikacije istraživanja su raspravljene u diskusiji, sa osvrtom na uticaj društveno-istorijskog konteksta bosanskohercegovačkog društva na rezultate.

Ključne riječi: Desničarska autoritarnost, Orijentacija na socijalnu dominaciju, predrasude, socijalne distance

According to the dual process model, RWA and SDO predict distances to specific groups. While the RWA is a predictor of distance towards dangerous groups, SDO predicts distance to subordinate groups. Together, constructs predict prejudices against dissident groups. Problem of this research was the verification of this model in the Bosnian-Herzegovinian context. The sample consisted of 346 high school students (169 female respondents), who filled questionnaires of RWA, SDOs and attitudes towards groups. Factor analysis yielded three factors: dangerous, subordinate and dissident groups. The regression analysis showed that SDO predicted distance to the dangerous and subordinate groups, while the distance to the dissident groups was predicted dominantly by RWA, with a significant prediction by SDO. The results generally confirm the model of dual processes in our context. The implications of the study are discussed, with a focus on the influence of Bosnian context on the results.

Keywords: Right-wing authoritarianism, Social Dominance Orientation, prejudice, social distances

FACTORS OF ANTISOCIAL BEHAVIOUR AMONG SALAFI IN BIH

Srdjan Puhalo
Prime Communications | *puhalosrdjan@gmail.com*

Salafi are Muslims who claim to be practicing Islam as it was when it was first discovered. Salafi are often associated with the Wahhabi, i.e. with a conservative Islam distinctive in Saudi Arabia and militant Islam in Syria and Iraq. Bearing in mind the extremism that is attributed to them, we wanted to see how many Salafi in BiH are prone to antisocial behavior. In the research we used scales to measure dark tetrad, schizotypes, militant extremism, attitudes on war, peace and self-sacrifice, and a tendency toward conspiracy theories. Factor analysis has identified three factors that explain 51.3% variance. The first factor was called the dark side of personality and saturated with variables of psychopathy, Machiavellianism, narcissism, personality disintegration and sadism. Another factor is the affirmation of war, because it is dominated by attitudes on war, apology of violence, attitudes about peace and attitudes about self-sacrifice. The third factor is called the evil world controlled by centers of power and contains varying preferences to conspiracy theories, the evil world, the views of self-sacrifice and the sacred goal. The goal of the research is to determine if there is a significant difference among the Salafi in BiH, considering sex, age, education and total monthly income on the variables "dark side of personality", "affirmation of war" and "evil world run by centers of power". Because of the interpretation of the results, it is important to emphasize that a higher score on the scale also signifies the greater expression of these variables. The survey was conducted in mid-2017 on a sample of 317 respondents who identify as Salafi. If looking at the sex or gender of respondents, we can see that there is a statistically significant difference between variables of "dark side of personality" ($t = 1.980$, $df = 315$, $p = .49$) and "affirmation of war" ($t = 2.209$, $df = 315$, $p = 0.28$). On both variables the men scored higher than the women. Considering the age of respondents, Salafi differ from each other on "dark side of personality" variable ($F = 4.843$, $df = 2$; 313, $p = .008$) and "affirmation of war" variable ($F = 4.846$, $df = 2$; 313, $p = .008$). Subjects under the age of 29 have the most pronounced scores on both of these variables.. There is no statistically significant difference between Salafi according to their total monthly income and education on variables "dark side of personality", "affirmation of war" and "evil world run by centers of power". The results show that in Salafi men under the age of 29, there is a greater tendency to accept antisocial and militant behavior.

Keywords: Salafi, BiH, the dark side of the personality, affirmation of the war, evil world run by centers of power.

ACCEPTANCE OF CERTAIN IDEOLOGIES BY LEFT-WINGERS, RIGHT-WINGERS AND MEMBERS OF THE CENTER

Srđan Puhalo
Prime Comminications | *puhalosrdjan@gmail.com*

The multi-party system in BiH has been operating since 1990 when political parties are formed primarily on ethnic rather than ideological principles. Upon the end of the war, to this day, political parties are formed within certain ethnic groups that, at least declaratively, represent certain ideologies. The question arises as to whether today's ideological attitudes of the inhabitants of BiH coincide with the values of certain ideologies? The main purpose of this research is to determine whether the accaptance of ideological attitudes differs among left-

wingers, right-wingers and members of the center. In the research, we used a nationalism scale with 8 items from which we identified two factors; national attachment and mundialism. The scale of social democracy consists of 6 claims, and the higher the score rates on scale, the higher the acceptance of social democracy. The scale of liberalism and conservatism consists of 7 items where increased scores on the scale suggest expressed conservatism, while the lower scores point towards liberalism. All three scales are five-degree Likert scales. It is important to emphasize that the respondents were classifying themselves by their free will as either the left-wingers, right-wingers or members of the center. The survey was conducted in the second half of May, 2018 on a sample of 600 adult citizens of BiH through face-to-face interviews. The obtained results showed a significant difference between left-wingers, right-wingers and members of the center on scales of national attachment, mondialism, social democracy and social conservatism. The national attachment is mostly present among the right-handers, somwhat less present among the representatives of the center, and is the least present at the left-wingers ($F = 44.537$, $df = 2$; 597, $p = .000$). Mondialism is most present among left-wingers, followed by representatives of the center and right-wingers ($F = 29.645$, $df = 2$; 597, $p = .000$). Social democracy is mostly accepted by left-wingers, then the right-wingers and members of the center ($F = 5.005$, $df = 2$; 597, $p = .007$).Conservativism is most present among right-wingers and representatives of the center, followed by left-wingers ($F = 3,566$, $df = 2$; 597, $p = .029$). Generally speaking, the obtained results show that political affiliation is accompanied by adequate ideological attitudes. This shows that in addition to ethnic principles, BH citizens find values that political parties support equally important.

Keywords: left-wingers, right-wingers, center, nationalism, social democracy, liberalism, conservatism, BiH.

BELIEF IN CONSPIRACY THEORIES AND PARANOIA – AN ATTEMPT AT EMPIRICALLY SEPARATING THE CONSTRUCTS

Bojana Većkalov
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *bojana.veckalov29@gmail.com*
Marija Petrović
Department of Psychology, Faculty of Philosophy, University of Belgrade
Vukašin Gligorić
Department of Psychology, Faculty of Philosophy, University of Belgrade
Iris Žeželj
Department of Psychology, Faculty of Philosophy, University of Belgrade

Attributing sinister motives to others can be manifested on either a personal level – as paranoia, or a societal level – as belief in conspiracy theories (CTs). Whilst more interpersonal forms of paranoia were proposed to be triggered by a threat coming from other individuals (ingroup threat), belief in CTs should be triggered by a threat from the other groups (outgroup threat). In a previous study of the effects of outgroup threat on belief in CTs, there was significant overlap in content of the threat and CTs it was supposed to evoke, which makes it difficult to discern priming effects from genuine effects of the threat on belief in CTs. For this reason, we conducted two studies (total N = 207) that varied in the extent of overlap between the threat manipulation and CTs and paranoia scales. In both studies, psychology students first read either a bogus scientific article about fierce competition and climate of distrust between psychology students and psychologists (ingroup threat) or between psychologists and economists (outgroup

threat), while the control group read no such article. After this, all participants filled out two paranoia and two belief in CTs scales. Finally, we asked them to assess the extent of negative emotions elicited by the articles. In Study 1, there was no overlap in content between the threat manipulation and scales of belief in CTs/paranoia. In contrast, Study 2 was conducted to test if certain overlap in content could influence the results – we modified one of the scales for both belief in CTs and paranoia so that the items reflected CTs, or personal actions against psychologists, respectively. Results from both studies reveal that, while the threats were rated as believable and they were effective in eliciting negative emotions (Study 1: $F(2, 88) = 13.62$, $p < .001$; Study 2: $F(2, 112) = 4.75$, $p = .01$), they did not influence belief in CTs/paranoia – i.e. even with an overlap between the manipulations and the scales, there was no effect. Additionally, moderate positive correlations (r range across both studies: $.27 – .42$; $p < .01$) between paranoia and belief in CTs indicate they may be hard to separate experimentally. Taken together, our results illustrate challenges that arise in experimentally testing theoretical distinctions between the content participants perceive as similar, and in employing brief state manipulations to influence aspects of participant's global world-view.

Keywords: belief in conspiracy theories, conspiracy mentality, paranoia, ingroup threat, outgroup threat

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BEHAVIORAL ECOLOGY OF RELIGIOUSNESS: THE PATHWAYS FROM RELIGIOUSNESS TO FITNESS

Janko Međedović

Institut za kriminološka i sociološka istraživanja | *janko.medjedovic@fmk.edu.rs*

In recent years there have been attempts to explain religiousness form an evolutionary viewpoint – religiousness may elevate reproductive fitness. However, empirical data on this topic are still lacking. In the present study we used the behavioral ecological theoretical framework to explore the relations between religiousness, harsh environment, fitness (reproductive success and parental investment) and fitness-related outcomes assumed to be mediators of the religiousness-fitness link: age at first birth, desired number of children and the romantic relationship duration. The data was collected from 461 individuals from the community sample who were near the end of their reproductive stage (54% females, $M_{age} = 51.75$; SD = 6.56). Religiousness was measured by the abbreviated version of the *Religiosity* scale which is a part of Arizona Life History Battery. We operationalized the harsh environment using two scales: Family dysfunction was measured using the *Weak Socialization* scale from the AMORAL inventory; we also explored childhood *Poverty* via a four-item self-report scale. We expected positive links between religiousness, harsh environment, fitness and fitness related outcomes, all except the age at first birth for which we hypothesized a negative association. Furthermore, we conducted path analysis where the harsh environment and religiousness were set as exogenous variables; age at first birth, the desired number of children and romantic relationship duration were set as mediators, while reproductive success and parental investment were analyzed as endogenous variables. Religiousness was positively related to environmental harshness but this relation was characteristic for older participants (r = .13; p = 0.05). Religious individuals had higher reproductive success ($r = .13$; $p < 0.01$) but they did not show elevated parental investment($r = .05$; $p > 0.05$). Religiousness positively associated with the desired number of children($r = .16$; $p < 0.01$) and negatively to the age at first birth ($r = -.17$; $p < 0.01$). Finally, path analysis ($\chi^2(2) = 5.35$, $p = .069$; NFI = .990; CFI = .994; RMSEA = .060) confirmed these relations and additionally showed that relationship

duration and age at first birth completely mediated the relation between religiousness and reproductive success. The data suggest that religiousness has a biologically adaptive function in contemporary populations and found the mediating processes which facilitate fitness in religious individuals. Furthermore, findings show the fruitfulness of the behavioral ecological framework in understanding the adaptive role of complex behavioral traits like social attitudes and values.

Keywords. Religiousness; harsh environment; fitness; age at first birth; desired number of children; romantic relationship duration

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SCIENCE SKEPTICISM: ENDORSEMENT AND PSYCHOLOGICAL PREDICTORS

Jasna Milošević-Đorđević
Fakultet za medije i komunikacije | *jasna.milosevic@fmk.edu.rs*
Živojin Đurić
Institut za političke studije
Milica Vdović
Fakultet za medije i komunikacije

We are facing global distrust in government institutions and official sources of information; science skepticism is one of the symptoms of the mention processes. Science driven topic on many important issues has divided global population doubting the existing scientific consensus. It has enormous consequences on public in different spheres, therefore it is important to identify the groups that report lower trust in science, and to explore socio-demographic and psychological characteristics of this phenomenon.

Drawing from a nationally representative sample of adult Serbian population from May year 2018 (N = 1480), we investigated: a) the endorsement of science skepticism in Serbia b) the validation of distrust in science scale; c) socio-demographic and psychological variables that predicts science skepticism. We included standard set of socio-demographic variables, as well as general political attitudes (right wing authoritarianism, political cynicism, and social dominance orientation), perception of current political climate (trust in official institutions) and media literacy as predictors of science skepticism. We hypothesized low level of science skepticism in Serbia (H1), as complex phenomenon (H2), and that psychological variables would have more predictable power then socio-demographic variables (H3).

We employed a short version of the science skepticism scale consisting of two indicators: general trust in science (α = .85), and support for science in policy (α = .83). Apart from the fact that two constructs of science skepticism correlate statistically significant (r = .231, p < .001), factor analysis revealed two factors. General trust in science (M = 3.40) and support for science in policy (M = 3.14) is endorsed among more than half of adult Serbian population. Significant predictors of: a) general trust in science were education and political cynicism, media literacy, trust in government institutions, explaining 17% of variability; b) support for science in policy were political cynicism, SDO, trust in government institutions, media literacy, explaining only 5% of variability.

Science skepticism is rather evenly distributed through different socio-demographic groups, more endorsed among those who are also critical toward political system and government institutions. Science communication must rely upon development of general public trust, not only upon the simple presentation of scientific facts.

Keywords: science skepticism, trust in government, Serbia

KONSTRUKCIJA, PSIHOMETRIJSKA PROVERA I VALIDACIJA TESTA TIPOVA LJUBAVI

Jelica Milojičić
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *jeca.97.milojicic@gmail.com*
Anja Mrkobrada
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *anjamrkobrada@gmail.com*
Teodora Pavlović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *teodora.pav@hotmail.rs*
Maja Mađarev
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *djudja98@yahoo.com*
Marko Koščica
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *arkocos10@hotmail.com*
Ana Ivanov
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *anaivanov70@gmail.com*

Tipovi ljubavi se definišu kao različiti načini ispoljavanja ljubavi. U ovom radu obrađivano je šest tipova ljubavi: eros (strastvena ljubav), ludus (bez emotivne komponente), storge (prijateljska ljubav), mania (ljubomorna ljubav), pragma (koristoljubiva ljubav), agape (nesebična ljubav). Novi test je pravljen radi poboljšanja pouzdanosti i diskriminativnosti subskala koje su stvorili prethodni autori i sadrži 48 stavki, merenih petostepenom Likertovom skalom. Za proveru eksterne validnosti korišćene su stavke iz invetara HEXACO–60 i testa ljubavi adaptiranog za srpsko govorno područje LAS. Pretpostavlja se dobijanje korelacija između svih tipova ljubavi i njima odgovarajućih tipova LAS skale, kao i značajne korelacije između tipova ljubavi i crta ličnosti. Uzorak je prigodan, čine ga 240 ispitanika (Ž: 72%; 16–24 godina). Rezultati su pokazali zadovoljavajuće interne metrijske karakteristike (eros α = .51, KMO = .56, H5 = .62; ludus α = .75, KMO = .87, H5 = .80; storge α = .67, KMO = .77, H5 = .71; mania α = .77, KMO = .90, H5 = 80; pragma α = .48, KMO = .48, H5 = .60; agape α = .69, KMO = .83, H5 = .76). Eksplorativnom faktorskom analizom, koja je izabrana jer konstrukt nije stabilan kroz vreme, izdvojeno je 7 faktora koji su interpretirani kao: antiludus, mania, storge, pragma, eros, agape i pseudoludus. Sedmofaktorska struktura objašnjava 33.11% varijanse testa. Korelacije između testa ljubavi LAS i tipova ljubavi su dobijene između skorova na istim subskalama, osim u slučaju erosa i pseudoludusa. Eros je najviše negativno korelirao sa storgeom, a pseudoludus sa erosom i agapeom. Dobijene su korelacije bazičnih crta ličnosti iz skraćeog inventara HEXACO–60 i testa tipovi ljubavi: crta Poštenja sa antiludusom i pseudoludusom, Emocionalnost sa manijom, Ekstraverzija sa erosom i antiludusom, Savesnost sa antiludusom i pragmom, Otvorenost sa antiludusom i pseudoludusom, Saradljivosti sa maniom i erosom, što je bilo u skladu sa očekivanjima. Korelacije Saradljivosti sa agapeom i storgeom, kao i negativna korelacija Savesnosti i manije se nisu javile, što nije u skladu sa očekivanjima. Razlog mogu biti nedovoljno definisani ajtemi. Kriterijumska valjanost je proveravana Spirmanovim korelacijama između 6 bihejvioranih varijabli i dobijenih 7 faktora. Rezultati pokazuju da test značajno predviđa određena ponašanja, ali ne sasvim u skladu sa očekivanjima. Razlog nedovoljno dobrog predviđanja ponašanja može biti definisanje i operacionalizacija bihejvioralnih varijabli. Ovaj test, uz

dodatne provere, može biti pogodan instrument za ispitivanje konstrukta tipova ljubavi u Srbiji u budućnosti.

Ključne reči: test tipova ljubavi, validacija, LAS, crte licnosti, HEXACO

CONSTRUCTION, PSYCHOMETRICAL EVALUATION AND VALIDATION OF TYPES OF LOVE TEST

The goal of this research was to improve psychometrical characteristics of Love Attitude Scale (LAS) and to examine its factor structure. The initial LAS differentiated six types of love: eros (passionate love), ludus (playful love), storge (friendship love), mania (jealous love), pragma (practical love), agape (unconditional love). In order to check the external validity, items from the shortened HEXACO-60 inventory and the love test adapted for the Serbian LAG area were used. The sample contained 240 participants (72% females) age 16 to 24 years. Accepted factor solution encompasses 7 factors. Criterion validity was tested by Spirman's correlations between 6 behavioral variables and 7 obtained factors. This test, with additional checks and alterations, can be a convenient instrument for researchers who would like to deal with this interesting construct – the construct of love types, in Serbia in the future.

Keywords: types of love, validation, LAS (Love Attitude Scale), personality traits, HEXACO

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ATTITUDES TOWARDS ANIMALS AND THEIR RELATION TO WIDER IDEOLOGICAL BELIEFS AND SOCIAL IDENTIFICATIONS

Marija Branković
Fakultet za medije i komunikacije, Univerzitet Singidunum,
Beograd | *marija.brankovic@fmk.edu.rs*

The existing research supports the idea that attitudes towards animals, their rights and treatment is an issue related to other social and ideological views. Prejudice towards animals function as any outgroup prejudice, including the perception of a categorical difference between human and animals, denying human-like capacities to animals (e.g. the ability to feel pain) and the consequent moral exclusion of animals in order to legitimize their exploitation. In this study, we sought to explore whether attitudes towards animals as well as meat consumption can be related to wider ideological beliefs and important social identities in Serbia.

We conducted two survey studies to explore this. In the first study (N = 252), a sample from the general population indicated their attitudes towards animal rights (α = .83) as well as their endorsement of right-wing authoritarianism (α = .86), social dominance orientation (α = .77) and the personal importance of different social identifications (e.g. gender, ethnicity, religion). Persons less inclined to animal rights also endorsed authoritarianism (r = .12, p <.05) and relations of dominance between groups (r = .28, p < .01) to a larger extent. Furthermore, participants more identified with their own gender (r = .13, p < .05), ethnicity (r = .17, p < .01), and religion (r = .19, p <.01), showed more negative attitudes towards animals.

In the second study (N = 195), we focused on the role of ethnocentrism as an ideological base of animal exploitation. We expected that ethnocentric attitudes (α = .82) would predict more negative attitudes towards animals and more frequent meat consumption, and that this relation would be mediated through perceptions of threat coming from vegetarianism (α = .82), as an alternative lifestyle endangering local traditions. In line with the hypothesis, perceived

vegetarianism threat fully mediated the effects of ethnocentrism on both attitudes towards animals (β = .13, SE = .04, 95% CI: [.05, .23]) and meat consumption (β = -.18, SE = .05, 95% CI: [-.19, -.10]).

Our findings show that attitudes towards animals are related to endorsement of hierarchical inter-group relations as well as valuing the superiority of the ethnic ingroup. Attitudes towards animals are thus related to wider ideological views, in particular through perceptions of threat coming from alternative lifestyles and values represented by vegetarianism. We will discuss the implications of the findings for the study of human-animal relations.

Keywords: attitudes towards animals, speciesism, meat consumption, ethnocentrism, vegetarianism threat

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KAKO PODSTAĆI EKOLOŠKI AKTIVIZAM?

Milica Marušić Jablanović
Institut za pedagoška istraživanja, Beograd | *millica13@yahoo.com*
Jelena Stanišić
Institut za pedagoška istraživanja, Beograd

Ekološka svest ne podrazumeva samo određeni stepen svesnosti pojedinca ili društvene grupe već i visok nivo praktičnih aktivnosti na individualnom i društvenom planu. Kao odgovor na rastući problem devastacije reka formirana je Fejsbuk grupa čije su osnovne aktivnosti informisanje javnosti o projektima malih hidroelektrana, o njihovom uticaju na životnu sredinu, pravna borba za zaštitu prirode, organizovanje tribina, skupova, protestnih okupljanja, čišćenja reka. Ovo istraživanje je sprovedeno sa ciljem da se ustanovi koje su barijere za angažovanje članova u različitim aktivnostima usmerenim na zaštitu životne sredine. Instrument: Na osnovu višemesčnog praćenja aktivnosti FB grupe, formulisano je pitanje u upitniku u kojem su kao ponuđeni odgovori navedeni faktori prepoznati kao potencijalne barijere za angažovanje ispitanika, uz mogućnost dopisivanja odgovora. Zadat je upitnik o ekološkim stavovima Ameriga i saradnika, a za potrebe ovog istraživanja korišćeni su podaci sa subskale ekološke apatije, koja meri indiferentnost prema pitanjima zaštite životne sredine (N = 255). U analizi je primenjena deskriptivna statistika, t-test i linearna korelacija. Rezultati pokazuju da ni jedan ispitanik ne smatra da problem nije dovoljno važan da bi mu se posvetilo vreme, ali tek 15% navodi da su se lično angažovali na konkretnim aktivnostima. Kao barijere za aktivnije učešće identifikuju se, između ostalog stav da je potrebno da se najviše angažuju neposredno ugroženi (8%), nedovoljna upoznatost sa problemom (6%), da su potrebni stručniji ljudi (5%), da institucije neće imati sluha za građane, (7%). Utvrđeno je da skor na skali ekološke apatije značajno korelira sa nekom od barijera (veći skorovi prate nedovoljnu upoznatost sa problemom $r = .180$, $p < .05$; stav da već ima dovoljno angažovanih $r = .374$, $p < 0.05$, i da su potrebni stručniji ljudi, $r = .142$, $p < .05$). Između grupa koje su u različitoj meri aktivne beleže se razlike u zastupljenosti barijera. Već između ispitanika koji ne prate vesti na FB grupi i onih koji se povremeno informišu javlja se razlika u korist druge grupe u stavu da svako može da doprinese, ($t = -3.808$, $df= 98$, $p < .05$,) kao i u stavu da najviše treba da se angažuju neposredno ugroženi, a koji je više izražen kod grupe koja ne prati vesti ($t = 3,145$, $df = 89$, $p < .05$,). Autori zaključuju da je pasivnost uzrokovana jednim delom indiferentnim odnosom prema problemima životne sredine, kao i da, po svoj prilici, sama izloženost informacijama i upoznatost sa aktivnostima i njihovim rezultatima može da utiče na smanjenje barijera za aktivizam.

Ključne reči: ekološki aktivizam, barijere, ekološka apatija

HOW TO FACILITATE ECOLOGICAL ACTIVISM?

The research explores the barriers to participation in activities for environmental protection among the members of a large Facebook group gathered around the problem of river devastation by small hydropower plants. Instruments: A list of possible barriers with possibility to add a reason if not offered and a questionnaire on environmental attitudes by Amerigo and associates (N = 255). Analysis: descriptives, t-test and linear correlation. Results: not a single respondent perceives the problem insufficiently important, but only 15% claim to be active. The main barriers for more active participation are: the attitude that only directly endangered people should participate; insufficient knowledge about the problem; expectation that that the institutions will not react. Results indicate that passivity is partially caused by indifferent attitude towards environment, and that learning about group activities and their results can weaken the barriers.

Keywords: ecological activism, barriers, ecological apathy

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ADEKVATNE STRUKTURE GRUPA U EKSPERIMENTALNOJ BIOLOGIJI

Vlasta Sikimić
Institut za filozofiju, Filozofski fakultet, Univerzitet u
Beogradu | *vlasta.sikimic@gmail.com*
Kaja Damnjanović
Laboratorija za eksperimentalnu psihologiju, Filozofski fakultet, Univerzitet u
Beogradu | *kdamnjan@f.bg.ac.rs*

Apstraktne kompjuterske simulacije se često koriste za analizu interakcije među naučnicima. Naše istraživanje, pak, stavlja u centar perspektivu samih istraživača i njihove stavove u pogledu strukture naučne grupe. Nakon serije polustrukturiranih intervjua na temu naučne prakse u njihovoj oblasti, ponudili smo formalni model koji testira hipoteze ispitanika u pogledu organizacije istraživačke grupe. Ispitanici su bili eksperimentalni biolozi (N = 7, prosečnog uzrasta 33 godine, od toga 4 žene). Sagovornici su govorili na teme naučne komunikacije i strukture njihovih istraživačkih timova, značaja naučnih konferencija, kao i procesa publikovanja u njihovoj oblasti. Ustanovili smo da oni favorizuju grupe u kojima postoji podela posla u odnosu na striktno centralizovane grupe. Ispitanici su isticali da svaki mentor mora da ima ograničen broj studenata doktorskih studija ili da u svom timu ima dovoljno drugih iskusnijih istraživača koji bi preuzeli ulogu mentora. Takođe, kao epistemički korisnom, naglašavali su i potrebu da se grupa podeli u manje timove. Kao razloge za to navodili su da jedan mentor nema dovoljno vremena za veliki broj studenata, te da je komunikacija u većim centralizovanim grupama smanjena.

Putem simulacija uradili smo uporednu analizu tri organizaciona sistema: strogo hijerarhizovanog u kome jedan šef laboratorije direktno komunicira sa svim zaposlenim naučnicima i dva sistema u kojima postoje posredni nivoi hijerarhije. Konkretno, drugi model predstavlja strukturu u kojoj je osim šefu, i iskusnijim članovima tima poverena odgovornost za istraživanja onih mlađih. U poslednjem modelu predstavljena je decentralizovana mreža u kojoj su iskusniji istraživaču povezani sa manjim brojem mlađih naučnika, uz dodatni aspekt da utiču jedni na druge. Fiksirali smo ukupan broj istraživača na 20, što odslikava realističnu veličinu grupe u eksperimentalnoj biologiji. Pošto vođa centralizovane grupe ne može neprekidno da komunicira sa svim zaposlenima, u simulacije smo uključili vremensko ograničenje. Nakon 1000 simulacija utvrdili smo da grupe u kojima postoji podela posla brže

dolaze do konsenzusa od centralizovanih grupa, što je u saglasju sa stavovima naših ispitanika. Povrh toga, treća organizaciona struktura u kojoj vođe manjih grupa komuniciraju međusobno najbrže postiže konsenzus. Dakle, rezultati ukazuju na to da vođe grupa treba međusobno da se konsultuju, zatim da imaju manji broj studenata, dok velike grupe treba da budu decentralizovane.

Ključne reči: simulacije, polustrukturirani intervjui, struktura grupe, biologija

ADEQUATE GROUP STRUCTURES IN EXPERIMENTAL BIOLOGY

Team structures in science are field-dependent. In biology, laboratories are typically structured hierarchically. We developed models simulating three different management styles: from groups with one leader controlling everybody to groups with two levels of hierarchy. These structures and their effects on group performance were brought up and discussed during qualitative interviews we performed with biologists. When we consider that professors have a limited time for communication, the results after 1000 simulations show that groups with additional levels of hierarchy perform much better than centralized groups. The performance further improves when group leaders communicate with each other. The results also highlight that group leaders should not have too many students. Finally, large groups should be decentralized, which all agrees with the assumptions interviewees brought up.

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PICTURE SPEAKS A THOUSAND WORDS: PREDICTION OF INDIVIDUALS FINANCIAL STATUS BY LOOKING AT PHOTOS

Ana Jovančević
Laboratorija za eksperimentalnu psihologiju, Departman za psihologiju,
Filozofski fakultet u Nišu | *jutarnjakafa15@gmail.com*
Nebojša Milićević
Laboratorija za eksperimentalnu psihologiju, Departman za psihologiju, Filozofski fakultet u Nišu
Milana Stamenković
Laboratorija za eksperimentalnu psihologiju, Departman za psihologiju, Filozofski fakultet u Nišu
Anita Janković
Laboratorija za eksperimentalnu psihologiju, Departman za psihologiju, Filozofski fakultet u Nišu
Aleksandra Miladinović
Laboratorija za eksperimentalnu psihologiju, Departman za psihologiju, Filozofski fakultet u Nišu

The aim of this research was to examine if people can accurately guess financial status of individuals only by looking at their faces, when all stimulus individuals are from the middle social class. The photo was taken of all potential stimulus individuals (N = 24), and they indicated average income in their family. All photos were emotionless, in black and white color, and only of stimulus face, so the way they dressed and their background couldn't be seen. Female stimuli were taken photo of without makeup, in order to have more natural stimuli. The respondents could only see emotionless face of stimuli. The control sample (N = 86) graded potential stimuli by their attractiveness, on the scale from 1 to 5, and only those who were given a median score (3) on attractiveness entered a final stimulus sample (2 male, 2 female, all with medium monthly income).
The final sample of respondents was convenient (N = 228; M = 28; F = 200) with mean age of 22.26. Respondents were asked to guess financial status of stimuli, by looking at their photos, and by choosing one of four options regarding their financial status: 1-Low (Monthly income lower that 24.000 dinars); 2-Medium (Monthly income between 24.000 and 60.000 dinars);

3-Upper medium (Monthly income between 60.000 and 100.000 dinars); and 4-High (Monthly income higher than 100.000 dinars). Then the new variable, with two categories of respondents' answers was created (1-correct, 2-incorrect). All respondents graded all stimuli, so the maximum number of answers was 912. Frequency of correct answers was higher than the frequency of incorrect answers, for all stimuli together (correct = 525, incorrect = 387), and separately for male (correct = 266, incorrect = 190) and female (correct = 259, incorrect = 197) stimuli.

In order to see if those differences are statistically significant, when compared to theoretical frequencies of correct and incorrect answers, which would be gotten only by chance, the data was analyzed using χ^2 test. Results show that frequencies of correct answers differ significantly from the frequencies of incorrect answers, for all stimuli together ($\chi^2(1) = 20.882$; $p = .000$), but also when only male ($\chi^2(1) = 12.667$; $p = .000$) and only female ($\chi^2(1) = 8.43$; $p = .003$) stimuli were taken into account separately.

It can be concluded that respondents can guess financial status of stimulus individuals above chance level, by looking at the photos of their faces. Authors of previous papers suggest that one possible explanation is that worries and leisure life style live traces on our faces.

Keywords: Financial status, Prediction of financial status, Social class, Facial cues, Gender

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SUSCEPTIBILITY TO VISUAL MERCHANDISING AND COMPULSIVE BUYING: EXAMINING THE MEDIATING EFFECT OF HEDONIC SHOPPING MOTIVATIONS

Jelena Dostanić
Faculty of Legal and Business Studies dr Lazar Vrkatić, Union University in
Novi Sad | *jelena.dostanic.sm@gmail.com*
Biljana Mirković
Faculty of Philosophy, University of Banja Luka

Compulsive buying behavior is defined as a consumer's tendency to be preoccupied with buying that is revealed through repetitive buying and a lack of control over buying. Previous studies show that the visual merchandising tools are related with the purchasing decisions of customers. The customer is often unknowingly subjected to merchandising activities that affect the perception of the products and the desire to purchase. In addition, studies show that compulsive buyers are engaged in shopping for hedonic motivations; to escape from negative feelings and experience positive emotions; to improve their self- and social image; and to express themselves. Accordingly, the aim of this study was to determine whether the relationship between susceptibility and impacts of visual merchandising and compulsive buying was mediated by hedonistic motives. The sample consisted of 367 respondents (77.5% male), aged 18 to 75 (M = 31.81, SD =13.43). The Compulsive Buying Scale by Edwards in 1992, Visual Merchandising Susceptibility Questionnaire by Kim in 1991 and Hedonic Shopping Motivations Scale by Arnolds & Reynolds in 2003, were used. In order to check the significance of the mediation effects of hedonistic motives, we used Hayes PROCESS for SPPS. By using simple mediation model (bootstrapping on 10000 sub-samples) a significant positive indirect effect ($b = .20$; 95% BCa CI [.11, .31]) is obtained. After the partialization of hedonistic motives, the direct effect of visual merchandising remained insignificant ($b = .11$; 95% BCa CI [-.02, .24]) compared to significant, positive total effect ($b = .30$; 95% BCa CI [.19, .41]). This study revealed that one of the mechanisms by which visual merchandising tools can trigger compulsive buying is trough activating hedonistic motives. In other words, visual merchandising tools evoke anticipation of satisfaction and positive emotions without

which the consumer's tendency for repetitive buying with a lack of control wouldn't be activated.

Keywords: susceptibility to visual merchandising, compulsive buying, hedonic shopping motivations

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ETHNIC DISTANCE AS A TYPE OF INTERETHNIC ATTITUDES IN SERBIA

Jelena Živković

Moskovski državni pedagoški univerzitet | *jelenagent@gmail.com*

The study of ethnic distance is a part of the research on socio-psychological features of interethnic attitudes in Serbia. Ethnic distance is seen as a type of interethnic attitudes which expresses the degree of acceptance and readiness for different social relationships with other ethnic groups. It indicates the state of ethnic relations in the society, the level of equality and tolerance.

Ethnic distance was measured between Serbs (N = 316), Bosniaks (N = 115) and Croats (N = 105) in Serbia, using modified Bogardus scale with 11 types of social relationships.

The results showed the average distance of Serbs towards Bosniaks (M = 7.91, SD = 3.01) and Croats (M = 8.03, SD = 3.17), average distance of Bosniaks towards Serbs (M = 7.23, SD = 2.63) and Croats *(*M = 6.17, SD = 3.35) and low distance of Croats towards Serbs (M = 10.10, SD = 1.47) and Bosniaks (M = 8.61, SD = 2.84).

It was also found that Serbs show more distance towards Bosniaks, than Croats do ($F(1, 419) = 4.36$, $p < .05$), Bosniaks show more distance towards Serbs, than Croats do ($F(1, 218) = 97.80$, $p < .001$) and more distance towards Croats, than Serbs do ($F(1, 429) = 28.11$, $p < .001$).

The analysis of rejected relationships showed high distance towards marriage: more than a half of Serbs reject Bosniaks (62.7%) and Croats (56%), around 1/3 of Croats reject Serbs (36.2%) and 2/3 reject Bosniaks (61.9%) and prevailing percentage of Bosniaks reject Serbs (80.9%) and Croats (84.3%).

Distance is also high in subordinate relationships: about 1/3 of Serbs reject Bosniaks and Croats as bosses (33.5%, 34.2%) and presidents (65.5%, 66.5%), about 1/3 of Bosniaks reject Serbs (33.9%, 27.8%) and about half reject Croats (48.7%; 52.2%), while Croats reject only Bosniaks (22.9%; 31.45).

In close relationships (friends, neighbors, colleagues) Bosniaks expressed relative distance towards Serbs (33%, 18.3%, 18.3%) and Croats (45,2%, 35.7%, 26.1%), Serbs show certain distance towards Bosniaks (15.8%, 14.9%, 13.9%) and Croats (17.4, 14.2%, 13.9%), and Croats towards Bosniaks (14.3%, 10.5%, 9.5%).

Distance is also found in "far" relationships: Bosniaks show certain distance towards others as citizens (18.2%, 24.3%), tourists (24.3%, 20.9%) and blood donors (39.1%, 49.6%), Serbs show certain distance towards others (14.6%, 14.2%; 7.3%, 4.9%; 17.5%, 18.4%), and Croats towards Bosniaks (9.5%, 8.6%, 17.1%).

In conclusion, ethnic distance in Serbia is still high, especially in intimate relationships and subordination, but more concerning is the distance in friendship, neighborhood and collaboration, as they represent the basis for multicultural society.

Keywords: Ethnic distance, interethnic attitudes, social relations, Serbia

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POVEZANOST DIMENZIJA EMOCIONALNE INTELIGENCIJE I LIDERSTVA KOD STUDENATA FAKULTETA BEZBEDNOSTI I UČITELJSKOG FAKULTETA UNIVERZITETA U BEOGRADU

Violeta Tadić

Fakultet bezbednosti, Univerzitet u Beogradu | *tadicv33@gmail.com*

Rezultati dosadašnjih istraživanja ukazuju na značaj koji emocionalna inteligencija ima u liderstvu. Međutim, mali broj studija se bavi istraživanjem konstrukata emocionalne inteligencije i liderstva, kao i njihovih međusobnih relacija među studentskom populacijom. Stoga, cilj ovog istraživanja jeste ispitati povezanost između emocionalne inteligencije i liderstva kod studenata. Takođe, cilj je ispitati povezanost svih dimenzija merenih upitnicima. Uzorak je činilo 169 ispitanika, od čega 72.8% ispitanika čine osobe ženskog pola, dok muški ispitanici čine 27.2% uzorka. Starost ispitanika se kretala od 19 do 25 godina (AS = 20.88 god.). Ispitanici su podeljeni u dve kategorije: studenti Fakulteta bezbednosti (58.6%) i studenti Učiteljskog fakulteta (41.4%). Za istraživanje emocionalne inteligencije smo koristili više instrumenata: Upitnik emocionalne inteligencije, UEK–45, UEK–15 i UERK. Za istraživanje liderstva je konstruisana skala za ovu namenu, kojom se ispituje u kojoj meri studenti imaju razvijene liderske veštine. Na ovaj način dobili smo upitnik koji meri varijable emocionalne inteligencije i liderstva, konstruisan za potrebe ovog istraživanja. Faktorskom analizom, metodom glavnih komponenti (sa Promax rotacijom i Kaiser normalizacijom), na svim upitnicima, izolovano je osam faktora: empatijsko razumevanje i podrška (α = .93), emocionalne kompetencije (α = .92), emocionalna nestabilnost (α =.86), liderstvo (α = .89), opažanje emocija (α = .85), upravljanje ljudima (α = .69), pamćenje negativnih emocija (α = .65) i samomotivacija (α = .66). Na osnovu dobijenih rezultata, liderstvo značajno pozitivno korelira sa tri dimenzije emocionalne inteligencije i to: empatijskim razumevanjem i podrškom (r = .56), emocionalnim kompetencijama (r = .51), opažanjem emocija (r=.37). Stoga, možemo zaključiti da što u većoj meri studenti imaju izraženu crtu vođenja tj. liderstvo, to će imati naglašene navedene dimenzije emocionalne inteligencije. Dodatne zaključke bi trebalo doneti sa rezervom usled slabe statističke pouzdanosti određenih faktora: upravljanje ljudima (α = .69), pamćenje negativnih emocija (α = .65) i samomotivacija (α = .66), izračunate Kronbahovim alfa koeficijentom. Istraživanje je izvršeno putem upitnika koji se zasniva na samoproceni pa se može dovesti u pitanje objektivnost ispitanika. Pored ograničenja u sprovedenom istraživanju, dobijena saznanja mogu poslužiti kao osnov istraživačima za naredne studije radi novih saznanja u ovoj oblasti.

Ključne reči: emocionalna inteligencija, liderstvo, studenti, emocionalne kompetencije, empatija

THE CONNECTION BETWEEN DIMENSIONS OF EMOTIONAL INTELLIGENCE AND LEADERSHIP AMONG STUDENTS AT THE FACULTY OF SECURITY STUDIES AND THE TEACHER EDUCATION FACULTY OF THE UNIVERSITY OF BELGRADE

We tried with this research to examine if there is – and if so, its measurement – a connection between emotional intelligence and leadership. Also, our goal is to examine a connection between all dimensions measured with the Questionnaire. In our research we had 169 students of University of Belgrade, between the ages of 19 and 25. We used several instruments for our emotional intelligence research: Emotional Intelligence Questionnaire, ECQ–45, ECQ–15 and ERCQ. Talking about leadership research, we constructed a scale for this purpose, which measures at which point students have developed leadership skills. Based upon given results,

we determined a positive correlation between leadership and three dimensions: empathy understanding and support (r = .56), emotional competencies (r = .51), perception of emotions (r = .37). Therefore, we can conclude that as long as students have more expressed line of guidance, i.e. leadership, cited dimensions of emotional intelligence will be accentuated.

Keywords: emotional intelligence, leadership, students, emotional competencies, empathy

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PERCEIVED PLEASANTNESS OF COMMUTE AND CROWDING IN STUDENTS, USING BUS TRANSPORT IN LJUBLJANA

Žan Lep
Faculty of Arts, University of Ljubljana | *zan.lep@ff.uni-lj.si*
Anamarija Bogolin
Faculty of Arts, University of Ljubljana
Petra Kraševec
Faculty of Arts, University of Ljubljana

Ljubljana was awarded the European Green Capital title in 2016, recognizing the effort of local authorities in achieving high environmental standards and their dedication to sustainable development. Efficient, reliable and pleasant public transport is thus central in sustainable mobility planning in the city, especially because the city centre is gradually closing for traffic, making the flow of traffic in surrounding areas denser. However, the number of passengers using public transport in Ljubljana is slowly but steadily declining, regardless of efforts of improving and modernizing it. This research looked into perception of bus transport and commuting experience of university students and young adults who make up a third of all the bus passengers in Ljubljana's urban region. We were interested in how unpleasant different environmental factors are to them (e.g. cleanliness, heat, delays), how they define and perceive crowding and how it affects them, hoping to encourage strategic changes with positive effect on public transport usage rates. Almost all (94 %) of the 127 participants (M_{age} = 23,5 SD = 2,7) who responded to an online questionnaire reported using public transport (mostly bus which is the predominant motorized mean of public transport in Ljubljana). Of those who use the bus, most reported of commuting during peak hours and 48 % reported of crowding in at least one of their commutes in any given day. Crowding was also rated by bus users as one of the most unpleasant environmental factors, preceded only with delays and followed by stale air, bad odours and unsafe driving. The highest consensus of the proposed definitions of crowding were those defining crowding as the time when no new passengers are able to easily board the bus, when the driver has to turn on the sound notifications, encouraging people to move to the back of the bus, and the time when other people are touching the respondents. The reported frequency of crowding correlated negatively with the overall pleasantness of the drive (r = - .24, p = .015), suggesting that the experience of the commute could be significantly improved by reducing the density of passengers, by increasing the frequency of the buses or increasing their capacity.

Keywords: public transportation, buses, crowding, college students, environmental psychology

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ACTIVE CITIZENSHIP ONLINE AND OFFLINE: A PRELIMINARY STUDY

Melita Puklek Levpušček
Faculty of Arts, University of Ljubljana
Žan Lep
Faculty of Arts, University of Ljubljana | *zan.lep@ff.uni-lj.si*
Mojca Poredoš
Faculty of Arts, University of Ljubljana
Maja Zupančič
Faculty of Arts, University of Ljubljana

In the last decade, digital (online) communication is gradually becoming a prevailing way of interaction and substitutes more traditional (e.g., face-to-face) engagements. Accordingly, researchers documented recent notable declines in traditional active citizenship behaviours, which have been gradually substituted by civic engagement online. In our preliminary study, we aimed to detect various domains of digital citizenship practices of university students and the associations of their online and offline civic engagements with their personality characteristics and subjective well-being (flourishing). The sample consisted of 115 Slovenian university students (34% male, M_{age} = 23,1, SD = 1,77). A list of potential civic practices was formed, and students reported about the frequency of their engagement in described online (e.g., commenting, sharing articles or posting civic content on social media, signing petitions) and offline activities (e.g., attending protests and meetings that benefit society). 21-item version of BFI (BFI-K; Kovaleva et al., 2013) was used to assess personality traits and the Flourishing Scale (Diener et al., 2009) to measure well-being. We found that students' civic engagement in both online and offline settings was relatively low. Almost one third of the students reported that they never engaged in any form of active citizenship behaviour. However, a small percentage of students reported of frequent engagement across most of the described activities. Regarding associations with personality dimensions, openness correlated positively with both offline and overall engagement (r = .30 and r = .25, respectively), while agreeableness correlated negatively (r = -.22) with digital civic behaviours that demand more complex and active levels of engagement (e.g., writing a blog about political/societal issues). The students who reported no active citizenship behaviours scored lower on openness (t = 3.257, p = .001) than students who reported at least some participation, and females were more likely to participate in highly engaging activities than males (t = 2.017, p = .046). Further studies are needed to validate the results on a larger sample and provide better insight into emerging adults' reasons for civic (non)engagement. Special attention should also be focused on the group of highly engaged individuals and possible effects of their personality and living conditions on their online and offline civic behaviours.

Keywords: digital citizenship, emerging adulthood, college students, personality, well-being

PSIHOLOGIJA UMETNOSTI

STEPEN DOPADANJA IZVORNIH I INVERTOVANIH NEPOZNATIH SIMBOLA

Biljana Pejić
Udruženje za empirijska istraživanja umetnosti | *b.pejic@yahoo.com*
Bojana Škorc
Univerzitet umetnosti, Beograd | *bskorc@yahoo.com*
Jasna Hrnčić
Fakultet političkih nauka, Beograd | *jhrncic@gmail.com*

Istraživanje se bavi posebnim aspektima estetske procene nepoznatih simbola (kineskih ideograma) izlaganih u izvornom, horizontalno i vertikalno invertovanom obliku. Cilj istraživanja je bio da se ispitaju razlike u stepenu dopadanja nepoznatih simbola u odnosu na formu invertovanja. Prethodna istraživanja potvrđuju postojanje razlika u estetskoj proceni objekta u odnosu na osu inverzije. U ovom istraživanju ideogrami su prezentovani kao nepoznati estetski objekti subjektima vežbanim u estetskoj osetljivosti. Njihov zadatak je bio da procene stepen dopadanja ideograma. 30 objekata su prezentovani kao stimulusi. Stimulusi su balansirani prema kompleksnosti (kompleksni – jednostavni) i osi inverzije (po horizontalnoj ili vertikalnoj osi). Uključeno je 10 izvornih ideograma (5 jednostavnih koji su sadržali 6 ili manje linija i 5 kompleksnih koji su sadržali od 8 -16 linija), 10 inverzija po horizontalnoj osi i 10 inverzija po vertikalnoj osi. Subjekti su bili 23 studenta likovnih umetnosti (74% ženskog, 26% muškog pola, prosečnog uzrasta 20 godina). Stepen dopadanja je meren sedmostepenom skalom (ružno – lepo). Analiza varijanse je pokazala da nema statistički značajnog efekta kompleksnosti ($F(1) = 2.14$, $p > .05$, $M_{kompleksni} = 4.89$; $M_{jednostavni} = 4.72$). Nema statistički značajnih razlika između jednostavnih i kompleksnih ideograma po stepenu dopadanja. Analiza varijanse je pokazala da postoji statistički značajan efekat faktora inverzije ($F(2) = 3,78$; $p < .05$, $M_{izvorni} = 4.96$; $M_{horizontalna\ osa} = 4.65$; $M_{vertikalna\ osa} = 4.79$). Postoje statistički značajne razlike u stepenu dopadanja između izvornih i invertovanih ideograma. Poređenje po parovima je pokazalo da izvorni oblici ideograma pokazuju veći stepen dopadanja nego invertovani po horizontalnoj osi ($Mo-Mh = .31$; $p < .05$), ali ne i po vertikalnoj osi ($Mo-Mv=.18$; $p > .05$). Analiza je pokazala da nema statistički značajne interakcije između kompleksnosti i izvornosti ($F(2) = 2.00$, $p > .05$). Rezultati ukazuju da je vrsta inverzije faktor od većeg uticaja na dopadanje nego kompleksnost ideograma. Dva oblika inverzije imaju različite efekte na stepen dopadanja. Efekti inverzije po horizontalnoj osi (gore-dole) su negativni i jači od efekata izvrtanja po vertikalnoj osi (levo-desno). Moglo bi se pretpostaviti da inverzija po horizontalnoj osi narušava opšti utisak harmonije nepoznatog simbola, dok je levo-desno obrtanje po vertikalnoj osi doživljeno kao manje invazivna, fina transformacija koja nema uticaja na stepen dopadanja

Ključne reči: estetska procena, simboli, inverzija

APPRECIATION OF AUTHENTIC AND INVERTED FORMS OF UNFAMILIAR SYMBOLS

The research is focused on specific aspects of aesthetic reception of unfamiliar symbols (Chinese ideograms). The goal of research was to test differences in appreciation of ideograms when they were presented in authentic and vertically and horizontally inverted forms. As shown by previous researches, inversion of visual stimuli influences the esthetic reception of objects. In this research, ideograms were presented as aesthetic objects to subjects who were aesthetically sensitive but not familiar with them. Their task was to estimate the level of appreciation. 30 forms have been presented as stimuli. The stimuli were balanced according to

their complexity (simple – complex) and inversion (horizontally - vertically inverted) and they included: 10 authentic ideograms (5 simple: less than 6 lines and 5 complex: 8 - 16 lines), 10 horizontal inversions and 10 vertical inversions of ideograms. The subjects were 23 students of visual art (74% female; 26% male; average age 20). The level of appreciation was measured by 7-grade scale (ugly – beautiful).

Univariate analysis of variance showed no statistically significant effect of complexity ($F(1) = 2.14$, $p > .05$, $M_{complex} = 4.89$; $M_{simple} = 4.72$). There were no statistically significant differences between simple and complex ideograms. Univariate analysis of variance showed there were statistically significant effects of inversion ($F(2) = 3,78$; $p < 0,05$, $M_{authentic} = 4.96$; $M_{horizontal} = 4.65$; $M_{vertical} = 4.79$). There were statistically significant differences between authentic and inverted forms. Pairwise comparison showed that authentic (real) ideograms have been seen as more beautiful than their horizontally inverted versions (Mean difference=.31; p<.05), but not vertically inverted versions (Mean difference=.18; p>.05). The analysis showed there were no statistically significant interaction between complexity and authenticity (F(2)=2.00, p>.05). The results show that type of inversion is stronger factor of appreciation then complexity of ideograms. The two types of inversion have different effects on appreciation. The effects of horizontal inversion are stronger than the effects of vertical inversion of objects. Probably, horizontal inversion affects impression of harmony of visual object, while vertical (left-right) inversion is seen as more subtle transformation, not influencing appreciation.

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KOMPLEKSNOST I IZVORNOST KAO KOMPONENTE DOPADANJA KOD NEPOZNATIH SIMBOLA

Bojana Škorc
Univerzitet umetnosti Beograd | *bskorc@yahoo.com*
Biljana Pejić
Udruženje za empirijska istraživanja umetnosti | *b.pejic@yahoo.com*
Nebojša Milićević
Filozofski fakultet, Niš | *nesa2206@gmail.com*

Istraživanje se bavi ulogom kompleksnosti – jednostavnosti pri proceni nepoznatih simbola (kineskih ideograma). U skladu sa već razvijenom metodom, ideogrami su prikazivani kao estetski objekti subjektima kod kojih postoji razvijena estetska osetljivost, ali koji nisu bili ranije upoznati sa simbolima. Njihov zadatak je bio da procene stepen dopadljivosti. Stimulusi su balansirani na osnovu kompleksnosti: 10 jednostavnih (manje od 6 linija), 10 kompleksnih (od 8 do 16 linija), takođe, po 5 kompleksnih i 5 jednostavnih ideograma su bili prezentovani obrnuto po horizontalnoj osi (ukupno 30 ideograma). Da bi se ispitao stepen uticaja kompleksnosti kao kriterijuma estetskog dopadanja, kompleksnost – jednostavnost kao osobina stimulusa je ispitivana u kombinaciji sa izvornom – obrnutom formom. Na osnovu ranijih istraživanja (Berlyine, 1971) očekivuje se da će kompleksne forme biti više vrednovane kao lepe, bez obzira na izvornost ili obrnutost ideograma, jer izvorni i obrnuti par ideograma imaju jednak stepen kompleksnosti. Subjekti su bili 58 studenata likovnih umetnosti (69% ženskog, 31% muškog pola, prosečne starosti 21 godina). Stepen dopadanja je meren sedmostepenom skalom (ružno – lepo). Univarijantna analiza varijanse je pokazala da ne postoji statistički značajan efekat kompleksnosti ($F(1) = .07$, $p > .05$, $M_{složene} = 3.44$, $M_{jednostavne} = 3.46$). Ne postoje statistički značajne razlike u stepenu sviđanja između kompleksnih i jednostavnih ideograma. Univarijantna analiza varijanse je pokazala da postoji statistički značajan efekat izvornosti ($F(1) = 4.58$, $p < .05$, $M_{autentično} = 3.52$, $M_{obrnuto} = 3.38$). Razlike pokazuju da se

izvorni (originalni) ideogrami doživljavaju kao lepši od svojih obrnutih verzija. Analiza nije pokazala statistički značajnu interakciju između složenosti i izvornosti ($F(1) = 1.24$, $p > .05$). Rezultati nisu opravdali predikciju Berlyne-a i saradnika o dominantnom uticaju kompleksnosti na estetsku procenu. Nalazi su više u skladu sa Ozgudovom teorijom implicitnog, konotativnog značenja (Osgood et al, 1975), jer je moguće pretpostaviti da se implicitno značenje uključuje kao činilac i značajna komponenta estetskog dopadanja.

Ključne reči: dopadanje, simboli, kompleksnost, izvornost

Complexity and authenticity as components of appreciation of unfamiliar symbols: The research is focused on complexity – simplicity of unfamiliar symbols (Chinese ideograms). Based on previously implemented method, ideograms were presented as aesthetic objects to subjects who were aesthetically sensitive but not familiar with them and their task was to estimate the level of appreciation. The stimuli were balanced according to their complexity: 10 simple (less than 6 lines), 10 complex (8 – 16 lines); in addition, 5 simple and 5 complex ideograms were presented turned upside down (a total of 30 ideograms). Complexity-simplicity of ideograms was combined with their authentic-inverted forms in order to test the power of complexity as a criterion of appreciation. As shown by previous researches (Berlyne, 1972), it is expected that complex forms will be highly appreciated, regardless on their authentic or inverted forms. The subjects were 58 students of painting (69% female, 31% male; average age 21). The level of appreciation was measured by 7-grade scale (ugly – beautiful). Univariate analysis of variance showed no statistically significant effect of complexity ($F(1) = .07$, $p > .05$, $M_{complex} = 3.44$, $M_{simple} = 3.46$). There were no statistically significant differences between simple and complex ideograms. Univariate analysis of variance showed there were statistically significant effects of authenticity ($F(1) = 4.58$, $p < .05$, $M_{original} = 3.52$, $M_{inverted} = 3.38$). There were statistically significant differences between authentic and inverted forms, showing that authentic (real) ideograms have been seen as more beautiful than their inverted versions. The analysis showed no statistically significant interaction between complexity and authenticity ($F(1) = 1.24$, $p > .05$). The results are not in accordance with Berlyne's prediction. Authenticity of symbols appeared as more powerful criterion than complexity. This finding is more in accordance with the theory of implicit, connotative meaning of symbols (Osgood et al, 1975). Connotative meaning is probably the factor that acts as significant component of aesthetic appreciation.

OPENNESS TO EXPERIENCE AND INDICATORS OF PSYCHOPATHOLOGY AS PREDICTORS OF CREATIVITY-RELATED VARIABLES

Ivana Novakov
University of Novi Sad, Faculty of Philosophy, Department of
Psychology | *ivannaanovakov@yahoo.com*

From the ancient times, to contemporary empirical research, the relation between creativity and psychopathology continues to be controversial topics. While Openness to experience has been consistently shown to be strong predictor of creativity, literature offers mixed findings regarding the role of psychopathology – from no association, to weak or even a strong relation with creativity. The aim of this research was to shed additional light on these conflicting finding, examining the predictive power of various indicators of psychopathology regarding diverse creativity-related measures, while controlling for Openness.
The study was conducted on 178 participants (female = 87.6%; $M_{age} = 20.07$, SD = 2.20), who completed Alternative uses task, based on which components of divergent thinking (DT) – fluency, flexibility and originality, were calculated. Biographical Inventory of Creative

Behavior (BICB) was used as a measure of everyday creative activities. Openness was evaluated with BFI. Schizotypal Personality Questionnaire – Brief Revised (SPQ–BR) was applied as a measure of schizotypy. Symptoms of different mental disorders were assessed with critical item list from PDSQ and data about psychiatric heredity were also collected.

In series of multiple regression analyses, creativity-related variables served as criterion, while Openness, schizotypy, psychopathological symptoms and heredity were predictors. For creative behavior, significant model was obtained, $F(4, 169) = 16.60$, $p < .001$, $R^2 = 28.2$, with Openness ($p < .001$) and symptoms from PDSQ ($p = .001$) as significant predictors. Likewise, analysis for DT fluency yields significant model, $F(4, 169) = 4.72$, $p = .001$, $R^2 = 10.1$, but Openness turned out to be the only relevant predictor ($p = .001$). Significant model was also obtained for DT flexibility, $F(4, 169) = 6.20$, $p < .001$, $R^2 = 12.8$, with Openness ($p = .001$), symptoms from PDSQ ($p=.03$) and schizotypy ($p=.001$) being significant predictors, the last of whom, in negative direction. Finally, significant model was obtained for DT originality, $F(4, 169) = 6.23$, $p < .001$, $R^2 = 12.8$, with Openness ($p < .001$) and heredity ($p=.02$) as significant predictors.

Results of this study showed that the creativity-psychopathology link notably varies depending on the type of measures used. Different indicators of psychopathology (or vulnerability to psychopathology) may have predictive role for some creativity-related measures, even when taking into account Openness as a well established predictor of creativity.

Keywords: divergent thinking, creative behavior, Openness to experience, psychopathology

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MACHINE LEARNING IN PREFERENCE FOR VISUAL ART

Jasmina Stevanov
School of Psychological Science, The University of Bristol | *jasmina.stevanov@bristol.ac.uk*
Laszlo Talas
School of Psychological Science, The University of Bristol
Ute Leonards
School of Psychological Science, The University of Bristol

Recent advances in deep neural networks open up a new route of enquiry that allows the extraction of style components from original artworks and the application of those styles to new content (Gatys et al. 2017). The usefulness of this technique is to produce realistic visual stimuli with a great degree of control and allow us to isolate aesthetic primitives in paintings from their content, in an attempt to measure their 'beauty' independently. Stimuli included a set of six 'style' images; two paintings each from three artists: Ernst Ludwig Kirchner, Fernand Léger and Egon Schiele. Extracted styles were transferred onto the six 'target' images of landscapes, still life and group portraits. 20 undergraduate students at the University of Bristol rated each painting against another (2AFC task) while their eye movements were recorded. We chose temporally indexed functions such as the Drift Diffusion Model (DDM) to incorporate accumulated evidence based on preference choices and eye movements. Trials that had the same content were used to extract preferences for different styles; and similarly, trials where the style was fixed were used to extract the differences in liking of different contents. We derived distance matrices of coefficients based on specific style or content interactions and two types of evidence: the choice outcome (i.e. which image was ultimately preferred) and cumulative fixations (i.e. amount of time spent looking at each image). Coefficients based on cumulative fixation evidence are calculated as the ratio between cumulative fixation time for respective style and content. Extracted style and content coefficients were used to predict the

choices in trials where neither the content nor the style was matched. All DDM model predictions were tested only against trials with mixed content-style paintings. We demonstrated that (1) the probability of choosing a painting increased with the smaller difference between style/content coefficients; (2) the reaction time (RT) and number of fixations in a trial increased with the choice difficulty; (3) preference for paintings was more style than content driven; (4) the DDM can be extended to predict preference for novel paintings by parsing the relative value of paintings into their style-content values. In addition, we showed that an extended DDM (Kajbich et al. 2010), which uses the weighted difference between initial values of fixated and unfixated images, does not extend to novel stimulus choices.

Keywords: Art preference, style transfer algorithms, Drift-Diffusion Model

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FACTOR STRUCTURE AND CONVERGENT VALIDITY OF THE CREATIVE ACHIEVEMENT QUESTIONNAIRE (CAQ)

Maja Balta
University of Banja Luka, Bosnia & Herzegovina | *maja.balta@outlook.com*
Siniša Subotić
University of Banja Luka, Bosnia & Herzegovina | *sinisa.subotic@pmf.unibl.org*
Milica Drobac Pavićević
University of Banja Luka, Bosnia & Herzegovina | *milica.drobac@ff.unibl.org*

The Creative Achievement Questionnaire (CAQ) is a measure of creative achievement across 10 domains of creativity. Even though its total score is sometimes used, the CAQ is typically thought of as a measure of either three (Expressive, Performance, Scientific) or two (Arts, Science) correlated creativity dimensions. The goal of this research was to examine the factor and convergent validity of the CAQ's Serbian translation on a general sample from the Republic of Srpska. A total of 300 participants ($M = 24.48$, $SD = 3.07$ years; 66.3% females; 75.3% college educated) competed CAQ, a measure of self-assessed creativity, and a creative personality checklist. Both two-factor (CFI = .969, TLI = .957, RMSEA = .046 90% CI [.017, .070], SRMR = .063) and three-factor (CFI = .969, TLI = .953, RMSEA = .047 [.019, .072], SRMR = .061) CAQ models achieved good fit, with even a single-factor model having arguably acceptable fit values (CFI = .921, TLI = .898, RMSEA = .065 [.046, .084], SRMR = .089). Internal consistencies, however, were generally low in both two- and three-factor models (two-factor: Arts: $\alpha = .76$, $\omega = .63$, Science: $\alpha = .55$, $\omega = .41$; three-factor: Expressive: $\alpha = .58$, $\omega = .49$; Performance: $\alpha = .71$, $\omega = .57$; Scientific: $\alpha = .55$, $\omega = .41$) and only somewhat better for a total scale score ($\alpha = .81$, $\omega = .68$). There were between 6 and 9 substantially correlated (i.e., $\geq .20$) residual pairs, depending upon a model. Factors were interrelated in a lower range (two-factor model: .31; three-factor model: .58, .71, and .55, respectively). Mean CAQ scores were low (e.g., total score: $M = 5.09$, $SD = 5.85$, $Sk = 2.52$, $Ku = 10.16$) and they correlated with creative personality in a lower range (e.g., total score: $r = .18$, $p = .001$) and with self-assessed creativity in a lower to moderate range (e.g., total score: $r = .40$, $p < .001$). Overall, even though the data supports both two- and three-factor structures of the CAQ on a general sample, there is an issue with the dimensions' low reliabilities and pronounced correlations of residuals. The mean scores are also much lower than referent values. Because of this, even though convergent measures, i.e., correlations with self-assessed creativity and creative personality are in the expected range (albeit slightly lower for the creative personality than referent values) and the CAQ is often used for non-specialized

(namely: student) samples, we are reluctant to fully recommend its usage on general samples in our culture, as the CAQ's content might be "too hard" for our participants.

Keyword: creativity, creative achievement, creative personality, questionnaire validation

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THE ROLE OF AFFECTIVE EXPERIENCE OF CONTENT ATTRIBUTES IN AESTHETIC PREFERENCE OF VISUAL ARTWORKS

Marija Zdraveva
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *zdravevamarija@gmail.com*
Dragan Janković
Department of Psychology, Faculty of Philosophy, University of
Belgrade | *djankovi@f.bg.ac.rs*

The same artwork can induce a wide range of different cognitive and affective responses in different beholders. According to VACe model of aesthetic experience the preference of an artwork is determined by affective experience of all meanings activated in the mind of the beholder while observing an artwork (Janković, 2015). The aim of this study was to focus on the role of the content attributes alone (i.e. only characteristics that can be easily observed in the paintings by all viewers, like colors, subject matter, objects and scenes) in the aesthetic preferences of visual artworks. In the first part of the study, aimed at examining the semantic structure of responses to artworks, participants (N = 84) were asked to report what they had in mind while making aesthetic decisions for 20 paintings. From collected verbal responses we selected six most frequent content attributes per artwork. In the main study another group of participants (N = 35) rated their affective experience of 120 verbal responses (six content attributes per painting selected in the first part of the study) on three bipolar 7-point-scales measuring valence, arousal and cognitive evaluation. The results showed strong association between affective experience of content attributes and aesthetic preference of artworks. Namely, valence ($r = 0.88$; $p < .01$) and cognitive evaluation ($r = 0.67$; $p < .01$) showed statistically significant correlation with aesthetic preference, while correlation of arousal with aesthetic preference didn't reach statistical significance. The results also showed that 77% of the variance of aesthetic preference of visual artworks can be explained by affective experience of content attributes alone ($F(3, 15) = 21,3$, $p < .001$). This is significantly lower percentage of explained variance comparing to 96% in the original VACe model (Janković, 2015) which includes also subjective semantic features and personal, idiosyncratic associations. On the other side, these results suggested that the affective experience of small number of perceptual features of the artworks, easily observable by all viewers, is by far the most important predictor of aesthetic preference of visual artworks.

Keywords: aesthetic experience, aesthetic preference, affective experience, VACe model, artworks

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DIMENZIJE EMOCIONALNOG DOŽIVLJAJA I PROCENA BLISKOSTI SADRŽAJA KOD UMETNIČKE POPULACIJE

Miloš Milošević
Fakultet za fizičku kulturu i menadžment u sportu Univerziteta
Singidunum | *milosmilosevic80@yahoo.com*
Irena Ristić
Fakultet dramskih umetnosti Univerzitet umetnosti u
Beogradu | *ir.ristic@gmail.com*

Rezultati dosadašnjih studija navode na zaključke da je interakcija valence, pobuđenosti i kognitivne evaluacije od ključnog značaja za estetsku preferenciju, ali ukazuju na potrebu bližeg ispitivanja prirode ove interakcije. Cilj ovog rada je da se ispita stepen i vrstu povezanosti između dimenzija emocionalnog doživljaja ispitanika (valence i pobuđenosti), kvaliteta emocija (sreće, tuge, straha, ljutnje, iznenađenja i gađenja) i procene bliskosti sadržaja, kao i da se utvrdi specifičnost ovih veza kod umetničke populacije. Eksperiment je urađen na prigodnom uzorku (N = 108) koji je sastavljen od poduzorka umetničke populacije studenata Fakulteta dramskih umetnosti u Beogradu (n1 = 53), i poduzorka opšte populacije studenata beogradske Visoke škole elektrotehnike i računarstva strukovnih studija i Fakulteta za fizičku kulturu i menadžment u sportu Univerziteta Singidunum (n2 = 55). Za vizuelnu stimulaciju korišćena je baza Nencki Affective Picture System iz koje je izabrano 40 fotografija tako da su vrednosti dimenzija i kvaliteta emocionalnog doživljaja sistematski varirane. Nakon izlaganja, od ispitanika je traženo da na osnovu ličnog iskustva procene koliko im je blizak sadržaj fotografija. Za uzorak u celini dobijene su značajne korelacije između procene bliskosti i svih varijabli emocionalnog doživljaja: pobuđenosti (r = -.52; p < .001), valence (r = .52; p < .001), zatim sreće (r = .45; p < .004) tuge (r = -.44; p < .004), straha (r = -.58; p < .001), iznenađenja (r = -.73; p < .001), ljutnje (r = .-34; p < .033), i gađenja (r = -.57; p < .001). Daljom analizom potvrđeno je da postoji značajna razlika između umetničke i opšte studentske populacije odnosno da procene bliskosti kod njih različito variraju u zavisnosti od stepena pobuđenosti (F(2, 37) = 15,17; p < .001). Studenti umetnosti izdvajaju se od ostalih po snažnijoj povezanosti pobuđenosti i bliskosti sadržaja. Dobijeni rezultati nisu u skladu sa ranijim nalazima koji su pokazali da se procena bliskosti odn poznatosti sadržaja može razumeti kao deo kognitivne evaluacije – jedne od latentnih dimenzija subjektivnog doživljaja koja je u pozitivnoj korelaciji sa pobuđenošću. Stoga je evidentna potreba za daljim ispitivanjima složenih odnosa međuzavisnosti unutar strukture subjektivnog doživljaja.

Ključne reči: emocionalni doživljaj, pobuđenost, valenca, bliskost sadržaja, studenti umetnosti

The results of previous studies indicate that the interaction of valence, arousal and cognitive evaluation is crucial for aesthetic preference, but also point out to the need for a closer examination of the nature of this interaction. The aim of this paper is to examine the degree and type of correlations between the dimensions of emotional experience (valence and arousal), the qualities of emotions (happiness, sadness, fear, anger, surprise and disgust), and the assessment of a familiarity of content, as well as to detect the specificity of these correlations in the population of art students. The experiment was performed with convenient sample (N = 108) composed of the two sub-samples: population of art students from the Faculty of Dramatic Arts in Belgrade (n1 = 53), and the sub-sample of general students population from the School of Electrical and Computer Engineering of Applied Studies from Belgrade and the Faculty of Physical Education and Sport Management, Singidunum University (n2 = 55). For

visual stimulation, the Nencki Affective Picture System was used, from which 40 photos were selected so that the values of the dimensions and qualities of the emotional experience were systematically varied. Students were exposed to the photos and were asked to rate the familiarity of their content. For the whole sample significant correlations have been confirmed between the assessment of familiarity and all variables of the emotional experience: arousal ($r = -.52$; $p < .001$), valence ($r = .52$; $p < .001$), happiness ($r = .45$; $p < .004$) sadness ($r = -.44$; $p < .004$), fear ($r = -.58$; $p < .001$), surprise ($r = -.73$; $p < .001$), anger ($r = .-34$; $p < .033$), and disgust ($r = -.57$; $p < .001$). Further analysis confirmed that there are significant differences between the artistic and general student populations, and that the assessment of familiarity varies differently depending on the arousal degree ($F(2, 37) = 15.17$; $p < .001$). Art students are distinguished from others by a stronger correlation between arousal and the familiarity of content. The obtained results are incompatible with earlier findings that the assessment of the familiarity can be understood as part of a cognitive evaluation – one of the latent dimensions of a subjective experience which is in a positive correlation with arousal. Therefore, the need for further research is evident in order to explain the complex relationships of interdependence within the structure of the subjective experience.

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SUBJECTIVE EXPERIENCES OF PAINTINGS FROM DIFFERENT PERIODS OF ART

Nebojša Milićević
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu
psihologiju | *nebojsa.milicevic@filfak.ni.ac.rs*
Ana Jovančević
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu
psihologiju | *jutarnjakafa15@gmail.com*

The aim of this research was to determine if subjective experience of paintings differs for the paintings from different art periods. Instruments used in this research were sixteen semantic differential scales operationalizing subjective experience of the artistic paintings, (Markovic & Radonjic, 2005) and divided into four factors: Regularity, Attractiveness, Arousal and Calmness.

The sample was convenient and it consisted of 82 students with no art education, of both sexes (M = 7; F = 75) average age = 19.58. Stimuli were 14 artistic painting from different periods of art. For every art period one author was chosen as a representative: Leonardo Da Vinci For Renaissance, Rembrandt Van Rijn for Baroque, Edouard Manet for Impressionism, Vincent Van Gogh for Post-impressionism, Pablo Picasso for Cubism, Salvador Dali for Surrealism and Kazimir Malevich for Suprematism. Two paintings were presented from every one of mentioned authors.

The data was analyzed using ANOVA. The results have shown that there are statistically significant differences between paintings from different art periods on all four scales. For Regularity scale ($F(6) = 30.004$; $p = .000$), post hoc testing has showed that paintings from Renaissance, Baroque and Impressionism differ statistically significantly from paintings from all other art periods, and that those differences are in favor of three mentioned art periods. For Attractiveness scale ($F(6) = 15.128$; $p = .000$), post hoc testing has showed that paintings from Impressionism differ from paintings from all other art periods and that those differences are in favor of Impressionism. For Arousal scale ($F(6) = 16.608$; $p = .000$), post hoc testing has showed that paintings from Cubism differ from paintings from all other art periods and that those differences are in favor of Cubism. For the Calmness scale ($F(6) = 23.787$; p = .000),

post hoc testing has showed that paintings from Impressionism differ from paintings from all other art periods, and that those differences are in favor of Impressionism.

From the results we can conclude that paintings from different periods of art differ one from another when it comes to subjective experience of those paintings by the respondents. It can be seen that respondents find paintings from Renaissance, Baroque and Impressionism to be most Regular ones, paintings from Impressionism to be the most Attractive and Calm ones, and paintings from Cubism were given the highest scores on Arousal scale.

Keywords: visual art, Artistic paintings, Periods of art, Subjective experiences of paintings

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DISTRIBUTIONS OF SIZES FOR ATTRACTIVE AND UNATTRACTIVE BODY PARTS

Slobodan Marković
Laboratorija za eksperimentalnu psihologiju | *smarkovi@f.bg.ac.rs*
Tara Bulut
Laboratorija za eksperimentalnu psihologiju | *bulut.tara@gmail.com*

Previous studies indicated that attractiveness of the human body is normally distributed: body parts with approximately average sizes are the most attractive; their reduction or enlargement decreases the attractiveness. In the present study we investigated whether the distribution of unattractive body parts sizes is inverted normal (U-shaped). A sample of 105 participants consisting of both genders (57 females) were asked to create the most attractive and the most unattractive male and female figures using a program for computer animation DAZ 3D Studio. Participants performed this task by adjusting the size of six body parts: shoulders, chests/breasts, waist, hips, buttocks and legs. The results were generally in line with our predictions. Normal distributions for all attractive body parts were obtained. T-tests have shown that the most attractive body parts are the so-called supernormal, i.e. more masculine or feminine compared to the default (average) sizes. On the other hand, for the most unattractive female body parts U-shaped distributions were obtained. Correlational analyses indicated two extreme variants of unattractive female bodies. The first variant included the extremely feminine figures, i.e. bodies with narrow shoulders, large breasts, wide hips, big buttocks and short legs, whereas the second variant encompassed the extremely low feminine figures, i.e. bodies with broad shoulders, small breasts, narrow hips and relatively long legs. Distributions for the most unattractive male body parts were skewed in the direction of lower masculinity: narrow shoulders and chests, wide waist and hips and short legs. These findings suggest that the distributions of unattractiveness are sexually "dimorphic". For female bodies, both extremely high and extremely low femininity are equally unattractive, whereas only extremely low masculine (but not high masculine) male bodies are experienced as unattractive.

Keywords: attractiveness, unattractiveness, male, female, body parts, masculinity, femininity

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RELATION BETWEEN PERSONALITY TRAITS AND PREFERENCE FOR WARM AND COLD COLORS

Stevan Nikolić
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu psihologiju | *stevanbet365@gmail.com*
Ivana Burić
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu psihologiju | *ivana.buric95@hotmail.com*
Aleksandar Milošević
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu psihologiju
Ana Jovančević
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu psihologiju | *jutarnjakafa15@gmail.com*
Nebojša Milićević
Filozofski fakultet u Nišu, Departman za psihologiju, Laboratorija za eksperimentalnu psihologiju | *nebojsa.milicevic@filfak.ni.ac.rs*

The aim of this research was to examine if there is a statistically significant correlation between the preference of warm and cold colors and personality traits from Big Five model, as well as to examine if certain personality traits could be predicted by the color preference.

Instruments used in this research were: Big Five Inventory (BFI: Goldberg, 1993) and a Set of drawings used for determining color preference (Krupić, 2014). The sample included 193 respondents, age range from 19 to 30 (M = 22.28), of both sexes (M = 56; F = 137).

The data was analyzed by using correlation analysis and regression analysis, where predictors were color preferences and criterion variables were personality traits.

The results showed a statistically significant correlation between the preference for warm colors and personality traits: extraversion ($r = .424$, $p = .000$), agreeableness ($r = .681$, $p = .000$), conscientiousness ($r = .337$, $p = .000$), and openness ($r = .305$, $p = .000$). Preference for cold colors correlated statistically significantly with agreeableness ($r = .211$ $p = .003$).

When it comes to regression analysis, models with criterion variables extraversion, agreeableness, conscientiousness and openness were statistically significant ($p < .001$), while model with neuroticism as criterion variables wasn't statistically significant ($p > .05$). The result show that by preference for warm colors following personality traits can be predicted: extraversion ($\beta = .434$, $p = .000$), agreeableness ($\beta = .666$, $p = .000$), conscientiousness ($\beta = .326$, p=.000) and openness ($\beta = .294$, p = .000). Preferences for cold colors wasn't statistically significant predictor of any of personality traits.

The results show that preference for warm colors is a statistically significant predictor of some of personality traits. Furthermore, the research shows that based on the color preference of an individual, one can presuppose their personality traits. This data is very significant for practical purposes, it shows us that, in the future, we could maybe examine personality traits of individuals in a quicker way, and without risk of socially acceptable answers by respondents to personality inventories. Of course, this is only the beginning of the research in this direction. Further studies need to be conducted in order to gain more precise data on this topic.

Keywords: Big Five personality traits, Color preference, Preference for cold colors, Preference for warm colors

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COMMON ACTION & PERCEPTION REPRESENTATION IN VISUAL ARTISTS

Sunčica Zdravković
Odsek za psihologiju Filozofski fakultet Univerzitet u Novom Sadu,
Laboratorija za eksperimentalnu psihologiju Filozofski fakultet, Unverzitet u
Beogradu | *suncica.zdravkovic@ff.uns.ac.rs*
Miloš Vujanović
Departman likovnih umetnosti, Akademija umetnosti, Univerzitet u
Novom Sadu | *vujanovicmilos@gmail.com*

Recently a common representation between action and perception was questioned in a series of compelling experiments, resulting in an articulated theoretical proposal (Goodale, & Westwood, 2004). In return this produced a number of experimental counter-responses, most notably in the domain of coupling of motor action and perception (Dayan et al, 2007). Next, discovery of mirror neurons offered a neural mechanism of reformatting sensory information into motor code (Fabbri-Destro, & Rizzolatti, 2008). This resonated with the development in cognitive psychology, insisting that the cognition only makes sense when it is situated and embodied, to be used for action (Barsalou, 2008). For us, findings that common representation can be shown even for 2D images such as illusion, is especially interesting (Franz et al, 2000). Our research combines several of the common representation aspects, in 2D, demonstrating for the first time configural (rather than strictly motoric) aspects, using biologically relevant stimuli: ones owns face. Young visual artists (first year students, during the initial lecture, 10 male, 12 female) produced black & white, semi-profile, portraits of the models of their own gender and age. These portraits as well as photographs of the artists were used as stimuli for the experiment. Our hypothesis was that the young artists would introduce some of their own face characteristics into the portraits, creating a combination of the two faces, their own and the model's. Visual inspection already confirmed these intuitions that were further tested in the 2AFC experimental procedure. Participants (first year Psychology students, 20 for male and 23 for female portraits) were shown drawings accompanied with the photograph of an artist and a random person (equated in age and gender). Their task was to determine which of the two people on the photograph is a relation of the person depicted in the portrait. Results confirmed that more often they have chosen the artist as a relative (binomial test indicated that the proportion of 0.94 for male portraits and 0.81 for female). In general, participants can successfully determine facial ("family") resemblance in morphs, independent of their format, photographs, drawings, caricatures (Srismith et al, 2016) but the proportions we obtained were even higher.

Keywords: action perception common representation

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METACOGNITIVE STRATEGIES IN CREATING CONTEMPORARY ART MUSIC

Blanka Bogunović
Faculty of Music, University of Arts in Belgrade | *bbogunovic@rcub.bg.ac.rs*

This research is a part of the wider project *Cognition and emotion in creating contemporary art music*. Cognitive strategies, engaged in a process of creating musical piece, were interpreted in a frame of a well-known model of creative process (Wallace), redefined for processes in music making (Lehmann, Sloboda & Woody, 2012). One of the aims of the research was to approve weather this model is applicable for understanding the creative processes in composing

music. We intended to identify metacognitive strategies used in a process of composing music, from the very first idea about the piece to the moment it is completed. Research methodology relies on combined, qualitative and quantitative method and descriptive statistical analysis. Sample is consisted of 25 composers, who were participants of the 24th International Review of Composers, 12 females and 13 males, aged 25 – 65. In administrated questionnaire 4 items referred to metacognitive strategies. The task of composers was to create a musical piece with a general theme *Music box,* duration 5 - 12 minutes, for known ensembles (3 - 15 musicians). Results showed that the source of the first idea that composer got was primarily from outer sources – film, poem, instruments, other music, talks with performers (60%) and then intrinsic – idea, concept, metaphor, phantasy (12%). It is followed by preparation/brain storming phase of the creative process were 8 strategies could have been differentiated. The phase of incubation is referred to as creative jam or 'temporarily frozen' process and the duration of this phase is varying from few days to 10 years (!). Strategies to prevail over creative jams have 48% of composers and these were: imagination and reflection; analysis; persistent searching through trial and error; giving oneself up to a time process and arousal provoked by deadline. There were indications that the creative jam is solved by interconnection with previous knowledge or ideas. The last phase of elaboration is followed by production/composing/application of solutions, which refers to a technical part of music making (making decisions about arrangements, orchestration, involvement of different instruments). Concerning data, we may conclude that the model of creative process adapted by Lehmann et al., is worthy for explanation of music making. Also, that process relies on composing procedures, metacognitive strategies and patterns, either developed or learned, but now established as a kind of composing style with idiosyncratic character. Each composer directs this self-regulative process which includes deliberate elaboration of ideas, structuring music materials and problem-solving strategies, and only partially is a result of fantasy, imagination and reflection. These findings challenge the myth of a 'sudden divine touch' as a source of creation.

Keywords: music, composing, creative process, metacognition, contemporary art music

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EMOTIONAL EVALUATION OF DYNAMIC VIOLENT AND NON-VIOLENT MATERIAL

Mia Medojević
Faculty of Philosophy, University of Belgrade | *mmedojevic4444@gmail.com*
Tara Bulut
Laboratory for Experimental Psychology & Laboratory for Research of Individual Differences, Faculty of Philosophy, University of Belgrade | *bulut.tara@gmail.com*

The data on emotional evaluation of video-based stimuli in current empirical research have been very limited thus far. Dynamic visual material, if carefully selected, can be more ecologically valid in evoking emotional responses compared to static images. The goal of the present study was to create a unique set of video stimuli for future use in studying emotional experience. The LIRIS-ACCEDE database comprises video excerpts from movies shared under Creative Commons licenses, intended for affective video content analysis. We narrowed down its sub-database, originally consisting of 1200 color video clips, by assessing the content and sorting stimuli according to subjectively rated level of violence and familiarity (assessed by the 10 research group members). The final stimuli set consisted of 30 excerpts (11 rated violent and 19 least violent), with each excerpt lasting around 10 seconds. The ratings were

done via an online platform, with videos shown in quasi-randomized order. The participant sample consisted of 54 undergraduate students attending University of Belgrade (40 females; M_{age} = 21.43, SD = 3.84). After seeing each scene excerpt, participants rated their own emotional experience on 5-point Likert scales on following emotions: happiness, fear, anger, disgust, sadness; as well as on valence (pleasant-unpleasant), arousal (calming-arousing), familiarity and the degree of violence. In order to investigate the grouping of stimuli based on these characteristics, we conducted two separate cluster analyses. The results of the first cluster analysis (done on basic emotion ratings) resulted in 3 distinct clusters of stimuli: the "Happy cluster", containing experts with highest happiness ratings and low ratings on other emotions, the "Neutral cluster", comprising low-rated stimuli on all basic emotions, and the "Negativity cluster", consisting of stimuli low on happiness and high on other (negative) emotions. The second cluster analysis (based on other characteristics) also indicated 3 clusters: the "Pleasant cluster" (with highest pleasure and lowest violence ratings), the "Neutral cluster" (with relatively similar, medium ratings for all features), and the "Violent cluster" (with highest violence and arousal ratings). The results suggest stimuli sets with different emotional profile, therefore making this database potentially useful as material in studying emotional experience, especially in the context of responding to violent and non-violent stimuli.

Keywords: emotions, violent stimuli, cluster analysis

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AESTHETIC PREFERENCE OF PHOTOGRAPHS: THE ROLE OF AFFECTIVE EXPERIENCE

Dragan Janković
Department of Psychology, Faculty of Philosophy, University of Belgrade
Maja Mađarev
Department of Psychology, Faculty of Philosophy, University of Belgrade
Ivana Živković
Department of Psychology, Faculty of Philosophy, University of Belgrade

Our previous studies on aesthetic experience of abstract and representational paintings suggested that artworks induce wide range of different cognitive and affective responses in beholders, and that preference of an artwork is determined by affective experience of all meanings activated in the mind of the beholder while observing an artwork (Janković, 2015). In the present study we investigated the role of affective experience in aesthetic preference of photographs depicting scenes from everyday life. In the first phase of the study participants (N=39) rated their aesthetic experience of fourteen photographs on the bipolar beautiful-ugly scale and were asked to report what they had in mind while making aesthetic evaluation of each photography. In the second phase of the study the same group of participants rated their affective experience (valence, arousal and cognitive evaluation) of verbal responses collected in the first part of the study. The results of multiple regression analysis showed that linear combination of valence, arousal and cognitive evaluation of verbal responses explained 98,3 percentage of variance in aesthetic preference of photographs (F (3, 10) = 245.3, p <.001). Valence (p < .001) and arousal (p < .01) showed statistically significant contribution in explained variance of aesthetic preference in the model, while cognitive evaluation didn't reach statistical significance, but was close to the margin (p =.058). The results of this study suggest that the more we experience different meanings of visual scenes depicted in photography as pleasant, interesting and clear, we will have a stronger aesthetic experience of that photography. Findings of this study will be discussed in the realm of VACe model of aesthetic experience, suggesting that the model can be successfully generalized to include not only the artworks (Janković, 2017) but also the domain of visual objects and scenes in general.

Keywords: photography, VACe model, aesthetic preference, affective experience

PROTOKOL POSTER

TESTING ARGUMENTATIVE THEORY OF REASONING: IS GROUP SMARTER
THAN ITS SMARTEST MEMBER?

Ivana Janković
Institut za filozofiju, Filozofski fakultet, Univerzitet u Beogradu
Kaja Damnjanović
Laboratorija za eksperimentalnu psihologiju, Filozofski fakultet, Univerzitet u Beogradu

Recent developments in deliberative and epistemic theories of democracy state the assumption that democracy is a smart decision making process. This prescriptive model postulates that people should deliberate about political decisions because deliberation increases probability that the better argument will win. Describing and predicting the dynamics between the decision-making process and the cognitive benefits of deliberative decision-making are tackled in some models, albeit not narrowly. According to the cognitive model of Argumentative theory of reasoning (ATR), higher cognitive processes have evolutionary function which is a social one, rather than individual, or, more precisely, it is a polemic function. The reason for futile individual reasoning is the existence of numerous cognitive errors - which individuals exhibit in the wide range of tasks. Group decision making then, serves to compensate limitations of individual higher cognitive processes. The aim of this research was to empirically test the assumption of the model that groups have better performance even than its best member. This was done by merging heuristics and biases approach with the ATR. Two studies were conducted. In the first one, participants' individual (N = 153) belief bias was measured and they were assigned into discussion groups. The design was counterbalanced. The same design was employed in the second study (N = 144), except that the focal point of this study was not logical reasoning, rather judgment and decision making, by outcome bias, hindsight bias, and anchoring effect. Here we present partial results, which are the findings of the qualitative analysis of the type of the group discussions and regularities observed. Two clusters of group discussions were observed, so called "cascade" and "deliberative", and the second type yielded more correct answers. Finding is in accordance with the notions of the ATR, albeit it is fairly insufficient to make stable inferences.

Keywords: argumentative theory of reasoning, cognitive biases, decision making, deliberation, democracy

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A CONTRIBUTION TO RESEARCH OF EMOTIONAL INTELLIGENCE, ALTRUISM
AND GENDER RELATIONS

Lana Vujaković
Filozofski fakultet, Univerzitet u Banjoj Luci | *lanav1357@hotmail.com*
Milena Pašić
Filozofski fakultet, Univerzitet u Banjoj Luci
Đorđe Čekrlija
Filozofski fakultet, Univerzitet u Banjoj Luci
Dijana Đurić
ZFMR „Dr Miroslav Zotović"

The paper examines the relationship between emotional intelligence and altruism. The primary goal is to verify the hypothesis that altruism, as an aspect of morality, is primarily based on the ability to control emotions, rather than abilities of their expression or perception. An additional aim of the research is to analyze emotional intelligence and altruism in relation to gender.
The sample included 325 students (129 W), aged between 20 and 24. In assessing emotional intelligence, UEK–45 Emotional Competency Questionnaire, containing 3 scales

(Identification and understanding of emotions, Expression and naming of emotions, Management and regulation of emotions) was used. Altruism was measured with the ALPOS scale. Reliability coefficients of all scales show satisfactory values. In data processing t-test, correlation analysis, multiple regression and mediation analysis were used.

Scores on Expressing emotions, Regulation of emotions and Altruism scales show significant vertical deviation from normal distribution. Only altruism is significantly related to gender. T-test implies that female respondents achieve significantly higher scores on altruism ($t(223) = 5.09$, $p < .01$).

Altruism significantly correlates with all scales of emotional intelligence. The lowest correlation is with the Expression of emotions ($r = .15$, $p < .05$) and the highest one with the Regulation of emotions ($r = .36$, $p < .01$).

Multiple regression analysis ($R = .475$, $F(4, 220) = 16.009$, $p < .01$) points out gender ($\beta = .26$, $p < .01$), Regulation of emotion ($\beta = .35$, $p < .01$), and Identification of emotions ($\beta = .16$, $p < .05$) as significant predictors of altruism.

Through mediation analysis a significant direct effect of the gender on altruism ($\beta = 6.19$; $SE = 1.44$; $t = 4.28$; $p < .01$) and the total effect of gender and scales of emotional intelligence ($\beta = 7.19$; $SE = 1.53$; $t = 4.69$; $p < .01$) were determined. Regression coefficients imply that gender is not linked to emotional intelligence. Also, the Regulation of emotions ($\beta = .51$; $p < .01$) and the Perception and understanding of emotions ($\beta = .22$, $p < .05$) are significant predictors of altruism.

Since results imply that altruism is not associated with the Expression and naming of emotions, is weakly connected with the Perception and understanding of emotions and obtains the highest correlation with the ability to regulate emotions, our main hypothesis is confirmed. Findings also imply that there are gender differences in altruism, but not in emotional intelligence.

Keywords: emotional intelligence, altruism, gender

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POLNE RAZLIKE U RELACIJAMA IZMEĐU SEBIČNOSTI I HEXACO MODELA LIČNOSTI

Marko Milošević
Odsek za psihologiju, Filozofski fakultet, Univerzitet u
Novom Sadu | *marrkomilosevic@gmail.com*
Nataša Katić
Odsek za psihologiju, Filozofski fakultet, Univerzitet u
Novom Sadu | *natashakatic15@gmail.com*
Bojana Dinić
Odsek za psihologiju, Filozofski fakultet, Univerzitet u
Novom Sadu | bojana.dinic@ff.uns.ac.rs

Sebičnost predstavlja fokus na sopstvenu dobrobit, bez obzira na posledice po druge. Sebičnost je multidimenzionalni konstrukt, pri čemu se mogu razlikovati adaptivna (fokus na sopstvenoj dobrobiti, ali i dobrobiti bliskih osoba, poput članova porodice), egocentrična (fokus na sopstevnoj dobrobiti, bez obzira na dobrobit drugih) i patološka sebičnost (obezbeđivanje sopstvene koristi na štetu drugih). Cilj ovog rada je bio utvrđivanje povezanosti dimenzija sebičnosti i osobina ličnosti iz HEXACO modela i ispitivanje polnih razlika u ovim relacijama. Na uzorku od 404 ispitanika (200 muških) iz opšte populacije primenjeni su HEXACO–60 i Upitnik sebičnosti (Selfishness Questionnaire). Rezultati su pokazali su da se na osnovu HEXACO modela može objasniti 37 – 43% varijanse dimenzija sebičnosti kod muškaraca, odn. 30 – 36% kod žena. Dosledni negativni korelat svih dimenzija je Poštenje-skromnost, a

potom i Prijatnost. Pritom, doprinos Poštenja-skromnosti je upadljivo veći u slučaju muškog pola (-.44, -.51 i -.54, redom za egocentričnu, adaptivnu i patološku sebičnost) u odnosu na ženski pol (-.39, -.37 -.42), dok je obrnut intenzitet veze u slučaju doprinosa Prijatnosti (-.15, -.14 i -.14 u slučaju muškog pola, odn. -.24, -.19 i -.22 u slučaju ženskog pola). Pored ovih dimenzija, Ekstraverzija ostvaruje značajan pozitivni doprinos u predikciji adaptivne sebičnosti kod oba pola, dok Savesnost ostvaruje značajan negativni doprinos u predikciji patološke sebičnosti, ali samo kod muškaraca. Otvorenost ostvaruje negativni doprinos u predikciji egocentrične i adaptivne sebičnosti kod mušakaraca, odn. egocentrične sebičnosti kod žena. Rezultati pokazuju da se sebičnost kod muškaraca više povezuje s moralnim domenom, poput pohlepe, laganja, sklonosti ka prevarama, ali i superirornosti, dok se patološka sebičnost povezuje i s nedostatkom bihejvioralne kontrole, osećaja odgovornosti i istrajnosti. Kod žena, pored moralnog domena, sebičnost se više povezuje i s karakteristikama vezanim za interpersonalne relacije, npr. sa nedostatkom praštanja, nežnosti i strpljenja u komunikaciji. Egocentrična sebičnost kod oba pola povezuje se sa smanjenom tendencijom ka istraživanju sveta, a adaptivna sebičnost sa socijabilnošću i adaptivnim ponašanjima vezanim za brigu prema bližnjima. Rezultati podržavaju izdvajanje tri aspekta sebičnosti koji imaju različite korelate u domenu HEXACO modela ličnosti.

Ključne reči: HEXACO, sebičnost, Selfishness Questionnaire – SQ.

GENDER DIFFERENCES IN RELATIONS BETWEEN SELFISHNESS AND THE HEXACO PERSONALITY MODEL

Selfishness represents focus on one's own welfare, regardless of the well-being of others. Selfishness is a multidimensional construct, that may be manifested as adaptive (focus on own well-being but also on the loved ones, e.g. family members), egocentric (single-minded focus on the self, regardless others' needs) or pathological selfishness (single-minded focus on the self, but in which others may be harmed for self-advancement). The aim of this study was to investigate relations between aspects of selfishness and the HEXACO traits, as well as gender differences in these relations. On 404 participants (200 males) from the general population, HEXACO–60 and Selfishness Questionnaire were applied. Results showed that HEXACO traits explained 37-43% variance of the selfishness dimensions for males and 30-36% for females. The results indicated that Honesty-Humility is consistent negative predictor of all selfishness dimensions, followed by the Agreeableness. Thus, Honesty-Humility had the higher negative contribution in males (-.44, -.51, and -.54, for egocentric, adaptive, and pathological selfishness, respectively), compared to females (-.39, -.37, and -.42). Contribution of Agreeableness is somewhat higher for females (-.24, -.19, and -.22), compared to males (-.15, -.14, and -.14). Besides these dimensions, Extraversion had significant positive contribution to the prediction of adaptive selfishness in both sexes, while Conscientiousness had significant negative contribution to predicting pathological selfishness, but only in males. Openness negatively predicted egocentric and adaptive selfishness in males, but only egocentric selfishness in females.
Results showed that selfishness in males is more associated with moral domain which includes greed, dishonesty, deceiving tendencies, and superiority. Moreover, pathological selfishness in males is also associated with lack of behavioral control, irresponsibility, and low thoroughness. In females, besides moral domain, selfishness was more linked to characteristics related to interpersonal relationships, such as lack of forgiveness, gentleness, and patience in

communication. Egocentric selfishness, in both sexes, is linked to reduced tendency towards exploring the world, while adaptive selfishness is linked to sociability and adaptive forms of behavior which include caring for loved ones. Results support the existence of three forms of selfishness which have different relations with HEXACO personality traits.

Keywords: HEXACO, selfishness, Selfishness Questionnaire – SQ

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RELATION OF TIME PERSPECTIVES WITH NOSTALGIA AND HOPE

Miljan Jović
Filozofski fakultet, Univerzitet u Nišu | *jmiljan.me@gmail.com*
Miodrag Milenović
Filozofski fakultet, Univerzitet u Nišu

The aim of the research was to examine the relationship between time perspectives, nostalgia and the concept of hope. Time perspectives represent the relation of individual towards time, more precisely, it represents the orientation of individual towards past, present or towards future. The concept of hope is, in this research, seen as an emotion. Hope is a feeling individual experiences when he or she believes that things, beyond his or her control, will develop in a way that leads to the fulfillment of that individuals wish. Nostalgia can be defined as a sense of longing for the past.

The research involved 104 respondents (M = 15, F = 89), aged 19 to 23 (M = 20.17). The instruments used were: Zimbardo's time-perspective inventory (Zimbardo & Boyd, 1999), Batcho Nostalgia Inventory (Batcho, 1995) and Scale of hope (Snyder & sar., 1991).

Data were analyzed using linear regression analysis. In one model of linear regression, time perspectives were predictors, while nostalgia was criterion variable, and in the other model time perspectives were predictors of the sense of hope.

The time perspectives account for 20.6% of the total variance of the nostalgia and 22.4% of the total variance of the hope. When it comes to the nostalgia, statistically significant predictors were: positive past (β = .296; p = .008) and negative past (β = .273; p = .009). When it comes to the hope, statistically significant predictors were: fatalistic present (β = -.344; p = .001) and future (β = .276; p = .006).

Results have shown that time perspectives are statistically significant predictors of both emotion – nostalgia which is referred to the past and hope which is referred to the future. Based on the results given here, it can be concluded that time perspectives can be useful for determining the susceptibility for nostalgia and capacity for hope.

Keywords: nostalgia, hope, time perspectives

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OBJAŠNJENJE STRATEGIJA PREVLADAVANJA STRESA NA OSNOVU SKRIPTNE ZABRANE „NEMOJ DA MISLIŠ" I AFEKTIVNE VEZANOSTI

Tina Janjić

Filozofski fakultet u Nišu, departman za psihologiju | *tina.janjic95@gmail.com*

Đorđi Đeorgiev

Departman za psihologiju, Filozofski fakultet, Univerzitet u Nišu

Cilj istraživanja jeste ispitati da li postoji povezanost strategija prevladavanja stresa sa skriptnom zabranom Nemoj da misliš (NDM) i dimenzijama afektivne vezanosti; kao i da li na osnovu navedenih konstrukata možemo predvideti skor na strategijama suočavanja sa stresom. Uzorak je prigodan, čini ga 342 ispitanika (m = 108; ž = 234). Najveći deo uzorka čine studenti (71.3%), potom zaposlena (19.9%) i na kraju nezaposlena lica (8.8%), starosti od 18 do 49 godina (AS = 25.36; SD = 6.79). U istraživanju su korišćeni instrumenti: Brief COPE (Carver, 1997), Revidirana skala za merenje afektivne vezanosti odraslih (Collins, 1996) i Subskala Nemoj da misliš iz Skale procene skriptnih zabrana (Gavrilov-Jerković i sar., 2010). Rezultati pokazuju da je Suočavanje usmereno na problem povezano sa NDM (r = -.15; $p < .01$) i dimenzijama Bliskost (r = .26; $p < .01$) i Anksioznost (r = -.20; $p < .01$); Suočavanje izbegavanjem povezano je sa NDM (r = .35; $p < .01$) i dimenzijama Bliskost (r = -.26; $p < .01$), Zavisnost (r = -.25; $p < .01$) i Anksioznost (r = .42; $p < .01$); Suočavanje traženjem socijalne podrške u vezi je sa NDM (r = -.11; $p < .05$) i dimenzijama Bliskost (r = .25; $p < .01$) i Zavisnost (r = .15; $p < .01$). Sprovedene su tri hijerarhijske regresione analize sa četiri seta prediktora: NDM (1), Bliskost (2), Zavisnost (3) i Anksioznost (4). U konačnom modelu, Suočavanje usmereno na problem (R^2 = .081; $F(4, 331)$ = 7.29; $p = .000$) možemo predvideti na osnovu dimenzija Bliskost (β = .22; $p < .00$) i Anksioznost (β = -.16; $p < .05$). Kao prediktori Suočavanja izbegavanjem u konačnom modelu (R^2 = .215; $F(4,331)$ = 22.73; $p = .000$] izdvajaju se NDM (β = .17; $p < .01$) i Anksioznost (β = .29; $p < .00$). Suočavanje traženjem socijalne podrške (R^2 = .078; $F(4, 331)$ = 7.01; $p = .000$) u konačnom modelu predviđa samo dimenzija Bliskost (β=.23; $p<.00$). Prikazani rezultati su u skladu sa teorijskim postavkama rada. Afektivna vezanost, preko unutrašnjih radnih modela sebe i značajnih drugih, ukoliko su pozitivni, može da formira takve resurse da kasnije osoba lakše prevladava stresne situacije. Sa druge strane, ukoliko su pomenuti modeli negativni, kada je suočena sa stresom, osoba nema kapacitete i koristi manje efikasne načine prevladavanja.

Ključne reči: strategije prevladavanja stresa, skriptne zabrane, Nemoj da misliš, afektivna vezanost

UNDERSTANDING OF COPING STRATEGIES IN THE CONTEXT OF INJUNCTION "DON'T THINK" AND ATTACHMENT

The aim of this research is to examine the relation between the Attachment and injunction Don't think (DNT) with coping strategies. The sample consisted of 342 respondents (m = 108; f = 234), aged 18-49 (M = 25.36; SD = .79). We used Brief COPE, Scale of injunction, Revised Adult Attachment Scale. The results showed that problem focused coping is in significant correlation with injunction DNT and the Attachment dimension of Close and Anxiety; Avoidant strategy correlate with all dimension of Attachment and injunction; Social seeking coping strategy is correlated with the Close and Dependent and the DNT. Three hierarchical regressions are executed with four sets of predictors. The final model is making contribution on all three coping strategies. Attachment, if such are positive, in time person will easier overcome stressful situations. On the other hand, such models are classified as negative, person when confronted with stress will show less capacity for resolving stressful situations.

Keywords: coping strategies, injunctions, Don't think, attachment

FOND „KATARINA MARIĆ“

PREDIKTIVNA MOĆ LATENTNIH PROFILA I DIMENZIJA LIČNOSTI

Marija Bojanić
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Novom Sadu
Mentor: **dr Petar Čolović**

Jedan od ključnih argumenata kojima se osporava vrednost tipološkog pristupa (poznatog i kao „pristup usmeren na osobu") u psihologiji ličnosti jeste relativno slaba, ili teško proverljiva, prediktivna moć tipova ličnosti. Tokom protekle dve decenije, istraživači su poredili prediktivnu moć tipova i dimenzija ličnosti (Asendorpf, 2003; Asendorpf & Denissen, 2006; Costa, McCrae, & Ozer, 2002), dok su u drugim studijama ispitivane veze tipova sa širokim rasponom spoljašnjih kriterijuma (Asendorpf, Borkenau, Ostendorf, & Van Aken, 2001; Ekehammar & Akrami, 2003; Merz & Roesch, 2011; Roth & von Collani, 2007). Rezultati ukazuju na izraženiju prediktivnu moć dimenzija u odnosu na tipove ličnosti (Asendorpf, 2003; Costa et al., 2002). Međutim, prema nekim autorima (npr. Asendorpf & Denissen, 2006; Laursen & Hoff, 2006), kombinovanje tipološkog pristupa sa dimenzionalnim pristupom vodi kompletnijem razumevanju procesa koji se nalaze u osnovi ljudskog ponašanja. Takođe, novije analitičke procedure za identifikaciju klasa ispitanika sa sličnim profilima osobina ličnosti sugerišu da je neophodno preispitati rezultate dobijene primenom „klasičnih" tehnika. Stoga će u ovom istraživanju, u cilju identifikacije distinktnih klasa ispitanika, biti primenjena analiza latentnih profila (LPA), kao jedna od naprednijih tehnika koje se primenjuju u nacrtima grupisanja. Naredni korak je provera prediktivne moći klasa, odnosno inkrementale validnosti tipova ličnosti, u poređenju sa dimenzijama, primenom generalnih i generalizovanih linearnih modela, pri čemu će kriterijske varijable biti mere različitih psiholoških svojstava (Ekehammar & Akrami, 2003; Merz & Roesch, 2011), a prediktori dimenzije i latentni profili („tipovi") ličnosti. U istraživanju će biti korišćeni otvoreno dostupni podaci prikupljeni SAPA („Synthetic Aperture Personality Assesment") tehnologijom u periodu od 2015. do 2017. godine. Uzorkom je obuhvaćeno 48350 ispitanika, pri čemu podaci obuhvataju skorove na upitnicima kojima je operacionalizovano više aktuelnih modela ličnosti (npr. model Velkih pet, Petofaktorski model, Hexaco model, Telegenov model).

Ključne reči: prediktivna moć, latentni profili, dimenzije ličnosti, psihološka svojstva

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PROVODLJIVOST KOŽE KAO KORELAT NOSTALGIJE U KONTEKSTU VREMENSKIH PERSPEKTIVA

Miljan Jović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Nišu
Mentor: **dr Miodrag Milenović**

Cilj ovog istraživanja bio je ispitivanje provodljivosti kože kao fiziološkog korelata lične i istorijske nostalgije i utvrđivanje razlika između lične i istorijske nostalgije u odnosu na četiri dimenzije emocija (intenzitet, hedonistički ton, stepen složenosti i nivo tenzije). Provodljivost kože je osetljiv psihofiziološki indeks promena koje su povezane sa emotivnim i kognitivnim stanjima, a do kojih dolazi usled aktivnosti simpatičkog nervnog sistema. Lična nostalgija se može definisati kao čežnja za idealizovanom prošlošću, dok se istorijska nostalgija odnosi na čežnju za prošlošću koju pojedinac nije lično doživeo i zasniva se na teoriji o kolektivnom pamćenju.

Uzorak je bio prigodan i sastoji se od 104 studenata psihologije (M = 15, F = 89; M = 20.17, SD = .80). Provodljivost kože je izražena u mikrosimensima – mhos (veći broj mikrosimensa predstavlja veću provodljivost kože). Provodljivost kože ispitanika merena je korišćenjem osmokanalnog poligrafa ProComp Infiniti verzija 4.0 (uz prateći softver BioGraph Infiniti). Kontrolna varijabla bile su vremenske perspektive za čiju operacionalizaciju je upotrebljen Zimbardov upitnik vremenskih perspektiva (ZTPI). Svaka dimenzija emocija operacionalizovana je kroz jedno pitanje skale semantičkog diferencijala. Za izazivanje lične nostalgije korišćeni su sledeći stimulusi: pesma iz serije „Srećni ljudi“, uvodna špica za „Dnevnik 2“, pesma iz serije „Rubi“, dečija pesma „Kad si srećan“ i pesma iz crtanog filma „Meda u velikoj plavoj kući“. Za izazivanje istorijske nostalgije korišćeni su sledeći stimulusi: audio snimak „Zvuci zemlje“, audio snimak 135. psalma, pesma „Sini jarko Sunce sa Kosova“, pesma „Tamo daleko“ i pesma „Hej Sloveni“. Kao kontrolni stimulus korišćen je snimak vodopada praćen zvukovima prirode. Dužina svakog stimulusa bila je dva minuta.

Rezultati su pokazali da dolazi do statistički značajne promene u provodljivosti kože u prisustvu stimulusa koji za cilj imaju izazivanje istorijske nostalgije u poređenju sa neutralnim stimulusom ($p < .001$). Rezultati su takođe pokazali da postoji statistički značajna promena u provodljivosti kože u prisustvu stimulusa koji za cilj imaju izazivanje lične nostalgije u poređenju sa neutralnim stimulusom ($p < 0,001$). Nije bilo statistički značajnih razlika u provodljivosti kože između ispitanika sa različitom dominantnom vremenskom perspektivom. Rezultati su pokazali da postoje statistički značajne razlike u korist lične nostalgije u izraženosti tri dimenzije emocija: intenzitet ($t(95) = 11.91$; $p < .001$), hedonistički ton ($t(95) = 9.14$; $p < .001$) i nivo tenzije ($t(95) = .04$; $p < .05$). Dok na dimenziji stepen složenosti postoji statistički značajna razlika u izraženosti u korist istorijske nostalgije ($t(95) = -2.52$; $p = .05$). Postoji statistički značajna razlika u korist lične nostalgije i u izazivanju autobiografskih sećanja ($t(102) = 15.85$; $p < .001$).

Ključne reči: nostalgija, lična i istorijska nostalgija, provodljivost kože, vremenske perspektive

PREDIKTIVNA MOĆ SSD MODELA I NEIZVESNOST ZNAČENJA POLISEMIČNIH REČI

Ksenija Mišić
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Mentorka: **dr Dušica Filipović Đurđević**

Veliki broj empirijskih nalaza pokazao je da se reči sa više povezanih značenja (poliseme) obrađuju brže od jednoznačnih reči, dok se reči sa više nepovezanih značenja (homonimi) obrađuju sporije. Pored ovoga, javlja se veliki broj nalaza koji pokazuju nedoslednosti, tj. rezultati se menjaju u zavisnosti od korišćenog eksperimentalnog zadatka. Kako bi se svi ovi nalazi obuhvatili teorijom, razvijen je SSD model (Armstrong & Plaut, 2016) koji se zasniva na hipotezi da su razlike u rezultatima posledica promena u aktivaciji reprezentacija značenja reči. Model predviđa da će se u ranoj obradi javiti jak efekat polisemije, koji će se u daljem toku smanjiti i na kraju nestati. Međutim, dosadašnja testiranja modela zasnivala su se na kategorijalnom poređenju polisemije i homonimije, dok ispitivanja efekata kontinuiranih mera višeznačnosti nije bilo. Sproveli smo stoga dva eksperimenta u kojima smo pokušali da testiramo ovu predikciju produžavanjem semantičke obrade polisemičnih reči opisanih kroz entropiju – meru koja spaja broj značenja i ujednačenost njihovih verovatnoća. U prvom eksperimentu, kontrolna grupa ispitanika radila je standardni zadatak vizuelne leksičke odluke (LO), dok je eksperimentalna grupa radila zadatak LO sa smanjenim kontrastom između stimulusa i pozadine. Ovaj eksperiment pokazao je standardni efekat entropije u obe situacije (direktna korelacija entropije i vremena reakcije), ali manipulacija nije proizvela dovoljno produženje obrade u eksperimentalnoj situaciji kako bi se zabeležila promena u efektu. Drugi eksperiment poredio je vizuelnu (kontrolna grupa) i auditivnu (eksperimentalna grupa) LO i tu je zabeležena predviđena promena efekta. Međutim, umesto očekivanog smanjenja efekta u eksperimentalnoj situaciji, efekta uopšte nije bilo, dok je u kontrolnoj situaciji efekat bio očekivan. Ovi rezultati predlažu da SSD model može da predvidi promene u efektu entropije pri produžavanju obrade. Ipak, predikcije modela ne mogu da mapiraju precizno kakve će efekte manipulacija proizvesti, što govori o ograničenjima metoda testiranja modela.

UTICAJ INTERNET PRETRAGE NA FORMIRANJE ZNANJA I PROCENU SOPSTVENE BAZE ZNANJA

Kristina Mojović
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Mentorka: **dr Zorana Jolić Marjanović**

U okviru psihologije različite oblasti proučavanja stavljaju naglasak na različite aspekte procesa sticanja znanja; isto se dešava i na polju primenjene psihologije. Ovaj rad se bavi proučavanjem efekata upotrebe modernih tehnologija, tačnije internet pretrage, na sticanje i proveru znanja. Polazeći od Vegnerovog koncepta transaktivne memorije - pojave „deljenja" znanja između više osoba i oslanjanja na informacije koje poseduju druge osobe sa kojima smo u komunikaciji – razmatramo ulogu interneta kao člana transaktivnog memorijskog sistema. Sprovedena su dva eksperimenta s ciljem da se utvrdi da li se efekati dobijeni u američkoj populaciji, a koji se tiču uticaja internet pretraživanja na procenu sopstvenog znanja iz domena opšte informisanosti i poverenja koje imamo u svoje kognitivne sposobnosti beleže i u domaćoj populaciji. Prvi eksperiment je uspešno replicirao originalno istraživanje, ukazujući na razlike u ispoljavanju efekata internet pretrage između grupa koje koriste Gugl pretraživač (poznat i često korišćen, pa iz tog razloga potencijalni partner u TMS) i nepoznati internet pretraživač sa kojim se ispitanici retko sreću. Razlike su se ogledale u učestalijoj pogrešnoj proceni izvora informacija u grupi koja je koristila Gugl, odnosno pripisivanju znanja pohranjenog na internetu sopstvenom korpusu znanja. Drugi eksperiment je imao za cilj da proveri efekte koje internet pretraga ima na doživljaje slike o sebi, odnosno na jedan njen aspekt koji se tiče poverenja u sopstvene kognitivne sposobnosti, tzv. kognitivno samopouzdanje. Suprotno očekivanju da će ispitanici koji dobiju instrukciju da pretražuju internet da bi odgovorili na pitanja iz opšte informisanosti imati više kognitivno samopouzdanje, posebno u domenu koji se tiče adekvatnog „lociranja" informacija i njihovog efikasnog nalaženja, nisu ustanovljene značajne razlike u kognitivnom samopouzdanju ispitanika koji su pretraživali internet i onih koji su na pitanja odgovarali samostalno. Drugi deo rada imao je za cilj bavljenje ovom temom iz ugla psihologije obrazovanja. Znanje koje je u fokusu ovog istraživanja nije opšta informisanost, već znanje stečeno školskim učenjem. Sprovedeno je kraće kvalitativno istraživanje u cilju markiranja bitnih tema i procesa kojima bi se mogla baviti naredna usmerena na utvrđivanje nastavnih metoda koje će omogućiti efikasno korišćenje interneta u obrazovne svrhe, imajući u vidu sve njegove pozitivne i neželjene efekte.

Ključne reči: transaktivni memorijski sistem, internet pretraga, Gugl efekat, kognitivno samopouzdanje, internet u obrazovanju

PRISTRASNOST U PAMĆENJU LICA RAZLIČITIH RASNIH I ETNIČKIH GRUPA: ERP POKAZATELJI

Jadranka Smiljanic
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Mentorka: **dr Vanja Ković**

Korpus literature iz oblasti procesiranja lica dosledno dokumentuje fenomen pristrasnosti prema sopstvenoj rasi koji se manifestuje kroz veću efikasnost u pamćenju lica sopstvene rase u odnosu na lica druge rase. Prema nekim autorima, ovaj fenomen se može generalizovati na pripadnike svih grupa koje se opažaju kao tuđe. U ovom istraživanju cilj je bio da se u okviru jedinstvenog nacrta poredi obrada i opažanje tri grupe lica- sopstvene grupe i rase (srpska lica), druge rase (crnačka lica) i iste rase, ali druge etničke grupe (bošnjačka lica). Ideja je bila da upotrebom ERP metodologije, fokus bude na ranim i kasnim stadijumima obrade. Za belačka lica korišćena je baza stimulusa nepripadajuća etnicitetima od intersa za poređenje (američka lica), a manipulacija etničkim kategorijama izvedena je pridodavanjem tipičnih srpskih tj. bošnjačkih prezimena ovim licima. Pretpostavljeno je da će se na bihejvioralnom nivou lica drugih grupa pamtiti manje efikasno u odnosu na lica sopstvene grupe, pri čemu će ove razlike biti manje izražene za ispitanike sa više kontakta. Na neuralnom nivou, u skladu sa paradigmom Podudaranja/nepodudaranja, očekivani su veći otkloni na ranim komponentama za rasna nepodudaranja, kao i veći otkloni za etnička nepodudaranja u kasnim fazama. Rezultati su pokazali da ispitanici zaista prave veći broj grešaka za crnačka i bošnjačka lica u odnosu na sopstvenu grupu, pri čemu je situacija etničkog nepodudaranja bila daleko najteža. Grupa sa više kontakta provodila je više vremena posmatrajući lica, ali nije bila efikasnija od grupe sa manje kontakta. Na neuralnom nivou je u ranoj fazi obrade prema očekivanjima identifikovana VPP komponenta sa najvećim otklonom kod rasnog nepodudaranja, a u kasnijim fazama obrade ustanovljen je N400, sa najvećim otklonom za etničko nepodudaranje. Obe razlike dobijene su za grupu sa više kontakta. Bilo je moguće zaključiti da je ova grupa pokazala veću osetljivost na rasna i etnička nepodudaranja. Dobijeni nalazi mogu se tumačiti u okvirima modela individuacije/kategorizacije, pri čemu su ispitanici sa više kontakta bili motivisaniji da ulože dodatni kognitivni napor i vreme prilikom opažanja lica. Takođe, pokazano je da top-down procesi mogu da oblikuju i rane stadijume enkodovanja lica.

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ISKORAK KA POBOLJŠANJU PAMĆENJA: LONGITUDINALNI EFEKTI NEINVAZIVNE NEUROMODULACIJE NA ASOCIJATIVNO PAMĆENJE

Katarina Vulić
Odeljenje za psihologiju, Filozofski fakultet, Univerzitet u Beogradu
Mentorka: **dr Danka Purić**

Asocijativna memorija (AM) predstavlja sposobnost formiranja i pamćenja veze između nezavisnih jedinica informacije. Ona strada usled neurodegenerativnih oboljenja, ali i usled normalnog starenja, te je poboljšanje AM jedan od najvećih izazova neurorehabilitacije. Glavni cilj ovog rada bilo je ispitivanje longitudinalnih efekata transkranijalne stimulacije posterioronog parijetalnog korteksa jednosmernom strujom (tDCS) na AM. Pored standardnog anodalnog (1.5mA), predložen je i oscilatorni tDCS tretman (1.5 ± 0.1mA, 5Hz) koji simulira hipokampalni teta ritam, i koji je bio eksplorativno ispitan.

U ukrštenom ponovljenom sham – kontrolisanom dizajnu učestovalo je 18 zdravih ispitanika (50% žena). Svi ispitanci su kontrabalansiranim redosledom prošli kroz ekperimentalne situacije tj. tri različita tretmana (anodalna tDCS, teta oscilatorna tDCS i sham tDCS tj. lažni tretman, iznad levog posteriornog parijetalnog režnja), a efekti na AM registrovani su u zadatku Lice-reč neposredno nakon tretmana, jedan i pet dana kasnije. Neposredno nakon tretmana zadavan je i kontrolni zadatak – Verbalna fluentnost. U zadatku Lice-reč ispitanicima se u fazi učenja sukcesivno prikazuju parovi nepoznatog lica i imenice (npr. banana, drvo), a zatim se u test fazi zahteva da prepoznaju ova lica u širem skupu stimulusa i reprodukuju reči koje su sa tim licima bile prikazane (navođeno prisećanje – mera AM). U neposrednim merenjima zabeležen je marginalno značajan glavni efekat tretmana na meru AM ($F(1.455, 24.736)$ = 3.544, p = .057, η^2 = .171), pri čemu su post – hoc testovi pokazali značajno bolji učinak nakon oba aktivna tDCS tretmana u odnosu na sham (anodalna tDCS p = .012; oscilatorna tDCS p = .014), ali bez razlike između njih (p = .709). Sa druge strane, nije zabeležen efekat tretmana na kontrolnom zadatku ($F(2, 34)$ = 0.271, p = .764), što potvrđuje specifičnost efekata ovako lokalizovane tDCS.

Kada se posmatraju longitudinalni efekti stimulacije (3x3 model: TRETMAN anodalna/oscilatorna/sham x VREME neposredno/1dan/5dana), uprkos tome što glavni efekat tretmana ne dostiže statističku značajnost ($F(2, 34)$ = 2.467, p = .100, η^2 = .127), post – hoc testovi ponovo pokazuju značajnu razliku između anodalnog i sham protokola (p = .048), kao i marginalno značajnu razliku između oscilatornog i sham protokola (p = .053). Zabležen je značajan glavni efekat faktora vreme ($F(2, 34)$ = 50.906, p < .001, η^2 = .750), uz odsutvo njegove interakcije sa tipom tretmana ($F(4, 68)$ = 0.539, p = .707), što ukazuje na isti tempo zaboravljanja, bez obzira na tretman.

Dobijeni nalazi ukazuju na to da je moguće zabeležiti pozitivne efekte jednog tretmana neinvazivnom neuromodulacijom (anodalne i oscilatorne tDCS) na AM, čak i na relativno malom uzorku mladih zdravih ispitanika. Preciznije rečeno, predložena dva tipa tDCS facilitiraju neposredno zapamćivanje, nakon čega ove razlike opstaju kroz vreme najmanje 5 dana.

SPONZORI SKUPA: