XXX INTERNATIONAL SCIENTIFIC CONFERENCE
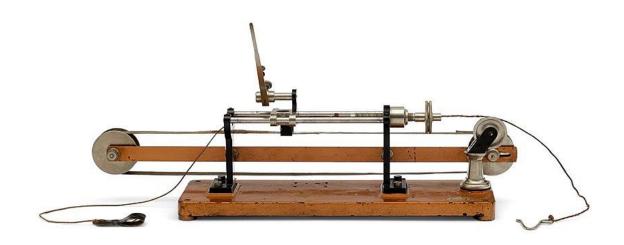
EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 22 – 24, 2024
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

INSTITUTE OF PSYCHOLOGY
LABORATORY FOR EXPERIMENTAL PSYCHOLOGY
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

XXX INTERNATIONAL SCIENTIFIC CONFERENCE

EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 22 – 24, 2024
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

INSTITUTE OF PSYCHOLOGY

LABORATORY FOR EXPERIMENTAL PSYCHOLOGY
FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

BELGRADE, 2024

TABLE OF CONTENTS:

KEYNOTE LECTURES

SOCIAL DETERMINATION OF ATTITUDES TOWARD EMPIRICAL DATA

Dragan Popadić[*]

University of Belgrade, Faculty of Philosophy, Department of Psychology

Psychological studies of extended cognition reveal numerous forms of thinking errors and even irrational thinking in people, leading to wrong conclusions, examples of which can be found in various superstitions and conspiracy theories. Not only do people have wrong beliefs because they think wrongly, but anthropological research has repeatedly observed and examples from psychology illustrate that the reverse is also true – sometimes people think wrongly because they are socially conditioned to have wrong beliefs. On a more basic level, one type of error in thinking manifests itself in relation to the facts themselves, whose existence or non-existence is judged on non-rational grounds. The assumption is that the "threshold of (unreasonable) disbelief" and the "threshold of (unreasonable) credulity" – to call them in such a way – depend not only on personal characteristics but also on the characteristics of dominant ideological beliefs. The "threshold of disbelief" and the "threshold of credulity" can also be found among scientists (psychologists) in their scientific practice. Levels of confidence in the data should be determined by the agreed-upon methodology of data collection and statistical procedures, but it is shown that both now and throughout the history of psychology, the acceptance of empirical evidence is significantly influenced by the theoretical, ideological, and metaphysical commitments of scientists. Some such cases led to the crisis of replicability, which first manifested in social psychology. The examples show that even in science it is difficult to get rid of the principle "If the facts do not agree with the theory, so much the worse for the facts". In some cases, research quality control and replicability of the experimental procedure are solutions, but in some, more complicated situations, which will also be discussed, psychology has no choice but to rely on the so-called historical method rather than the paradigm of the natural sciences.

[*] corresponding author e-mail: *dpopadic@f.bg.ac.rs*

DEVELOPMENTAL STABILITY AND CHANGE IN ALLOCATING ATTENTION IN WORKING MEMORY

Nelson Cowan[*]
University of Missouri

Working memory is the temporary availability of limited information held in mind and used to carry out various mental activities including, for example, comprehension, reading, math, and problem-solving. What limits our working memory of objects? Does the allocation of attention affect working memory capacity, or vice versa? I examine progress from several recent studies of child development using the probe recognition of colors from a small array. I will discuss a cascade of processing between stimulus and response in which working memory and the allocation of attention have effects on one another in turn, with both kinds of changes important in cognitive development.

---

[*] corresponding author e-mail: *CowanN@missouri.edu*

PARENTAL AUTONOMY SUPPORT: BENEFITS AND MODERATORS

Jean Ispa[*]
University of Missouri

Parents who are autonomy-supportive interact with their children in ways that show respect for children's goals, choices, and sense of volition within reasonable expectations and culturally accepted limits. Research conducted in many countries points to the benefits of parental autonomy support for children's and adolescents' emotional well-being, intrinsic motivation to learn, and achievement. At the same time, cross-cultural work indicates that its effects are moderated by parental intent and the particular strategies that they employ. This talk will provide an overview of the theoretical bases for research on autonomy support and my own and others' findings regarding factors that affect parents' autonomy supportive vs. controlling parenting styles and their implications for children's and adolescents' development in several cultural groups.

[*] corresponding author e-mail: *IspaJ@missouri.edu*

STIMULUS COMPLEXITY IN SHAPING ATTENTION IN DEVELOPMENTAL RESEARCH

Zorana Zupan[*]

University of Belgrade, Faculty of Philosophy, Department of Psychology

Attention, particularly in a developmental context, is the cornerstone for learning and adeptly navigating the world. Effective attentional control is critical for prioritizing incoming relevant information during information processing. In this lecture, I will present findings that demonstrate the impact of stimulus complexity on attentional processes in developmental research, through the framework of visual marking as outlined by Watson and Humphreys (1997). Visual marking delineates individuals' capacity to selectively allocate attention to novel or relevant information while disregarding previously processed or irrelevant stimuli. Through our research, I will illustrate how the introduction of various features of stimulus complexity influences attentional outcomes in both children and adults. Our findings reveal that motion is a feature contributing to stimulus complexity. When stimuli are in motion, we observe a shift in attentional patterns, with older children mirroring patterns akin to younger children encountering static stimuli. Similar research with adults underscores similarities between developmental and adult attentional patterns when processing complex stimuli. These findings emphasize the need to consider stimulus complexity in understanding attentional processes across diverse developmental stages. Subsequently, we will broaden this perspective to developmental research involving infants, which will investigate how early attentional processes are shaped by stimulus complexity. Lastly, we will explore further potential avenues for future research and discuss the implications these questions hold for developmental science and applied contexts.

---

[*] corresponding author e-mail: *zorana.zupan@f.bg.ac.rs*

SYMPOSIUMS

SYMPOSIUM I

MULTICULTURAL VALUES AND PRACTICES IN SCHOOLS

Nataša Simić[*]
University of Belgrade, Faculty of Philosophy, Institute of Psychology

Ensuring peaceful and inclusive societies for sustainable development and quality inclusive and equitable quality education for all is the ultimate goal of every educational system that aligns with the UN 2030 Agenda for Sustainable Development. This means that education systems need to provide equal opportunities for all students regardless of their gender, ethnic and socioeconomic background, to thrive in both academic and socioemotional spheres. Since the escalation of conflicts in the Middle East, the issues of interethnic relationships and multicultural values have been re-emphasized on the international agenda. While educational policies typically embrace these values, ensuring equal opportunities for the academic and socioemotional development of diverse groups of students, and positive interethnic relationships in practice is much more challenging. In Serbia, the gap between educational policies and practice has already been recognized. Despite anti-discrimination policies and measures, such as teams in schools that are engaged in preventing and combating discrimination and violence, children from vulnerable and disadvantaged groups are at a higher risk of discrimination and poorer academic achievements. Among the most numerous ethnic minority groups in Serbia – Hungarian, Bosniak and Roma, Roma students are at the highest risk of being discriminated against and experiencing many negative academic and (mental) health outcomes. Despite serious professional requirements from pre-service teachers and in-service teachers in terms of continuous professional development, teachers' competencies for inclusion and multicultural education are still insufficiently developed. The poor status of teaching profession, pressures from the superiors and parents, accompanied by a lack of opportunities to get recognized and promoted, additionally hamper teachers' work engagement and motivation for professional development. Although verbal and physical bullying among peers of different ethnic backgrounds is of low intensity, scholars point to steady modest interethnic distance towards Albanians and Roma. Given the socio-economic instability and authoritarian political regime in Serbia, as well as burning interethnic conflicts worldwide, it seems relevant to explore in more detail multicultural values and practices in schools and their implications for students' academic and socioemotional outcomes. In this Symposium we use the notions multicultural and intercultural education as synonyms because they are based on the same values such as respect for diversity, social justice, equity, and transformation through solidarity, cooperation and participation. As suggested by Gorski, we understand it as the education that provides educational experiences in which all students reach their full potential as learners and as socially aware and active beings, locally, nationally, and globally. Embracing such multicultural values, the schools build a positive school climate nurturing a safe environment, high expectations and positive relationships between students, parents and school staff of various ethnic backgrounds. In this Symposium we encourage an evidence-based discussion on multicultural values and practices in secondary schools in Serbia by acknowledging the perspectives of students, their parents and teachers, as well as relying on school policy documents that embrace the schools' mission and vision statements.

Additionally, in the papers within this Symposium based on the large mixed-method study, we tend to hear voices of both culturally dominant (Serbian) and minority groups (Hungarian, Bosniak, and Roma), from participants living in families of diverse socioeconomic and educational backgrounds and attending schools of different ethnic structures. This enables us to define recommendations for policy makers and practitioners about ways of improving teachers' competencies, school policies and multicultural practices, as well as the ways of increasing the chances of all students to thrive in schools.

MULTICULTURAL VALUES IN SCHOOL POLICIES

Nataša Simić[1,*], Danijela S. Petrović[2], & Hana Sejfović[3]
[1]University of Belgrade, Faculty of Philosophy, Institute of Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]State University of Novi Pazar

As schools are perceived as institutions that are highly accountable for achieving Sustainable Development Goals, particularly SDG4, it is important to create comprehensive school policies that would highlight multicultural, inclusive and positive humane values and then to propagate these values and principles from the policies to everyday school practice. This paper aimed at investigating school policies of schools located in multicultural environments in different parts of Serbia and determining to what extent the school development planning embraced multicultural values, that is, to what extent mission and vision statements, priorities and goals, as well as planned activities and measures acknowledge the multicultural values and the need for nurturing positive interethnic relationships. School Development Plans (SDPs) of five primary and nine secondary schools were analyzed using qualitative content analysis and by relying on Gorski's comprehensive definition of intercultural/multicultural education. Documents were firstly analyzed deductively by searching for the key words referring to some aspects of intercultural education (multicultural/ intercultural; diversity/ tolerance/ respect; inclusion/ inclusive; participation/ partner; ethnic/ minorities/ Roma; democracy/ civic; stereotypes/ prejudices/ discrimination; equity/ justice/ equality). Then we analyzed the ways and contexts (mission, school strengths, projects, goals and planned activities) in which these aspects were presented within the documents. It was determined that two primary and two secondary schools explicitly integrated multicultural values in their mission and/or vision statements. Devotion to protection from discrimination and violence is usually recognized as a schools' strength. In general, all multicultural values typically appear in descriptions of activities of the respective school teams or measures that are planned as a result of schools' self-evaluation. Modest representation of multicultural values and already implemented activities and measures that bring together individuals of diverse cultural backgrounds in strategic documents point to the insufficient acknowledgement of the relevance of this topic. This may be a result of the minimization of interethnic differences and assimilation tendencies of the school management, and even entire communities or the results of still predominant focus on academic/ professional outcomes in schools. However, it is positive that schools envisage some activities related to strengthening multiculturalism. Implications for educational policies and school development planning are further discussed.

Keywords: multicultural, values, school, policy, school development plan

---
[*] corresponding author e-mail: *nsimic@f.bg.ac.rs*

TEACHER INTERCULTURAL COMPETENCE

Danijela S. Petrović[1],*, Jovan Radosavljević[1], & Đerđi Erdeš-Kavečan[2]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Subotica

Due to cultural diversity in modern societies, intercultural competences have become increasingly significant. In developing such competences schools and teachers have an important role. In order to foster intercultural competences in their students, it is necessary that teachers themselves are interculturally sensitive and competent. Therefore, the aim of this study was to explore teacher's intercultural competence in relation to some personal (gender, teaching experience, ethnic background, and intercultural experience) and contextual variables (school's ethnic structure and classroom diversity). The sample consisted of 409 teachers (M_{age} = 46.03; 66.3% female; 74.6% self-identified as Serbian, 10.2% as ethnic minority, and 11.8% as having a mixed ethnic background) from 17 secondary schools in Serbia. The Ethno-Relative Worldview (ERW) scale (with Cronbach Alpha .97) was used to examine teachers' intercultural competence in terms of sensitivity and readiness to shift cultural perspectives and to show cultural empathy. Data about personal and contextual variables were collected by applying a questionnaire. Results show that teachers assessed their intercultural competence as high ($M = 3.41$, $SD = .59$, on a scale 1-4). Teachers who grew up in a multi-ethnic families and who live in multi-ethnic families assessed their intercultural competences as higher ($t(402) = -2.681$, $p < .01$ and $t(404) = -2.193$, $p < .05$) compared to those teachers who do not have such intercultural experience. No differences were found in the self-assessment of intercultural competences related to the other personal variables such as the gender, teaching experience and teachers' ethnic background. Regarding contextual variables, teachers working in ethnically heterogeneous schools assessed their intercultural competences as higher than those working in homogeneous majority school (Tukey post hoc test, $p < .01$) while there were no differences comparing teachers from those two types of schools with teachers from homogenous minority school. However, teachers working in ethnically heterogeneous classes and those working in homogeneous classes, regardless of school's ethnic structure, assessed their intercultural competence identically. The results prove the importance of intensive intercultural experience for the development of ethno-relative worldview and indicate that teachers with monocultural experience need to be additionally supported through professional development in order to develop intercultural sensitivity and empathy.

Keywords: teachers, intercultural competence, schools, diversity, ethnic

---

* corresponding author e-mail: *dspetrov@f.bg.ac.rs*

ETHNIC DIVERSITY IN SCHOOLS AND MULTICULTURAL SCHOOL PRACTICES

Natalija Ignjatović[1,*], Đerđi Erdeš-Kavečan[2], & Milena Belić[3]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Subotica
[3]State University of Novi Pazar

Schools are public institutions where young people are usually surrounded by more diversity compared to their personal networks. The way in which students respond to ethnic diversity can depend on different aspects of the educational environment, such as the school's multicultural practices. The implementation of strategies aimed at incorporating diverse cultural backgrounds and providing equal educational opportunities has been previously related to school ethnic composition (i.e. ratio between ethnic majority and minority students), but the results have been inconclusive thus far. In this paper, we investigated the relationship between ethnic composition - diversity and multicultural practices in 20 secondary schools in Serbia. Data were gathered from 1846 students (M_{age} = 16.3, female 52.6%) using the Ethnic-Racial Socialization (ERS) domain of the School Climate for Diversity – Secondary (SCD-S) Scale, translated to Serbian and Hungarian. ERS consists of 16 five-point Likert-type items, organized around four dimensions: (1) Promotion of Cultural Competence; (2) Cultural Socialization; (3) Cultural Consciousness Socialization; and (4) Colorblind Socialization. Strong reliability was determined for ERS (Cronbach Alpha .88). School's ethnic composition – diversity was assessed based on the relative proportion of students coming from majority/minority groups. Schools were categorized into three groups: those in which the majority of students belonged to the majority ethnic group (Serbian), a minority (Bosniak/Hungarian) group or those with a relatively equal representation of the majority and minority groups. Results show that students generally perceived moderate levels of school's engagement in multicultural practices, with highest scores on Cultural Socialization (M = 3.29, SD = 1.02) and Colorblind Socialization (M = 3.19, SD = .92). In educational settings where the majority of students were Serbian, schools were assessed as more committed to Cultural Socialization (referring to opportunities to learn about one's own culture, e.g., "In your classes you've learned new things about your culture.") than in the other two school types (F(2, 1843) = 3.83, p = .022), with no differences between mixed and ethnic minority schools. Additionally, no other dimensions of ERS revealed any significant differences across the school types. Learning about one's cultural background was perceived as more prominent in schools with Serbian student majority, suggesting that curriculum, policies, norms and practices educational institutions adopt reflect the history, culture and perspectives of the majority ethnic group. Implications for the implementation of multicultural practices in Serbia are discussed.

Key words: ethnic diversity, ethnic minority, school, multicultural, school practices

---

[*] corresponding author e-mail: *ignjanata@yahoo.com*

MULTICULTURAL SCHOOL PRACTICES - THE PERSPECTIVE OF STUDENTS, TEACHERS, AND PARENTS

Milena Belić[1],[*], Jovan Radosavljević[2], & Svetlana Jović[3]
[1]State University of Novi Pazar
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]State University of New York, Old Westbury

Multicultural education exposes students to diverse cultural backgrounds, beliefs, and values. Research indicates its positive impact on inter-ethnic relationships, ethnic identity development, academic achievement, and personal well-being. This study aims to assess how individuals (students, teachers, and parents) perceive multicultural practices in secondary schools across various regions in Serbia. Additionally, it explores whether these perceptions differ based on participants' ethnic statuses (majority in Serbia - Serbian ethnicity, minority in Serbia - Bosniak, Hungarian or Roma, and mixed). The sample consisted of 1093 students (M_{age} = 16.26; 52.6% female; 57.7% Serbian, 24.9% ethnic minority, 17.9% of mixed ethnicity) from 20 schools; 409 teachers (M_{age} = 46.03; 66.3% female; 74.6% Serbian, 10.2% ethnic minority, and 11.8% of mixed ethnicity) from 17 schools and 617 parents (M_{age} = 44.84; 65.2% female; 68.3% Serbian, 17% ethnic minority, and 14.7% of mixed ethnicity) from 18 schools. Participants completed the Ethnic-Racial Socialization (ERS) domain of the School Climate for Diversity – Secondary (SCD-S) scale, consisting of 16 items, organized around four dimensions: (1) Promotion of Cultural Competence; (2) Cultural Socialization; (3) Cultural Consciousness Socialization; and (4) Colorblind Socialization. ERS showed good reliability (Cronbach Alpha .883, .887 and .925 for students, teachers and parents respectively). Parents and teachers more frequently report on the promotion of multiculturalism than students do. The evaluation of multicultural practices remains consistent across students of various ethnic backgrounds, with two exceptions. In terms of the promotion of cultural competence (5 items, e.g., "At your school, they encourage you to learn about different cultures.") (F(2, 1088) = 3.66; p = .026), a post hoc test revealed that students from ethnic minorities scored higher than those from ethnic majority. Regarding cultural socialization support (3 items, e.g., "At your school, you have chances to learn about the history and traditions of your culture.") (F(2, 1081) = 4.79; p = .008) the post hoc test indicated that students identifying as Serbian had higher scores than those with a mixed ethnic background. No differences in the perception of multicultural practices were noted among parents and teachers of different ethnic backgrounds. Given that multicultural education is foundational for a democratic society, understanding the perspectives of all participants, key actors in this process, is crucial, also the relationship between them.

Keywords: multicultural education, ethnicity, teachers, students, parents

[*] corresponding author e-mail: *mbelic@np.ac.rs*

MULTICULTURAL SCHOOL PRACTICES AND STUDENT OUTCOMES

Hana Sejfović[1],*, Natalija Ignjatović[2], & Svetlana Jović[3]
[1]State University of Novi Pazar
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]State University of New York, Old Westbury

Over the last four decades, there has been an increasing recognition of the necessity for the implementation of multicultural education. Studies have demonstrated that multicultural education enhances students' cognitive abilities, promotes critical thinking and problem-solving skills, and boosts other academic achievements. In this paper, we strived to examine how student perception of the school's use of practices that promote multiculturalism is associated with students' academic and socioemotional outcomes. The research was conducted on 1846 students from a total of 20 schools from different regions of Serbia. Multicultural school practices were assessed using the Ethnic-Racial Socialization (ERS) domain of the School Climate for Diversity - Secondary (SCD-S) scale (Cronbach's alpha for the ERS .883), which includes: (1) practices of developing intercultural competence in school, (2) practices of promoting cultural socialization and (3) awareness, and (4) practices of colorblind socialization. Student outcomes included overall life satisfaction (one item on the Personal Wellbeing Index scale), self-reported depressive mood (also one item on a 1-5 scale), academic achievement, satisfaction with academic success and class attendance (unjustified absences). The results showed that all four types of school practices examined were significantly correlated with student outcomes, with cultural socialization practices (referring to opportunities to learn about one's own culture) having the highest correlation with overall life satisfaction ($r = .133$, $p < .001$), academic achievement satisfaction ($r = .112$, $p < .001$), and student feelings of depression ($r = -.104$, $p < .001$). Further analysis revealed that the perceptions of cultural socialization practices ($F(5, 1840) = 4.385$, $p < .001$) and colorblind socialization ($F(5, 1840) = 3.013$, $p < .005$) were significantly less prevalent among students with lower GPAs than among students with higher GPAs. Finally, the perception of school colorblind socialization (teaching youth to ignore or devalue the role of race in society) was more prevalent among students who almost never missed school compared to students who missed school 3-4 times per month ($F(3, 1842) = 5.927$, $p < .001$) and even several times per week. Our results confirm that a more inclusive school environment is related to better academic performance and overall well-being among students. This finding underscores the importance of creating a welcoming and supportive school culture that values and encourages diverse perspectives.

Keywords: multicultural education, academic achievement, life satisfaction, depression, student

---

* corresponding author e-mail: *hana.sejfovic@np.ac.rs*

SYMPOSIUM II

GARDNER'S MULTIPLE INTELLIGENCES IN EDUCATIONAL PSYCHOLOGY
RESEARCH – INTERNATIONAL SCENARIOS

Renata Anna Dezso[*]
University of Pecs, Faculty of Humanities and Social Sciences, Institute of Education
Sciences

Howard Gardner's Theory of Multiple Intelligences (MI; 1983, 1993, 2006, 2020) has served as a theoretical foundation for various educational interventions in the past four decades, to the extent that it became the leading concept for the OECD 2030 Learning Compass since 2019. According to Gardner's theory, humans do not have a single, general mental capacity but eight types of intelligences: verbal-linguistic, logical-mathematical, visual-spatial, naturalistic, bodily-kinesthetics, musical, intrapersonal, and interpersonal. The individual ratio of these mobilities makes up one's intelligence profile. As educational systems mostly build on verbal-linguistic and logical-mathematical intelligences, those students who show lower levels of these modalities are in risk of lower academic performance. On the other hand, MI intelligence profile-based curriculum promotes success at school for a wider range of children (Hoerr, 2011). A research group based at the University of Pecs has been investigating applicability of MI in different educational context for a decade. The five presenters within the current symposium aim at disseminating their research findings gathered by applying MI theory through five international scenarios. In this way, they hope to gather relevant feedback from the educational psychologists' research community, which will further advance their own research. These presentations also seek to advance our understanding of the applicability of MI theory in learning-teaching processes and assessment of both children and educators' MI profiles based on observational methods and digital tools, and to additionally offer an overview of application of MI within a specific cultural context. The first presentation introduces the adaptation and implementation of the MI-related French educational model called the Star of Talents (ST) into the Hungarian Transdanubian region. Based on individual profiles, class profiles are set up and curricula for different classes are designed. The second presentation introduces the first steps of the digital transformation of a Hungarian adaptation of the Harvard Project Spectrum MI related kindergarten program, i.e. the EIDW method into Hungarian speaking kindergartens in Vojvodina. This research started in 2022 with related software development and continued in 2023 by piloting the digitalized games. Animated, interactive, and graphical elements, videos, sounds, and images contribute to this application's novelty, with also effectively maintaining the attention and motivation of its users. An introduction to the results of research on nursery educators' intelligence profiles in Austria and Hungary is in the focus of the next presentation. Namely, when designing their own curricula, educators intuitively use their own strengths when determining ways of treating children. Therefore, discovering teachers' profiles seems needed since these could substantially affect children attending early childhood education. Our final presentation disseminates the findings of an MI related research within the Chinese Private Education Industry (PEI) sector. It investigates the notion of the so called 'memes', i.e. misinterpretations of MI. As early as in 1993 Gardner declared that he cannot have responsibility of potential educational misuse of his theory worldwide. The author carried out an investigation seeking to find out whether memes or the original MI concept may be traced within PEI in his country.

---

[*] corresponding author e-mail: *dezso.renata@pte.hu*

INTELLIGENCE PROFILE-BASED LEARNING SUPPORT – LESSONS AND LIMITATIONS OF AN EDUCATIONAL EXPERIMENT

Bernadett Pekari[1,*] & Renata Anna Dezso[2]
[1]Garay Janos Primary School, Szekszard
[2]University of Pecs, Faculty of Humanities and Social Sciences, Institute of Education Sciences

The PISA 2018 report suggests that Hungary is amongst countries where family background influences learners' achievements the most. Consequently, developing ways in which schools may improve individual and group learning skills becomes crucial in supporting equity of different groups in education. Our proposal aims at examining the adaptability of an approach called the "Star of Talents" (ST) into the current Hungarian education system. This tool, based on the concept of Gardner's theory of multiple intelligences (MI; 1983, 1999, 2006), was approved by the French government in the 2010s. Our argument is that the implementation of ST may be interpreted as an intervention leading to more effective learning–teaching processes at school. Research started with participatory observations in 2013 at the Paris university, UPEC INSPE, and its ISCED Level 1 practical institutions using ST (Garas et al., 2009, 2011, 2013). Our team investigated possible implementations of this approach and learned that the ST entails a procedure based on learners' self-reflections and profile identification. It consists of the storytelling of an adapted version of the tale of Sleeping Beauty to learners. In this adaptation of the tale, Fairies represent eight different gifts, each standing for a particular Gardnerian intelligence. Storytelling is followed by learners' individual selections of 10 out of 80 pictures. These pictures are the ones that learners believe to be the most important for them. Learners give an oral explanation about their choices and place each self-selected picture to different vertices of an eight-corner star. The same pictures may stand for different intelligences for different individuals, for it is the learner's own explanation that matters when outlining intelligence profile. The process is carried out in the presence of two researchers. One takes the role of moderator, whereas the other takes notes and pictures related to children's explanations. From individual learner profiles, teachers may create their own study groups based on children's profiles. Diverse group profiles lead to diverse ways of designing teaching processes, focusing on learners' needs represented in a particular study group. After piloting the French model in its original form between 2013 and 2016 in five different socially disadvantaged rural South-Transdanubian settlements (N = 191), we found that original pictures need to be modified due to culture-specific notions (Nyerges, 2015; Novákné, 2016). In the next phase of the research, in 2017 and 2018, which took place at two different locations in the same region (N = 148), we changed some of the original pictures and applied additional techniques for outlining profiles (Dezső, 2022). Since 2018 this adaptation has been used in a model school as a basis of local curriculum design for different study groups. We have learnt that the same age specific curricular content may be taught in different ways to different classes, depending on the intelligence profile of each study group. Our approach has proven to be an efficient marker of the establishment of the model school's pedagogical image. School statistics and parental reports support satisfaction of parties involved (i.e. pupils, teachers, parents). On regional and governmental level, the official representatives of the Tolna County Educational District (i.e. the maintainers) have recognized our results. Still, from a research perspective we are aware of limitations regarding our study and seek to further establish ways of evaluation to create an educational model that may be used nationwide for learner specific teaching.

---
* corresponding author e-mail: *pekarib@gmail.com*

Keywords: multiple intelligences, intelligence profile, learning support, elementary education

---

EXAMINING KINDERGARTENERS' MULTIPLE INTELLIGENCES PROFILE BY USING A DIGITAL TOOLKIT IN VOJVODINA

Greta Abraham[*]
University of Pecs, Faculty of Humanities and Social Sciences,
"School and Society" Doctoral School of Education Sciences

This presentation introduces research examining the intelligence profile of children (Gardner, 1983, 1999, 2006) in the context of kindergarten education (Krechevsky, 1994; Gyarmathy & Herskovits, 1999; Sándor-Schmidt, 2019). The research is based on the Everybody is Intelligent in Different Ways (EIDW) method (Schmidt, 2022) and its adaptation to digital environment, which is applied among Hungarian-speaking kindergarteners in Vojvodina. The activities of the EIDW method include predefined game accessories, methodological procedures, game descriptions, measurement, and evaluation strategies (Schmidt, 2022). The researcher further developed the EIDW method by developing a tablet-based application, designed to examine and mobilize the Gardnerian intelligences of kindergarteners, i.e. a digitized adaptation of the EIDW. The aim was to establish whether the MI profiles of kindergarten children can be examined using a digital application. A related pilot research project was carried out in a Hungarian-language kindergarten group at one kindergarten in Kanjiža (Vojvodina) involving 20 kindergarteners (5-6 years old ones), their parents (20 individuals), and 4 kindergarten teachers in the winter of 2023. To assess children's initial digital competencies, a questionnaire was administered to the parents of the children. It was compiled from validated surveys (Nikolopoulou et al., 2010; Konok et al., 2020) that assess the habits of children in utilizing Information and Communication Technology. The application's animated, interactive, graphical elements, videos, sound, and images contribute to its novelty and effectively maintain the attention and motivation of users. Most activities of the EIDW method were easily adapted for digital environment. Due to its pioneering nature, the research not only examines the specific application which has been developed, but also demonstrate the possibility of mapping relevant intelligence profiles using software tools as a comprehensive concept.

Keywords: multiple intelligence, intelligence profile, digital environment, kindergarten education, ICT competences

---

[*] corresponding author e-mail: *gretabraham00@gmail.com*

A COMPARATIVE STUDY OF MULTIPLE INTELLIGENCES PROFILE OF EARLY CHILDHOOD EDUCATORS IN HUNGARY AND AUSTRIA

Helena Kolip[*]
University of Pecs, Faculty of Humanities and Social Sciences,
"School and Society" Doctoral School of Education Sciences

The way in which early childhood educators plan their work and choose their methodology depends on their personality, i.e., is highly influenced by their own attitude, cognitive style, and dispositions (Budavári Takács, 2011). For nursery professionals, it is of particular importance that both the age-group appropriate approach and the possibility of independent, experiential, observational learning is ensured during their professional activities (Lanfranchi, 2010). A strong marker of nursery professionals is their intelligence profile, that highly influences their pedagogical activities. In this longitudinal study the focus is on application of the multiple intelligences (MI) concept (Gardner, 1983, 1999, 2006, 2020; Dezső, 2014, 2021, 2022) in early childhood institutional education; the current presentation presents examination of the educator's intelligence profile. A relevant pilot research (based on Armstrong, 2009, 2017) from 2021, done in Austrian-Hungarian context, had shown that in both investigated regions (Steiermark and Baranya) interpersonal, naturalistic, and linguistic intelligences are dominant among examined educators. It has also shown that parental expectations from educators are mostly related to linguistic, interpersonal, and intrapersonal intelligences. A current empirical research seeks to examine whether these findings can be repeated in an extended sample in Southern Transdanubia. To explore this questions, a previously used questionnaire (Armstrong, 2009, 2017) was administered to 75 early childhood educators and 140 parents in Southern Transdanubia. In both groups, the presence of linguistic, inter-, and intrapersonal intelligences, as well as that of natural intelligence - and the need for it - was confirmed. These findings fully supported the results of the pilot research, showing that there is a high correspondence in what parents see as key intelligence modalities in early childhood educators and intelligences that are actually recorded in this group of educators. Based on the analysis, it was also found that the parents' expectations are not influenced by their education, and similarly, the early childhood educators' intelligence profiles do not show significant differences between professionals with different qualifications. Since this issue has not been previously explored, these findings offer some new insights and outline some future research steps.

Keywords: multiple intelligences, intelligence profile, early childhood educators, early childhood education

[*] corresponding author e-mail: *koliphelena77@gmail.com*

TRANSCULTURAL EXPRESSION OF MULTIPLE INTELLIGENCES AS MEMES IN THE CHINESE PRIVATE EDUCATION INDUSTRY

Liu Beier[*]
University of Pecs, Faculty of Humanities and Social Sciences,
Diversity Micro Group

Gardner (2009) characterized possible interpretations of Multiple Intelligences (MI) as "memes" (Dawkins, 1976) in Multiple intelligences around the world, while Chen et al. (2009) have summarized the development of these in Chinese education. This theoretical concept of "meme", being analogous to the concept of "gene" has spread for forty years with positive and negative mutations. As a follow-up, the main goal of this present research is to explore the mutative inheritance of MI as a US originated educational psychology meme, transculturally implanted in the Chinese private education industry (PEI) with contextually selected phenotypes. In a multiple case study (Hunziker & Blankenagel, 2021) 50 institutions were identified from top 200 results listed in a Baidu search performed with "multiple intelligences; educational institution" as keywords in Mandarin. Information about the parent companies of these institutions were collected from the national enterprise credibility system Qcc.com and their official website. After deleting duplicate and invalid institutions, 46 entities remained for descriptive statistical processing, comprising a sample of the existing MI genetic pool. According to a semi-subjective classification for each case, seven different types of MI expression in Chinese PEI can be determined as follows: deviation, inclusion, notation, ideation, application, promotion, and integration. The most common phenotype is notation (39%), only covering a symbolic nomination of the original Gardnerian concept. From a socioeconomic perspective, besides apparent spatial inequality, a temporal trend forecasts high-quality revival diverging from innovation adoption curve (Rogers, 1962). However, the appearance of MI remains lacked in the marketized Chinese private higher education (He et al., 2019). TOWS matrix (Weihrich, 1982) was used to analyse the status quo of MI expressing Chinese PEI, revealing that meme selection is highly framed by national political and cultural contexts. Hofstede's (1980, 2005) national cultural dimensions are used to model these contexts, highlighting preferences to suit collectivism and long-term orientation.

Keywords: multiple intelligences, Chinese private education, meme, transcultural innovation

---
[*] corresponding author e-mail: *liubeier@yahoo.com*

<center>SYMPOSIUM III</center>

EVIDENCE-BASED MENTAL HEALTH INTERVENTIONS

Maša Vukčević Marković[1,2,3,*] & Jana Dimoski[2,3]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, LIRA lab
[3]PIN – Psychosocial Innovation Network

Two studies on the mental health of citizens in Serbia conducted on representative samples in 2021 and 2022 showed approximately one-third of the population in Serbia can be considered psychologically vulnerable. In addition, it was shown that every sixth person meets the criteria for at least some of the mental health disorders measured through the study and that the rate of probable depression and anxiety is 6.3% and 5.5%, respectively. These results shed light on the need for scalable mental health and psychosocial interventions that can effectively reduce psychological difficulties and improve psychological wellbeing among citizens of Serbia. However, little is known about the effectiveness of mental health and psychosocial support interventions implemented in Serbia, and there is a need for gaining insight into existing practices and challenges, and promoting evidence-based practice in the field of mental health as a standard which needs to be applied. Therefore, the main aim of this symposium is to discuss the measurement of the effectiveness of mental health and psychosocial interventions in Serbia applied in different contexts, relying on different methodologies, and applying various research designs. Thus, we will include interventions from both clinical and community-based settings, as well as interventions conducted in online settings. In addition, the symposium will gather studies focusing on both the general public, as well as those focused on specific vulnerable groups, such as older people, children and youth, users of psychiatric services, persons in psychological crisis, and those affected by covid-19 pandemic. Finally, we will include studies applying quantitative, qualitative, and mixed-method approaches and various research designs. The symposium will thus aim to illustrate the need for comprehensive approaches to measuring the effectiveness of mental health and psychosocial support interventions, provide insights into existing practices, and discuss various challenges researchers are facing when designing and implementing research in this field in Serbia.

---

* corresponding author e-mail: *masa.vukcevic@f.bg.ac.rs*

ENHANCING QUALITY OF LIFE IN PSYCHOSIS: A ONE-YEAR RANDOMIZED CONTROLLED TRIAL OF PATIENT-CENTERED DIGITAL PSYCHOSOCIAL INTERVENTION - DIALOG+ IN SERBIA

Nađa P. Marić[1,2,*], Sanja Andrić Petrović[1,2], Ivan Ristić[1,2], Stefan Jerotić[1,3], Bojana Savić[1,3], Mirjana Zebić[3], Vuk Vuković[4], Tatjana Voskresenski[4], Manuela Russo[5,6], & Nikolina Jovanović[5]

[1]University of Belgrade, Faculty of Medicine
[2]Institute of Mental Health, Belgrade
[3]University Clinical Center of Serbia, Clinic for Psychiatry
[4]Special Hospital for Psychiatric Disorders "Slavoljub Bakalović", Vršac
[5] Queen Mary University of London, Wolfson Institute of Population Health, Unit for Social and Community Psychiatry
[6] King's College London, Institute of Psychiatry, Psychology & Neuroscience, Centre for Implementation Science, Health Services and Population Research Department

In Serbia and the Balkans, the predominant approach to treating patients with psychosis spectrum disorders (PSD) involves primarily relying on pharmacotherapy, with limited availability of psychosocial interventions. To bridge this gap, we present DIALOG+, a digital psychosocial intervention rooted in patient-centered communication theories, quality of life (QoL) research, and principles of solution-focused therapy. The goal is to augment the therapeutic efficacy of standard care. This study seeks to assess the comparative effectiveness of DIALOG+ and routine care in addressing PSD, particularly in terms of improving both quality of life and clinical symptoms. This randomized controlled trial (RCT) was a part of a clinical trial (ISRCTN 11913964; IMPULSE study - grant agreement No 779334). In Serbia, it involved 71 adult PSD outpatients (ICD-10 F20-29, F31) from two sites, with a history of at least one psychiatric hospitalization, willing and capable of providing informed consent. Seventeen clinicians were randomized 1:1 to intervention arm (patients n = 35, received DIALOG+ six times over 12 months during routine clinical appointments) and control arm (patients n = 36, received usual care following the same delivery schedule). Primary outcomes were measured by Manchester Short Assessment of QoL – MANSA, and Brief Symptom Inventory - BSI. Multilevel regression models were employed to allow for the data clustering by clinicians. Initial analysis compared baseline arm characteristics, followed by a 12-month outcome measure comparison. Both groups were similar in terms of age, sex, diagnoses, or previous psychological treatment. No significant between-group differences occurred in self-reported mental health problems (BSI, $p = .74$). Intervention arm improvements included higher MANSA total scores indicating a better QoL ($5.18n \pm 0.86$ vs. 4.42 ± 0.65, 95% CI 0.55 [0.18, 0.92], $p = .004$). Individuals with PSD often have limited access to effective psychosocial interventions, and non-pharmacological RCTs in this population are infrequent. The findings of our study indicate that DIALOG+ demonstrated a positive impact on subjective QoL among patients in Serbia. Continued patient assessment using DIALOG+ may offer sustained long-term care and further QoL improvements for PSD patients. DIALOG+ shows promise as a structured and integrative approach suitable for routine mental health care.

Keywords: psychosocial interventions, psychosis, DIALOG+, RCT (randomized controlled trial), QoL (quality of life).

---

[*] corresponding author e-mail: *nadja.maric-bojovic@med.bg.ac.rs*
Shared first authorship

EVALUATION OF COMMUNITY-BASED MENTAL HEALTH SUPPORT TO LONG-TERM PSYCHIATRIC USERS: A QUALITATIVE STUDY

Biljana Stanković[1,*], Petar Lukić[1,2], Irena Stojadinović[1,3], & Jasmina Bogdanović[4,5]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, LIRA lab
[3]PIN – Psychosocial Innovation Network, Belgrade
[4]Institute of Mental Health, Belgrade
[5]University of Belgrade, Faculty of Political Sciences, Department of Social Work

Although many advances are made at the level of national mental health strategies and policies that advocate for the transition from predominantly in-patient treatment to the establishment of community-based services in line with a recovery model approach, Serbian mental health care system is still focused on the medical model, hospital-based treatment and the provision of pharmacotherapy. Availability of outpatient and community-based care is very limited, and there is a lack of empirical evaluation of existing programs and services. Our study aimed at assessing experiences, (unmet) needs, resources and challenges of people with severe mental health disorders that are both long-term psychiatric users and users of the community-based mental health services in order to support the development of these services tailored to their needs and the specificities of the local context. We performed semi-structured interviews with 11 participants recruited from a community-based center for psychosocial support in Belgrade (9m and 2f), aged 26-65 ($M = 48.5$), diagnosed with a psychotic disorder, and using psychiatric services for decades (11-57 years). Interviews were transcribed and analyzed relying on the principles of thematic analysis (Braun & Clarke, 2006). Findings indicate that existing community-based mental health services contribute to the wellbeing and quality of life of psychiatric users by: a) providing meaning and structure through creative and occupational activities; b) enabling lasting relationships and continuous support, especially with peers; and c) helping them establish and maintain control over their functioning and affirm their sense of agency through active engagement in the programs. The most relevant unmet needs identified point to possible direction of improvement of existing services: a) enabling a greater continuity and availability of support, especially peer support, by establishing and sustaining community mental-health centres open to psychiatric users; b) offering more diversified and individualized psychological support services; c) providing support in solving practical, work and financial difficulties by offering multi-sector services.

Keywords: community-based mental health support, long-term psychiatric users, qualitative research

EFFECTIVENESS OF EXPRESSIVE WRITING IN THE REDUCTION OF PSYCHOLOGICAL DISTRESS DURING THE COVID-19 PANDEMIC: A RANDOMIZED CONTROLLED TRIAL

Maša Vukčević Marković[1,2,3,*], Jovana Bjekić[4], & Stefan Priebe[5]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, LIRA lab
[3]PIN – Psychosocial Innovation Network
[4]University of Belgrade, Institute for Medical Research
[5]Queen Mary University of London, Unit for Social and Community Psychiatry (World Health Organization Collaborating Centre for Mental Health Services Development)

The COVID-19 pandemic brought mental health risks, and the need for scalable interventions which can reduce psychological distress was recognized. Expressive writing (EW) interventions were shown to be beneficial for different mental health conditions. The aim of this study was to assess the effectiveness of EW in the reduction of psychological distress in the context of the COVID-19 pandemic. A randomized controlled trial was applied, in which participants (N = 120) were randomly allocated to (1) the intervention group - completing 5 EW sessions over the 2 weeks, or (2) the control group, receiving treatment as usual (TAU). Primary and secondary outcome measures were assessed at baseline, post-treatment, and follow-up, one month after the treatment had ended. The primary outcome measure was the severity of psychological distress assessed at post-treatment, measured by Depression Anxiety Stress Scale (DASS), while secondary outcome measures were the severity of depression, anxiety, and stress measured by DASS subscales, well-being measured by WHO-5, and subjective perception of quality of life, assessed by SQOL scale, at post-treatment. The intervention group showed less favorable outcome on psychological distress ($F(1, 101) = 5.600$, $p = .020$, $\eta_p^2 = 0.053$), and symptoms of stress ($F(1, 101) = 16.360$, $p = .000$, $\eta_p^2 = 0.139$), after controlling for baseline scores. No significant difference was found between the groups on depression ($F(1, 101) = 3.078$, $p = .082$, $\eta_p^2 = 0.030$), anxiety ($F(1,101) = 0.115$, $p = .735$, $\eta_p^2 = 0.001$), well-being ($F(1, 101) = 1.276$, $p = .261$, $\eta_p^2 = 0.012$), and subjective quality of life ($F(1, 101) = 0.352$, $p = .554$, $\eta_p^2 = 0.003$) at post-treatment, nor at follow-up for any of the outcome measures. Moderation effects of age ($F(1, 100) = 7.682$, $p = .007$, $\eta_p^2 = 0.071$), and gender ($F(1, 92) = 6.989$, $p = .010$, $\eta_p^2 = 0.071$), with older and male participants scoring higher on distress measures was documented, indicating EW interventions may be particularly counterproductive for older and male participants. Engaging in EW during the pandemic elevates stress. Hence, EW or similar self-guided interventions should not be applied without prior evidence on their effects in stressful circumstances such as pandemic, due to their harmful effect.

Keywords: expressive writing, pandemic, stress, depression, anxiety

---

[*] corresponding author e-mail: *masa.vukcevic@f.bg.ac.rs*

TESTING THE EFFECTIVENESS OF A COMMUNITY-BASED PSYCHOSOCIAL SUPPORT PROGRAM: A QUASI-EXPERIMENTAL STUDY

Matija Gvozden[1,2*], **Jana Dimoski[1,2]**, **Andrej Bjelogrlić[1,2]**,
& Maša Vukčević Marković[1,2,3]
[1]PIN - Psychosocial Innovation Network
[2]University of Belgrade, Faculty of Philosophy, LIRA lab
[3]University of Belgrade, Faculty of Philosophy, Department of Psychology

In the aftermath of the Covid-19 pandemic, the provision of community-based support services to at-risk individuals has become a widespread necessity. A community-based Program for psychosocial support was implemented over the course of six months in two cities in Serbia. The Program is of a mixed type, consisting of individual counseling sessions and group meetings accessible to all participants, and held by psychologists who underwent a one-day additional training on Program implementation. The individual sessions focused on therapeutic counseling and included the learning of problem-solving techniques, while the group meetings focused on mindfulness exercises and problem-solving discussion, in addition to mutual empowerment via the sharing of individual experiences and progress. A quasi-experimental design was used, with a total of 45 participants who expressed an interest to attend the Program being in the experimental group (M_{age} = 41; 7% males), and a total of 34 participants who didn't express a wish to attend being in the control group (M_{age} = 45; 9% males). There were 1-9 individual and 1-8 group sessions per beneficiary in the experimental group. Each participant completed inventories measuring well-being (WHO5, 5 items; α = .86 - .87), quality of life (MANSA, 12 items; α = .83 - .89), hope (AHS, 12 items; α = .69 - .85), depression (PHQ9, 9 items; α = .78 - .84) and anxiety (GAD7, 7 items; α = .79 - .84) before the Program started (pre-test), immediately after the Program (post-test) and one month after the Program had ended (follow-up). The results showed that even after controlling for the scores from the pre-test, there was a significant improvement in the experimental group on post-test measures of depression ($F(1)$ = 7.499, $p < .01$, η_p^2 = .09), anxiety ($F(1)$ = 10.383, $p < .01$, η_p^2 = .12), wellbeing ($F(1)$ = 4.588, $p < .05$, η_p^2 = .06), while there was a marginal effect on measure of life satisfaction ($F(1)$ = 3.718, $p = .058$, η_p^2 = .05). Improvement remained significant on the follow-up on the measures of depression ($F(1)$ = 4.385, $p < .05$, η_p^2 = .06), anxiety ($F(1)$ = 6.752, $p < .05$, η_p^2 = .09) and wellbeing ($F(1)$ = 9.041, $p < .01$, η_p^2 = .11). The change in hope was not significant. The obtained results indicate that the Program is effective in reducing anxiety and depression, as well as improving subjective wellbeing in at-risk individuals. The program archives prolonged positive results, but highlights the need for continuous support.

Keywords: community support, psychosocial support, depression, anxiety, wellbeing

PSYCHOSOCIAL INTERVENTIONS FOR ADOLESCENTS IN SCHOOLS, HEALTHCARE AND SOCIAL WELFARE: WHAT HAVE WE LEARNED FROM PILOT IMPLEMENTATION IN SERBIA?

Marija Mitković Vončina[1,2*], **Danilo Pešić**[1,2], **Ana Munjiza Jovanović**[1,2], **Ana Radovanović**[1], **Emilija Jeremić**[1,3], **& Milica Pejović Milovančević**[1,2]

[1]Institute of Mental Health, Belgrade
[2]University of Belgrade, Faculty of Medicine
[3]Metropolitan University, Belgrade, FEFA Faculty

Even though mental health problems in adolescence negatively affect developmental trajectory, the proportion of adolescents receiving adequate interventions on time is insufficient. In Serbia, this is particularly challenging, given the imbalance between the needs and the resources for psychosocial interventions in public sectors. This paper presents the first project in Serbia dedicated to capacity building to support mental health of adolescents, providing the implementation of the Minimum Service Package (MSP) psychosocial interventions for adolescents in public sectors (education, healthcare, social welfare), as well as the pilot evaluation of this proces (symptoms, functionality of adolescents, intervention characteristics). The MSP psychosocial interventions were ecologically implemented and delivered to 337 young people (age 12-25) from 3 municipalities, during 4 months. The study group included 174 young people, heterogeneous in terms of the level and the type of mental health disturbance. The assessment was comprised of self-report and data rated by professionals (PHQ-9, GAD-7, SOFAS scales; data from HEADSS psychosocial assessment instrument; and additional questionnaires on various aspects of interventions designed for the purpose of this study). Pre-posttests (Wilcoxon) have shown increase in social and occupational functionality, and decrease in depression and anxiety symptoms from the first to the last session (SOFAS scores: $W = 273.50, p < .001$; r (rank biserial) = -0.94; PHQ-9 scores: $W = 7972.00, p < .001$; r (rank biserial) = 0.82; GAD-7 scores: $W = 7660.00, p < .001$; r (rank biserial) = 0.80). Total number of sessions per young person (median) was 4, out of which 3 were dedicated to interventions. Supervisors' estimation of the effectiveness of interventions, quality of therapeutic alliance, the level of goals achieved, and of active youth participation was strong (respective medians 8, 8, 9, and 8, out of 10). The first ecological implementation of MSP psychosocial interventions to youth in education, healthcare and social welfare in Serbia shows promising first results. Although there are important methodological limitations to this study, the results may serve as a base not only for further development of the interventions implementation, but also for exploring the possibilities and challenges of ecological evaluation studies in this domain.

Keywords: psychosocial interventions, adolescents, education, healthcare, social welfare

---

PSYCHOSOCIAL SUPPORT FOR OLDER ADULTS: A QUASI-EXPERIMENTAL STUDY ON PROGRAM EFFECTIVENESS

Jana Dimoski[1,2]*, **Milica Manojlović[3,4]**, **& Maša Vukčević Marković[1,2,4]**
[1]PIN – Psychosocial Innovation Network
[2]University of Belgrade, Faculty of Philosophy, LIRA lab
[3]University of Belgrade, Institute for Medical Research
[4]University of Belgrade, Faculty of Philosophy, Department of Psychology

Even though previous literature shows older adults are at risk for developing and maintaining psychological difficulties, evidence-based psychosocial support programs for older adults are scarce. Thus, the Program for psychosocial support for older adults was constructed and implemented in three municipalities in Serbia, and this study is conducted with the aim to test the Program effectiveness. The Program consisted of individual sessions and group workshops, centered around topics of mental health, relationships with others, combating ageism, etc. The Program was held by psychologists specially trained on Program implementation. A quasi-experimental design was used with inclusion criteria being over 55 years of age and not being subject to any form of psychosocial or psychiatric treatment. A total of 32 older adults (M_{age}=73.09, SD_{age}=9.88, 18.8% males) expressed an interest to join the Program and were assigned to the experimental group, while 31 individuals (M_{age} = 71.52, SD_{age} = 9.71, 41.9% males) haven't expressed this interest and thus were assigned to the control group. Each beneficiary from the experimental group participated in 2-9 individual and 2-10 group sessions. Inventories measuring well-being (WHO5; α = .88 - .90), quality of life (MANSA; α = .50 - .85), loneliness (UCLA Loneliness Scale; α = .82 - .88), depression (PHQ9; α = .79 - .85) and anxiety (GAD7; α = .73 - .86) were administered at three time points: before the Program implementation (pre-test), immediately after the implementation (post-test) and one month after (follow-up). The results showed that even after controlling for the scores from the pre-test, there was a significant improvement in the experimental group on post-test measures of well-being ($F(1) = 44.875$, $p < .001$, $\eta_p^2 = .43$), quality of life ($F(1) = 6.678$, $p = .012$, $\eta_p^2 = .10$), depression ($F(1) = 16.967$, $p < .001$, $\eta_p^2 = .22$), and anxiety ($F(1) = 29.520$, $p < .001$, $\eta_p^2 = .33$), while there was no difference between the groups on the loneliness measure ($F(1) = 1.617$, $p > .05$). The same analysis on the follow-up measures showed that participants from the experimental group displayed lower levels of loneliness one month later ($F(1) = 5.64$, $p = .021$, $\eta_p^2 = .09$), as well as lower depression ($F(1) = 6.66$, $p = .012$, $\eta_p^2 = .01$). These results support the effectiveness of the Program for Psychosocial Support and highlight the need for continuity of services provided.

Keywords: mental health, psychosocial support, older adults

SYMPOSIUM III

TWENTY YEARS OF PISA STUDY IN SERBIA: (UN)LEARNED LESSONS

Marina Videnović[*]

University of Belgrade, Faculty of Philosophy, Institute of psychology

PISA is one of the most comprehensive international comparative studies of educational systems. The study estimates 15-year-old students' readiness to solve real-life challenges by using reading, mathematics and science knowledge. Accordingly, mathematical, reading and science literacy have been the main variables in every research cycle. Research includes background variables at the school, family and student-level factors that could influence achievement. Investigating system equity and equality is one of the major focuses of the PISA study. Through every cycle, it has been investigated how students' achievement is predicted by their economic, cultural and social status (ESCS). The PISA research framework also covers current educational issues. The study from 2022 opens questions related to the sustainability of education during the pandemic. Results show that around 50 percent of countries have significantly declined in mathematical literacy compared to the previous cycles. Average scores in the OECD countries are the lowest obtained from 2020: 472 points in mathematical literacy, 476 points in reading literacy, and 485 points in science literacy. The difference in mathematical literacy scores between advantaged (highest ESCS status) and disadvantaged (lowest ESCS status) students is 91 points. Almost every third of students (31%) from the OECD countries didn't meet the basic level of mathematical literacy. The Serbian educational system has been part of this assessment since 2003 or for five cycles (2003, 2006, 2009, 2012, 2018, 2022). During the twenty years of the PISA study in Serbia,15-year-old students' achievement was relatively stable. Achieved scores have been around 40 points below the OECD average. In this cycle, the scores are 447 in mathematical literacy, 440 in reading and 447 in science. The difference between advantage and disadvantage students' scores on the mathematical literacy scale is a significant 81 points. The estimation is that around 40% of students would face difficulties answering contemporary world demands due to a lack of literacy skills. The symposium aims to discuss open questions, main findings and policy implications.

Keywords: PISA study, literacy, equity, education, pandemic

THE POWER OF STUDENT SOCIO-ECONOMIC STATUS IN SHAPING PERFORMANCE IN MATHEMATICS

Dragica Pavlović Babić[*] & Aleksander Baucal
University of Belgrade, Faculty of Philosophy, Department of Psychology

The main aim of this paper is to determine the impact and change in impact over time of students' socio-economic status on its performance in mathematics, estimated in two consecutive cycles of OECD Programme for International Student Assessment (PISA). Based on additional secondary analysis of PISA 2018 and 2022 data, we have compared national performance, as well as performance of a number of selected countries (Croatia, Montenegro, Estonia, North Macedonia, Finland), in order to shed light on potential reasons for lower equity in Serbia. As for all previous cycles, socio-economic status of student has been the strongest predictor of performance in mathematics in Serbia. This is the same for all other domains of performance. It is also similar in the most PISA participating countries. For PISA cycle 2022, SES accounted for 13% of the variation in mathematics performance in PISA 2022 in Serbia, which is slightly in favor of the education system in Serbia compared to 15% on average across OECD countries. However, compared with the previous cycle, equity was higher in the previous PISA 2018 study than in PISA 2022 (In 2018: 8%, in 2022: 13%). Moreover, a comparison of math achievements in PISA 2018 and PISA 2022 suggests that gap between the highest-scoring students (10% with the highest scores) and the weakest students (10% with the lowest scores) narrowed. Socio-economically advantaged students (the top quarter in terms of socio-economic status) outperformed disadvantaged students (the bottom quarter) by 81 score points in mathematics. This is similar to the average difference between the two groups (93 score points) across OECD countries. Taking together these findings, it is an open question why the equity in domain of math achievements is lower than it was in previous cycles. The possible factors influencing the significantly lower equity of the education system of Serbia compared to the previous period will be additionally discussed.

Keywords: socio-economic status of students, performance in mathematics, OECD/PISA

---

[*] corresponding author e-mail: *dpavlovi@f.bg.ac.rs*

DISTANCE LEARNING IN SERBIA DURING THE COVID PANDEMIC

Marina Videnović[*]

University of Belgrade, Faculty of Philosophy, Institute of psychology

The pandemic of COVID has caused a shock to the educational system all around the globe. An estimation was that more than 90 per cent of the students were affected by some kind of school closure. PISA study 2022 addressed this issue. This study aims to distinguish different student profiles or groups based on their experience with self-directed learning during the COVID-19 pandemic in Serbia using a PISA sample. Different questions were designed as part of the PISA study to investigate students' experience with distance learning. Students' self-efficacy in self-directed learning was examined with eight statements. Students reported how often ("never", "a few times", "about once or twice a week", "every day or almost every day") they experienced the defined eight problems during distance learning. School and family support to maintain learning and well-being while school buildings were closed were also assessed with two groups of statements. Students' responses were combined into four indexes (students' self-efficacy with self-directed learning, problems with self-directed learning, school actions/activities to maintain learning and well-being and family support) with average scores around zero and standard deviations are one across OECD countries. Four groups were identified with hierarchy cluster analysis (Ward method, Squared Euclidean Distance). Three statistical significance discriminative canonical functions were used to describe groups' characteristics ($\lambda = .189$, $R = .765$, $p < .001$; $\lambda = .456$, $R = .686$, $p < .001$; $\lambda = .860$, $R = .374$, $p < .001$). The first group met fewer problems with online learning than the rest while perceived self-efficacy as higher. The second group, the largest one, dealt with problems during self-directed learning and had lower self-efficacy than other groups. The third group is characterised by lower family support, while the third group experienced the highest family support. A one-way ANOVA demonstrated that the effect of group membership was significant for students' economic social and cultural status ($F(3, 32284) = 51.24$, $p < .001$) and mathematical literacy achievement ($F(3, 32284) = 184.13$, $p < .001$). The results indicate that the educational system's actions in times of crisis should be individualised taking into account differences in the students' needs.

Keywords: COVID-19, PISA study, self-efficacy, family support, educational system

STUDENTS' MATH ACHIEVEMENT AND PERCEIVED CHARACTERISTICS OF
MATH CLASS: PISA 2022 STUDY

Gordana Čaprić[*]
Institute for Education Quality and Evaluation, Belgrade

This study aims to investigate the association between students' perception of math class (perceived mathematics instruction quality, discipline climate and mathematics teacher's support) and students' mathematical literacy according to the PISA 2022 study. Students estimate the overall perceived mathematics instruction quality on a scale from 1 to 10. Discipline climate was assessed through the seven statements (scales from 1 happened at every class to 4 never). Teacher support was evaluated using the same scales (1 to 4) with the four statements. PISA 2022 students' sample was used to obtain the results. The average perceived mathematics instruction quality is 6.1. The analysis of discipline climate statements reveals that a significant number of students report noise and disorder (28.6%), distractions caused by digital devices used by other students (28.1%), and a lack of listening to the teacher by students (40.4%), in all or most math classes. In terms of teacher support during math classes, around two-thirds of students report that their teacher shows interest in each student's learning (60.5%) and provides help when needed (66.5%), while roughly half report that their teacher helps them with learning (58.8%) and continues to teach until they understand the lesson (56.4%). Also, disadvantaged students report support from teachers more frequently than advantaged students. Linear regression was used to investigate the relation between mathematical literacy (dependent variables) and perceived mathematical instruction quality, discipline climate in math class and teacher support. The model is statistically significant, explaining the relatively low percentage (3%) of mathematical literacy variance ($R^2 = 0.03$, $F(2, 32284) = 68.33$, $p < .001$). The analysis of regression coefficients shows that students with higher achievement perceived mathematical instruction and discipline climate as better and teacher support as lower. However, the association is not strong, indicating that teachers have similar approaches to providing math classes for higher and lower achievers. The results suggest that it is necessary to find effective solutions to increase students' motivation to work in the classroom and establish clear rules regarding using personal electronic devices on a policy level. Furthermore, it is essential to review teaching instructions and enhance the capacities of teachers to provide support to all students in their classes.

Keywords: mathematical literacy, quality of mathematical instruction, teacher support, discipline climate, PISA study

---

[*] corresponding author e-mail: *gcapric@ceo.gov.rs*

CULTURAL CORRELATES OF GENDER GAP TRENDS IN PISA MATHEMATICS PERFORMANCE ACROSS COUNTRIES AND TIME

Katarina Mićić[1],* & Barbara Blažanin[2]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Special Education and Rehabilitation

Gender difference in mathematics performance favouring males shows geographical and temporal variations indicating its dependence upon cultural influence. Societies differ in the width and direction of the gender gap in mathematics achievement. Also, there is an overall trend of improvement of this issue - the gap has been getting more and more narrow over the last couple of decades. However, the pace of the improvement varies across cultural contexts and is not detected in all countries. Studies show that cultures that stress ambition and competitiveness tend to have a relatively higher achievement disadvantage of girls compared with boys. The goal of this study is to investigate cultural dimensions connected to the changes in gender gap in mathematics performance over the last decade. To approximate cross-countries' trends in gender difference in mathematics performance, we used data from PISA from 2012-2022. From this data we used the average decennial trend in gender difference in mathematics performance across the last ten years of PISA cycles. The measure was expressed for 69 countries using linear regression showing an average change in the boys-girls difference in the last four cycles. Negative value of the measure indicates a trend of closing the boys-girls gap across the four cycles, and vice versa. Six dimensions based on Hofstede cultural dimensions theory were used to predict the decennial trend. Analyses were performed on the dataset consisting of 51 countries that had both PISA data and data on the cultural dimensions. As in other studies, the data depict a general trend of improvement of gender equality in the last 10 years – on average and in most countries. However, results from the last cycle indicate a slight but significant regress in comparison to the 2018 cycle. Narrowing of the decennial gender gap favouring boys was significant in 10 countries (out of 33 where it was detected), whilewidening of the gap was significant in three countries out of 18 where it was detected. A regression analysis shows that Hofstede's cultural model explains 35% of the variance in the average decennial trend in gender difference ($F(6, 43) = 3.282$, $p = .011$). The trend is best predicted by individualism ($\beta = .116$, p = .018) and indulgence ($\beta = -.107$, $p = .045$), while another two dimensions were marginally significant predictors – masculinity ($\beta = -.067$, $p = .073$) and uncertainty avoidance ($\beta = -.072$, $p = .077$). Collectivist unrestrained societies showed the greatest improvement in gender equality over the last ten years. Identification of relevant dimensions is informative for intervention programs to stress the contributing processes and values and to counter the undesired ones.

Keywords: PISA, mathematics, gender, Hofstede cultural dimensions, individualism

EDUCATIONAL ASPIRATIONS OF STUDENTS AND THEIR RELATIONSHIP WITH SOCIO-EMOTIONAL AND DEMOGRAPHICS CHARACTERISTICS
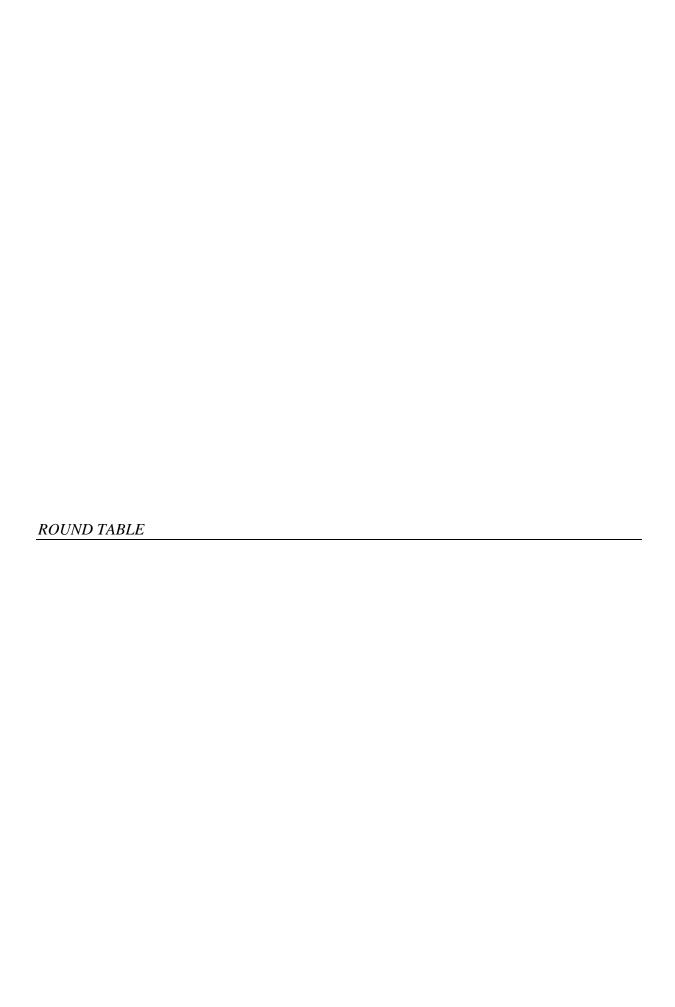
Barbara Blažanin[1],* **& Katarina Mićić[2]**
[1]University of Belgrade, Faculty of Special Education and Rehabilitation
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology

One of developmental tasks for adolescents is to choose an educational path that is the right fit for them. Sometimes students lack sufficient knowledge or confidence regarding their competences, which can lead to mismatch between educational aspirations and competences, followed by potential unfavourable outcomes. Aims of this study are to test how many students are realistic about their future education, and to describe extracted profiles based on their demographics and socio-emotional characteristics (SEC). We used data from PISA 2022 which consisted of 6256 Serbian students. First, we crossed educational aspirations with test performance. Descriptive analysis showed that 24% of students are low performers (did not attain minimum proficiency in all three tested domains). Among low performers, 22% expected to complete high school (Realistic low performers (RLP)), 36% expected to complete tertiary education (Unrealistic low performers (ULP)), while 42% didn't respond. 19% of students stood out as high performers (attained at least minimum proficiency in three domains, and high proficiency in at least one domain). Among them, 8% aspired to complete high school (Unrealistic high performers (UHP)), 80% expected to complete tertiary education (Realistic high performers (RHP)) and 12% didn't respond. Chi-square, MANOVA, and Bonferroni post hoc tests were conducted to further understand the difference between RLP, ULP, UHP and RHP based on demographics and SEC. RLP are more often from vocational schools ($\chi^2 = 676.08, p < .01$), boys ($\chi^2 = 34.48, p < .01$) and from lower economic, social and cultural status (ESCS) ($\chi^2 = 343.35, p < .01$). They have the lowest scores on perseverance ($F(3, 1668) = 16.55; p < .001, \eta_p^2 = .029$), curiosity ($F(3, 1668) = 25.41; p < .001, \eta_p^2 = .043$), empathy ($F(3, 1668) = 21.34; p < .001, \eta_p^2 = .037$) and assertiveness ($F(3, 1668) = 18.49; p < .001, \eta_p^2 = .032$). ULP are more often from vocational schools and from lower ESCS. They have low scores on all SEC domains, but are significantly higher on curiosity and assertiveness compared to RLP. RHP are more often from general schools, girls and from higher ESCS. They have the highest scores on perseverance, curiosity, empathy and assertiveness. UHP are more often boys, with mid-level of perseverance, empathy and assertiveness. Compared to RHP they have lower levels of curiosity. Better understanding of unrealistic students is important for designing a strategy to help them set high, yet realistic expectations for future education, which is important for both social mobility and economic prosperity.

Keywords: PISA, educational aspiration, academic performance, socio-emotional characteristics

ROUND TABLE

FIFTY YEARS OF THE LABORATORY FOR EXPERIMENTAL PSYCHOLOGY

**Slobodan Marković[1,*], Aleksandar Kostić[1], Aleksander Baucal[2], &
Sunčica Zdravković[1,3]**
[1]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

This round table is dedicated to the fiftieth anniversary of the Laboratory for Experimental Psychology (LEP) at the Faculty of Philosophy, University of Belgrade. Since its establishment in 1974 research originating in the Laboratory mainly encompasses the fields of psycholinguistics, visual perception, psychological aesthetics, as well as decision making. Since its establishment LEP has retained as affiliates about 160 researchers and students, many of whom went on to professorships in Belgrade and Novi Sad but also to appointments at universities and scientific institutions around the world, while developing successful scientific careers. Apart from about 500 scientific papers and about 1000 conference presentations our researchers have produced, this dissemination of people is probably the greatest achievement of our Laboratory. Today, the Laboratory is a place of vivid scientific exchange, continuous scientific research, training facility for the new researchers and one of the well-established regional centers for experimental psychology. The Laboratory is also a venue for the activities not directly connected to the advancement of science. Since the early nineties, we have organized a weekly LEP Colloquia, an invited talk series that offers an opportunity to learn about the latest research, not only for our members but also for members of the Psychology Department and other scientific institutions of our University. Likewise, many distinguished local and international scientists have been our guest-presenters. In addition, the Laboratory is co-organizer of the annual scientific meeting Empirical Research in Psychology and organizer of the international conferences, such as the European Conference on Visual Perception in 2014 and the First International Quantitative Morphology Meeting in 2015. The Laboratory is also permanent host to one of the world's most significant collections of old psychological instruments. Recently, the Laboratory is more intensively involved in various programs for the popularization of science such as Researchers night, Festival of science, Brain awareness week etc.

Keywords: Laboratory for Experimental Psychology, fiftieth anniversary

---

[*] corresponding author e-mail: *smarkovi@f.bg.ac.rs*

PERCEPTION

TO THE MOON AND BACK – DEPTH CUES DISTRIBUTION AND SIZE PERCEPTION

Oliver Tošković[*]

University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology

Moon illusion refers to a phenomenon in which Moon is perceived as larger on horizon than on zenith. Explanation given by Kaufman and Rock, flattened sky dome hypothesis, claims that illusion is a consequence of appearance of many depth cues toward horizon and little of them toward zenith. We argue that it might be that illusion is not only due to a quantity of depth cues in two directions, but to their spatial distribution. Namely, distribution of depth cues from the observer to the Moon is such that there are many of them near the observer, and almost none of them further on, toward horizon. Contrary to that, toward zenith, lack of depth cues is similar all the way from observer to the Moon. In order to examine this alternative hypothesis, we performed an experiment in which 19 participants had a task to match sizes of two spheres, in two directions (left and right from the observer) in virtual reality display (Oculus Rift DK2). There were three situations for comparison: 1) sphere was floating in an empty space; 2) space from observer all the way to the sphere was filled with a line of trees on a ground made of bricks, which provided variety of depth cues; 3) depth cues were filled only part of the way, close to the observer. Spheres were 0.2m or 0.4m on radius, and they were positioned on standard distances of 2m and 20m in order to approximate Moon size and distance from the Earth ratio. Participants matched first situation (empty space) with other two individually. Results showed statistically significant differences between empty space and half filled with depth cues ($F(1, 18) = 14.29$, $p < .01$, $\eta^2 = .44$) and also between empty space and space filled all the way ($F(1, 18) = 6.39$, $p < .05$, $\eta^2 = .26$). In both comparisons participants equalized smaller sphere on a direction containing depth cues with a larger sphere on a direction without depth cues, meaning that they perceived a sphere on direction with depth cues as larger, which is in line with flattened sky dome hypothesis. Additionally, effect sizes are different, indicating that differences in perceived sizes were larger when participants were comparing an empty space sphere with the one from the space only half filled by depth cues. This difference in effect sizes is in line with our alternative hypothesis for Moon illusion explanation, relying on different spatial distribution of depth cues (many of them near the observer, and almost none of them further on).

Keywords: Moon illusion, perceived distance, perceived size, depth cues distribution, flattened sky dome

---

[*]corresponding author e-mail: *otoskovi@f.bg.ac.rs*

REPRESENTATIONAL SHIFTS OF BASIC HUES DO NOT DEPEND ON TYPICALITY AND SPECIFICITY OF COLOR LABELS

Isidora Damjanović[*] & Ivana Jakovljev

University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

Color memory research showed inconsistent results: representational shifts toward the category prototype and the category boundary have both been observed (Bae et al., 2015; Kelly & Heit, 2014). Here we investigated whether color labels affect the memory for basic hues considering prior findings of their effect on color judgments and decision-making (Miller & Kahn, 2005; Skorinko et al., 2006). Four experiments differing only in labels presented with the target color were conducted. In E1 (N = 18) and E2 (N = 19), labels were typical and unspecific (e.g. red) or specific (e.g. raspberry red), respectively. In E3 (N = 18) and E4 (N = 17), labels were atypical and unspecific - either of low ambiguity including the hue information (e.g. antique red), or of high ambiguity (e.g. mysterious bustle). We selected four targets (red, green, yellow, blue) and four distractors for each target from the CIE LCH space. Two distractor hues were closer to the prototype than the target and two were closer to the category boundary, while the perceptual distance between adjacent colors was constant ($\Delta E = 9$). In the training phase, participants were asked to remember the targets and evaluate their typicality, arousal, emotional valence, and likeability on a Likert scale. In the main task, participants selected the target from a set of five color patches (the target and four distractors). Repeated measures ANOVA showed a significant representational shift toward the prototype but only for blue and green – for these hues, participants chose distractors closest to the prototype more frequently than the target ($F(12, 816) = 6.62, p = .00; \eta^2 = .09$). No color label effect on main task answers was detected ($F(3, 68) = 1.59, p = .19$). However, label type affected most training measures. For example, estimates of color typicality were the highest for typical and unspecific labels and they decreased as the complexity of labels increased ($F(3, 67) = 15.05, p = .00; \eta^2 = .40$). Also, some category-specific effects were observed – for example, as label complexity increased, emotional valence, arousal and likability estimates for yellow decreased. Our findings confirmed previously reported effects of labels on color judgment, but they do not suggest effects of label type on color memory – at least in the case of basic hues. Additionally, we observed the representational shift toward the category prototype for two out of four basic hues which partially confirmed some of the previous findings.

Keywords: representational shift, color, memory, color labels

---

[*]corresponding author e-mail: *damjanovic.ika@gmail.com*

LIGHTNESS ILLUSIONS IN LABORATORY AND ONLINE CONDITIONS

Predrag Nedimović[1,*], Dražen Domijan[2], & Sunčica Zdravković[1,3]
[1] University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2] University of Rijeka, Faculty of Humanities and Social Sciences, Department of Psychology
[3] University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

Typically, in lightness illusions (LIs), two surfaces (targets) of the same reflectance are placed in different contexts (e.g., black and white backgrounds) which influences targets to appear different in lightness. Depending on the constellation of the context, targets can appear to be more similar (assimilation) or more different (contrast) to the background reflectance. LIs are usually presented on a computer screen (CRT), in a laboratory setting that allows precise control of physical stimulation and viewing conditions. The experimenter controls the luminances of the targets that are presented on calibrated screens, the lighting conditions and the stimuli size. Recently lightness studies were done online, with stimuli presented on participants' non-calibrated displays. Online experiments have a benefit over the traditional paradigms as they are more easily distributed to various participants. The drawback is that researchers cannot control either the luminance and size of the display or viewing and lighting conditions. The goal of this study was to test whether the results obtained in online experiments could be comparable to the CRT studies conducted in a proper lab setting. We ran identical experiments in the lab, on a calibrated CRT (N = 40), and online (N = 80), using 9 LIs (Simultaneous Lightness Contrast (SLC), Maniatis variation of SLC, White's Illusion, Wedding Cake Illusion, Reversed Contrast, Dungeon Illusion, Checkerboard Illusion and Bullseye Illusion). Participants made lightness matches adjusting the lightness of the patch presented on the screen. Obtained results show that all lightness illusions produced the same direction of the obtained effect: the first four illusions produced contrast, while the last four produced assimilation effects. However, further analysis revealed that the size of the obtained effect is different across conditions: SLC, Maniatis and Bullseye produced a larger effect online ($Md_{Cohen's\ d}$ = .50), while the effect produced by other illusions was larger in CRT conditions ($Md_{Cohen's\ d}$ = .71). The stimuli that produced a larger effect in online experiments had larger area of the targets than other stimuli. Still, in absolute values, observed deviations were quite small. Based on these results we can conclude that the online experiments are comparable to the lab run experiments when testing the direction of the effects but not when estimating the effect size.

Keywords: Lightness Illusions, Contrast & Assimilation, Online experiment

---
[*]corresponding author e-mail: *predrag.nedimovic@f.bg.ac.rs*

SHAPING URBAN NIGHTS: UNDERSTANDING LIGHTING PREFERENCES FOR SAFETY AND COMFORT

Lanlan Wei, Matej B Kobav, & Matija Svetina[*]
University of Ljubljana

Problem statement. Outdoor public lighting has many benefits, including improved visibility, increased comfort and safety in public spaces, and utilization enhancement. People generally prefer uniform and bright overhead lighting in public spaces at night, and well-lit surroundings are preferred over just road-ahead lit areas. However, despite considerable research on lighting parameters, i.e. illuminance, luminance, uniformity and glare, our knowledge of user preferences regarding lighting settings in real-world contexts is limited. A current study was performed to investigate individuals' lighting preferences in urban environments. *Participants*. The study comprised 130 individuals under the age of 30, all of whom reported having either normal or corrected-to-normal vision; 88% were male and 12% were female. *Stimuli*. We captured photographs of the urban environment at night and utilised authentic photometric data to establish a 3D model using Dialux software to simulate four different urban lighting conditions. The experiment was conducted in a dark laboratory, capable of accommodating 8-10 participants at once. The image displayed on the screen measured 300 cm x 230 cm and had an average luminance of approximately 1.0 cd/m2. The experiment followed a 2 x 2 design, examining streetlamp height (low vs. high, 4.5m vs. 12m of height) and illumination continuity (continuous vs. discontinuous). The independent variables were four questions on a 5-point scales, assessing how the participants perceived safety and comfort as well as how they perceived the ease of distances between pedestrians and the objects on the street, and ease of orientation. To collect the data, the participants used smartphones set to a minimum brightness. *Results*. We conducted four 2 (low vs. high streetlamp) x 2 (discontinuous vs continuous illumination) analyses of variance (ANOVAs) with perception estimates as independent variables. The results were consistent: while the main effects of streetlamp height were not significant, the main effects of illumination continuity and interactions were significant in all cases. For instance, participants reported greater comfort with continuous rather than discontinuous lighting, $F(1, 128) = 388.16$, $p < .001$, $\eta^2 = .75$, with a statistically significant effect in the high- versus low-street lamp condition, $F(1, 128) = 33.88$, $p < .001$, $\eta^2 = .21$. Overall, continuous lighting was preferred by participants, particularly in the high-street lamp condition. These findings have important implications for the design of urban public lighting.

Keywords: perception, environmental psychology, experiment, lighting

---

[*]corresponding author e-mail: *m.svetina@ff.uni-lj.si*

A NEURAL NETWORK MODEL OF THE GESTALT PRINCIPLE OF ACCENTUATION

Dražen Domijan[*] **& Ivana Ivančić**
University of Rijeka

Recently, Pinna and colleagues have introduced a new principle of perceptual organization, which they call the principle of accentuation. Accent is defined as a salient or conspicuous visual element that attracts attention. In this way, it also influences the perceptual organization of the surrounding visual space. Here, we developed and tested a neural network model of perceptual organization that can explain the properties of accentuation. The model consists of bottom-up and top-down pathways. Bottom-up processing involves a set of feature maps, which compute the bottom-up salience of color, luminance, and orientation. A feature-based winner-take-all network then selects the most salient locations. Top-down processing includes an object-based attention stage, which allows enhanced neural activity to propagate from the most salient locations to all connected locations, and a visual segmentation stage that employs inhibitory connections to segregate boundaries into different maps. We also varied the width (standard deviation) of the feedback projections from the winner-take-all network to the object-based attention and visual segmentation stages. To test the properties of the proposed model, we run a set of computer simulations with stimuli similar to those used in previous psychophysical studies. The simulations showed that the model correctly predicts observers' responses to the square-diamond illusion when the relative position (vertex, edge, middle) and distance (small, medium, large) between the accent and the square-diamond are systematically varied. The model captures the trend that the probability of reporting a diamond or square decreases as the distance between the accent and the square-diamond increases. Moreover, the model shows more ambiguity in visual segmentation when the accent is placed in the middle position between vertex and edge, as observed experimentally. The proposed model suggests that an interactive neural architecture that integrates bottom-up and top-down processing is necessary to understand the principle of accentuation.

Keywords: accentuation, Gestalt principles, perceptual organization, neural network model, visual attention

[*]corresponding author e-mail: *drazen.domijan@uniri.hr*

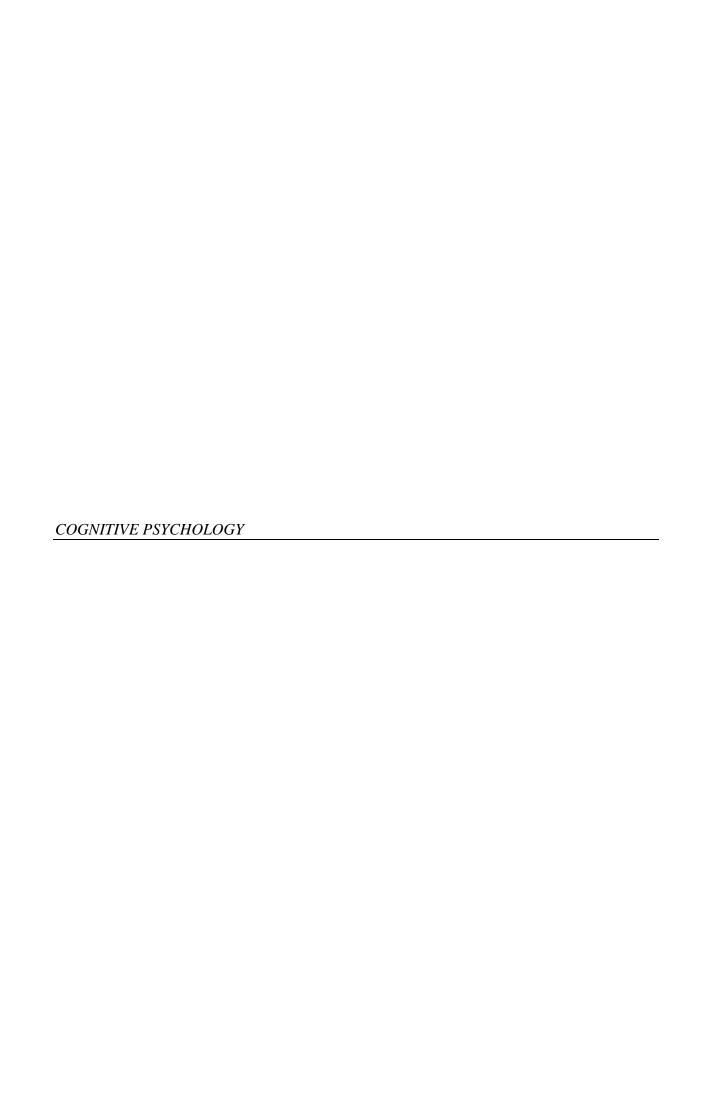# SUPPRESSION OF SALIENT DISTRACTOR DOES NOT DEPEND ON ATTENTIONAL WINDOW SIZE

Nataša Mihajlović[1,*] & Sunčica Zdravković[1,2]

[1]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology

Salient distractors capture attention during search for unpredictable shape singletons, but not during search for shapes with predefined feature values. Signal suppression account (Gaspelin et al., 2015) predicts that during feature search target templates are established and salient stimulus is suppressed via top-down control. However, it is impossible to establish reliable target templates during search for unpredictable singletons, so in the singleton search task attention is driven by salience. Attentional window hypothesis (Theeuwes et al., 2007) postulates that attentional window is larger during singleton search and smaller during feature search, so during feature search location of distractor is outside of the window. In this account top-down strategy cannot override saliency and only the type of the search set (singleton versus nonsingleton) dictates the size of the window. Manipulation of window size and singleton status of the target ensures different predictions of two theoretical accounts. Experiment 1 tested attentional capture by salient color distractor in search task with predefined target feature, where in half of the trials target was a shape singleton, and in other half of the trials we added other unique shapes so the target is not a singleton. There was no interaction of set type and distractor presence. RTs were faster in singleton condition compared to nonsingleton condition ($F(1, 25) = 175.60$, $p < .001$, $\eta_p^2 = .87$) and also in trials with salient distractor compared to trials without salient distractor ($F(1, 25) = 6.69$, $p = .016$, $\eta_p^2 = .21$). We further tested effect of salient distractor during search for singleton with predictable feature value, with instruction to search for shape singleton (Experiment 2) or for specific shape feature value (Experiment 3). In both experiments distractor slowed RTs ($F(1, 54) = 38.34$, $p < .001$, $\eta_p^2 = .41$) regardless of the instructions. In Experiment 1, in both singleton and nonsingleton condition, distractor was suppressed and attention was under top-down control, regardless of the size of the window, in line with signal suppression hypothesis. Experiments 2 and 3 indicated that bottom-up strategy of directing attention to salient stimuli was applied when target had a singleton status, even if cognitive strategy was also applicable. This finding is not in line with signal suppression account. Top-down strategy can be applied independently of attentional window size, but only when bottom-up strategy is not useful.

Keywords: signal suppression, attentional window, singleton search

---

[*]corresponding author e-mail: *natashakatic15@gmail.com*

COGNITIVE PSYCHOLOGY

GAZING RIGHT: THE ROLE OF VISUAL ATTENTION IN LEXICAL AND SPATIAL TASKS

Kristina Rajković[*] & Vasilije Gvozdenović
University of Belgrade, Faculty of Philosophy, Department of Psychology, Laboratory for Neurocognition and Applied Cognition

This study aimed to examine the mechanisms underlying the shifting of visual attention. Shifting of attention was done through gaze-cueing on schematically created face stimuli. Cued, uncued, or neutral trials were incorporated, depending on whether they correctly indicated the target's location. Targets were verbal, words or pseudowords, and appeared either left or right from the face. The design and procedure in the two experiments were the same, the difference being in the task participants performed. In Experiment 1, participants (N = 36) had a lexical decision task; in Experiment 2, different participants (N = 37) performed a localization task with silent reading. Results of repeated measures ANOVA in Experiment 1 were as follows: a main effect of lexicality ($F(1, 35) = 109.85$, $p < .001$, $\eta_p^2 = .758$), location ($F(1, 35) = 9.57$, $p = .004$, $\eta_p^2 = .215$), and cue validity ($F(2, 70) = 32.14$, $p < .001$, $\eta_p^2 = .479$). Interactions were significant between location and cue validity ($F(2, 70) = 4.08$, $p = .021$, $\eta_p^2 = .104$), and between lexicality, location, and cue validity ($F(2, 70) = 7.32$, $p = .001$, $\eta_p^2 = .173$). A similar results pattern was obtained in Experiment 2: analysis has revealed a main effect of lexicality ($F(1, 36) = 34.26$, $p < .001$, $\eta_p^2 = .488$), location ($F(1, 36) = 3.99$, $p = .053$, $\eta_p^2 = .100$), and cue validity ($F(2, 72) = 37.70$, $p < .001$, $\eta_p^2 = .512$). Faster responses from participants in both experiments were recorded for trials containing words, and for cued trials. The analysis of location showed the following trend: in Experiment 1, subjects were faster to respond when targets were located right, regardless of the target's lexical identity, whilst in Experiment 2, only words that were located right were responded faster to. The main effect of lexicality was reported for the proportion of correct answers ($F(1, 36) = 6.71$, $p = .014$, $\eta_p^2 = .157$) exclusively in Experiment 2, where participants localized words more accurately than pseudowords. Results were congruent with previous findings concerning lexicality and gaze-cueing paradigm, and show great involvement of both spatial and verbal modality in attentional shifting.

Keywords: visual attention, gaze-cueing, lexicality

---

[*] corresponding author e-mail: *kristina.rajkovic5@hotmail.com*

ILLUSORY CONTOUR CLARITY DOES NOT IMPACT VISUAL SEARCH

Zorana Zupan[*] & Vasilije Gvozdenović

University of Belgrade, Faculty of Philosophy, Department of Psychology

Illusory contours have a varying degree of clarity depending on factors such as inducer size and the number of line endings defining the inducers. In the present study, we investigated whether illusory contour clarity has an impact on visual search patterns. Experiment 1 investigated contour clarity manipulated via inducer size, and Experiment 2 investigated contour clarity in visual search manipulated via the number of inducer line endings. Both experiments examined search for an illusory target among illusory distractors and a non-illusory target (inducers oriented outwards) among non-illusory distractors, by examining clarity (via inducer size in Experiment 1 and number of Line ends in Experiment 2), stimuli type (illusory or non-illusory stimuli) and set size (4, 6, 8, or 12 items). The results of Experiment 1 showed that while size was a significant factor, $F(2, 34) = 4.78$, $p < .05$, $\eta^2 = .03$, there were no differences between illusory and non-illusory stimuli, $F(1, 17) = 0.176$, $p = .680$, suggesting that clarity did not influence search. The results of Experiment 2 confirmed the results of Experiment 1, with no three-way interaction between stimulus type, clarity, and set size, $F(6, 102) = 2.13$, $p = .056$, $\eta^2 = .002$. Two two-way interactions were significant: a fewer number of line-ends slowed down search rate for larger display sizes for both types of stimuli, $F(6, 102) = 5.658$, $p < .001$, $\eta^2 = .005$, and search was less efficient for non-illusory stimuli at larger set sizes, $F(3, 51) = 3.90$, $p < .05$, $\eta^2 = .002$. Bonferroni-corrected post hoc comparisons suggested that search functions were steeper for inducers constructed of 3 and 5 lines at larger display sizes than for those constructed of two lines, $p_s < .001$. Overall, the results suggest that the inference of the clarity of the illusory contour does not impact visual search since there was no difference between illusory and non-illusory stimuli with regards to clarity effects. In some conditions, the presence of the illusory contour can aid visual search performance. While clarity impacts the perception of illusory contours, it has less impact on visual search performance which might be instead driven by other factors, such as surface representation.

Keywords: Attention, Visual search, Illusory contours, Kaniza figures

SENSORY INFORMATION EFFECT IN PROCESSING POLYSEMOUS WORDS

Sara Anđelić[1],* & **Dušica Filipović Đurđević[1,2,3]**
[1]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

In their views on the activation of the word meaning representation (MR), PDP theories take into account that the vast majority of words have multiple related senses, i.e., are polysemous. Since polysemous senses share semantic features, there is a priming effect between them (Klepousnioutou et al., 2008). In parallel, models of embodied cognition assume that the basis of a MR of an object is a simulation of a previous sensorimotor (SM) experience with it. In order to examine whether the modality-specific SM representation is contained in the representational part shared between word senses, we examined whether the activation of a modality-specific MR of one word sense helps the activation of MR of another word sense that contains MR in the same modality. Two experiments were conducted using a priming paradigm with 40 pairs of polysemous senses (e.g., a sealed letter and an italic letter). In both experiments, we wanted to compare the two senses priming effect in two cases: when their shared sensory modality is focused (e.g., seeing a sealed letter and also an italic letter) versus when a modality unique only to the prime is focused (e.g., touching a sealed letter but not an italic letter). The control condition consisted of trials with abstract stimuli as primes. Due to the novelty of the procedure, a pilot experiment was conducted in which 40 participants performed a semantic verification task (e.g. When it comes to mail, most people have seen a letter with their own eyes). Although the crucial priming-by-modality interaction was not observed (only the priming effect; $\beta = -0.16$, $t(775.52) = -9.46$, $p < .001$), we did learn that our procedure elicits too long reaction times ($M \approx 2500$ms), thus missing the time-niche of the phenomenon we are investigating. Therefore, the procedure in the main experiment was adjusted by presenting shorter stimuli (e.g. have seen a sealed letter) to 95 participants. In accordance with our hypothesis, interaction was observed: when shared modality was focused, the priming effect was larger ($\beta = 0.04$, $t(1901) = 2.33$, $p = .02$). Although small in size, the interaction effect for the first time unequivocally showed that the polysemous senses share not only semantic but also sensory features, since priming is stronger when, in addition to the shared semantic features, the shared sensory features are also activated. This finding suggests the compatibility of two previously unrelated theoretical views on the activation of MR.

Keywords: word ambiguity, polysemy, embodied cognition, sensory modality, priming paradigm

ROOTING POLYSEMY IN CUE COMPETITION-BASED ERROR-DRIVEN LEARNING

Ksenija Mišić[1,2,*] & Dušica Filipović Đurđević[1,2,3]
[1]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

The processing advantage of polysemous words is typically attributed to the relatedness of their senses (paper – writing paper /scientific paper). Filipović Đurđević and Kostić (2023) demonstrated that this advantage could arise in the process of error-driven learning (EDL). Using a simple two-layer network and the Rescorla-Wagner learning rule, the authors mapped the orthographic form of the target word (in the form of overlapping bigraphs as the input: #p_pa_ap_pe_er_r#) onto the corresponding lemma and the flanking words (words that co-occurred with the target word within a +/-3 window as the output (The, white, writing, *paper,* is, super, soft). In their approach, semantic relatedness among the senses was approximated by the relatedness among the contexts in which the target form occurred, and the latter was operationalised by shared flanking words. The learning in this approach was simulated by relying on competition among both the cues (bigraphs) and the outcomes (flanking words). However, typical EDL approaches (Milin et al., 2017) relied solely on cue competition. In this paper, we aimed to conduct such simulations to inspect whether polysemy effects may arise just from cue competition. We ran two separate EDL simulations mapping 1) trigraphs to polysemous word forms (G2L) and 2) mapping flanking words onto polysemous word forms (L2L). Given that L2L simulation captures semantic information, we predicted that the EDL measures derived from L2L simulation would outperform the G2L measures at predicting number of senses (NoS; taken from Mišić et al., 2023) and processing (visual lexical decision task RT; taken from Mišić et al., 2021). Gradient-boosting machines suggested that L2L-diversity had the greatest relative influence on RT, and generalised additive models confirmed its predictive power (β = -.02, *SE* = .01, *t* = 2.24, *p* = .02). L2L-diversity is considered to indicate the variability of contexts in which the word occurs (i.e. the diversity of flanking words). It can thus be interpreted also as an indicator of semantic ambiguity, as confirmed by its correlation with NoS (*r* = .27 – .42). Our results revealed that L2L-diversity facilitated word recognition, thus suggesting that polysemy can arise from the cue-competition-only approach and that the nature of polysemy advantage can be captured in EDL through the diversity of contexts. Further research is planned to separate the effects of cue and outcome competition more directly in the ambiguity context.

Keywords: error-driven learning, semantic ambiguity, polysemy, number of senses, lexical decision task

DIFFERENT EFFECT OF EMOTIONAL VALENCE ON CUED RECALL OF CONCRETE AND ABSTRACT WORDS

Andrej Tornjanski[1],[*] & Dušica Filipović Đurđević[1,2,3,]
[1]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology

Previous literature comparing the processing differences between abstract and concrete words has repeatedly shown that concrete words have a cognitive advantage compared to abstract words (Kousta et al., 2011; Paivio et al., 1966). This tendency, named the concreteness effect, is explained by two opposing theories: the dual coding theory (Paivio, 1991; Sadoski & Paivio, 2004) and the context availability theory (Schwanenflugel & Shoben, 1983). As shown by Kousta et al. (2011) in a lexical decision task controlling for imageability and context availability led to faster recognition of abstract words (the abstractness effect). The goal of this study was to investigate whether the abstractness effect can be replicated in a paired associate learning task (Paivio, Yuille, & Smythe, 1966), and to contribute to the debate on the concreteness/abstractness effect (Paivio, 2013; Vigliocco et al., 2013). The participants were first-year psychology students (N = 104) from the Faculty of Philosophy, University of Belgrade. They were presented with 30 pairs of nouns in a random sequence. The participants were engaged in the cued recall twice – immediately upon the presentation and one week later. The stimuli were selected according to the 2x3 (concreteness by emotional valence) design. Half of the words were abstract, and half concrete. Words in each group were either positively, neutrally, or negatively valanced. The six groups of words were matched for context availability, familiarity, arousal, age of acquisition, (log) lemma frequency, word length (in number of letters) and association rating within word pairs. Imageability was controlled within concrete and abstract groups respectfully. The general mixed-effects linear regression analysis of the binominal distribution of responses revealed only the drop in cued recall for the negatively valanced abstract words (*odds-ratio: .23, t*(6228) = -2.41, *p* = .016) whilst there was no significant difference between the other five word types. This pattern of results was stable across two testing conditions. The study's findings show no concreteness nor abstractness effect. Because of an observable valance effect only in the group of abstract words, the results mainly support the theoretical proposal given by Kousta et al. (2011) that concrete and abstract words have different sources of experiential information. However, this proposal couldn't account for the drop in negative abstract words and so other explanations were explored.

Keywords: emotional valence, word concreteness, dual coding theory, concreteness effect, abstractness effect

TESTING THE EFFECTIVENESS OF HIGH-DENSITY OSCILLATORY THETA MODULATED TRANSCRANIAL DIRECT CURRENT STIMULATION ON ASSOCIATIVE MEMORY

Milica Manojlović[1,2,3,*], Jovana Bjekić[1], Danka Purić[2,3], & Saša R. Filipović[1]
[1]University of Belgrade, Institute for Medical Research
[2]University of Belgrade, Faculty of Philosophy
[3]University of Belgrade, Faculty of Philosophy, LIRA lab

Associative memory (AM) is the ability to bind unrelated pieces of information into a coherent memory unit. Despite AM's importance in episodic memory formation, the specific role of its neural substrates is still the topic of research. In this study we compared the effects of high-density oscillatory theta modulated transcranial direct current stimulation (HD-Theta-otDCS) over the left posterior parietal cortex (PPC) applied either during the encoding or retrieval phases of AM tasks. This allowed us to test whether PPC has a greater role in binding or post-biding processes and simultaneously to validate the newly developed HD-Theta-otDCS protocol. Using the cued-recall paradigm for AM testing (Face-Word and Object-Location tasks), in a sham-controlled cross-over design, 21 healthy, young participants received either: 1) active HD-Theta-otDCS during encoding of the AM tasks and sham during the retrieval, 2) sham during encoding and active HD-Theta-otDCS during retrieval or 3) sham stimulation in both phases, in a counterbalanced order. The two phases were 30 min apart and lasted for 15 min each. The stimulation protocol consisted of an anode over the left PPC (P3) and four surrounding return electrodes (CP1, CP5, PO7, POz) with electrical current oscillating in theta rhythm (5Hz, 1.5 ± 0.5mA). HD-Theta-otDCS increased AM performance in the Face-Word task in comparison to sham ($F(2, 42) = 4.46$, $p = .02$, $\eta_p^2 = .18$). Planned contrast showed the significant effect of stimulation (versus sham) during both encoding ($p = .02$, $\eta_p^2 = .22$) and retrieval ($p = .005$, $\eta_p^2 = .32$), while no differences were found between the two active stimulation conditions. There were no stimulation effects on Object-Location task, however this is due to a ceiling effect and the overall poor psychometric characteristics of the test. Firstly, our results imply that the novel HD-Theta-otDCS protocol could be a promising tool for AM enhancement, regardless of the stimulation timing. This calls for further research examining its efficacy and applications in clinical studies. In parallel, obtained results suggest that PPC has an important role in both memory processes - encoding and retrieval.

Keywords: associative memory (AM); encoding; retrieval; posterior parietal cortex (PPC); high-density oscillatory theta modulated transcranial direct current stimulation (HD-Theta-otDCS)

* corresponding author e-mail: *milica.manojlovic@imi.bg.ac.rs*

CONFLICTING INTUITIONS: TESTING THE PREDICTIONS OF HYBRID DUAL PROCESS MODEL OF HIGHER COGNITION

Milica Damnjanović[1,*] & Kaja Damnjanović[1,2]
[1]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philosophy, Institute of Philosophy

The latest hybrid dual process model of cognition states that conflicting intuitions are activated in the initial stages of reasoning – heuristic intuitions that yield incorrect responses and logical intuitions that yield normatively correct ones. The model proposes that intuition that has a greater will prevail, but also that the difference in intuitions' strength will influence reasoning confidence – greater similarity in conflicting intuitions' strength should lead to lower confidence in reasoning outcome and vice versa. In this research, we wanted to test the predictions of this model and further on examine individual differences in intuitive reasoning. In the first study, we tested if we could manipulate the strength of logical intuitions by varying the extremity of the rates in base-rate neglect tasks (both conflict and non-conflict), so that we could later examine how differences in conflicting intuitions' strength influences reasoning confidence. Two-way repeated ANOVA revealed a significant interaction between task conflict and rate extremity ($F(2, 194) = 4.87$, $p < .01$, $\eta^2 = .05$), showing that that reasoning accuracy decreased as rates got more similar only in the case of conflict tasks. In the second study, participants solved the same tasks twice, once under a time and cognitive constraint and once without them, rating how confident they were in the provided answer each time. They also completed a series of cognitive tests that have been previously linked with sound reasoning. Three-way repeated ANOVA revealed significant interaction between task conflict and rate extremity ($F(2, 178) = 29.46$, $p < .001$, $\eta^2 = .25$), showing that accuracy decreased with rates' extremity, this time in both reasoning conditions. As for the reasoning confidence, two-way repeated ANOVA revealed a significant interaction between answer type and rates' extremity ($F(1, 23) = 29.58$, $p < .001$, $\eta^2 = .56$), suggesting that confidence decreased as the rates got more similar when participants gave out correct responses. Contrary to our expectations, the confidence did not increase with rates' extremity in the case of incorrect responses. At last, only working memory correlated significantly with intuitive reasoning ($r = .24$, $p < .05$). These results indicate that model's predictions are in line with empirical data, but only when the reasoning as such is normatively correct, yet they call for more detailed model testing and further examination of individual differences in intuitive reasoning.

Keywords: dual processes, hybrid model, logical intuitions, reasoning confidence, base-rate neglect

METACOGNITIVE ALIGNMENT: PERFORMANCE AND PERSONALITY AS PREDICTORS OF METACOGNITIVE OUTCOMES

Pavle Valerjev[1],[*] & Marin Dujmović[2]
[1]University of Zadar, Department of Psychology
[2]University of Bristol, Pharmacology and Neuroscience, School of Physiology

Performance accounts for some metacognitive judgment variance, but less than one would expect. Likewise, previous research struggles to determine which personality traits predict metacognitive judgments. A general trait of self-confidence has been proposed, alongside with some findings showing extraversion, agreeableness and openness being significant predictors. With personality traits, as with accuracy, the pattern of correlations depends on the type of task and there has not been a systematic attempt to identify these differences. In this study, we aimed to determine how much metacognitive judgment variance in cognitive tasks can be explained by the big five personality factors when controlling for performance. Participants (N = 71, M_{age} = 21.86, SD_{age} = 3.63, 90.1% female) completed the IPIP 50 personality inventory, 11 matrix reasoning tasks and 14 number series tasks. The tests were followed by two metacognitive judgments – the number of tasks they solved correctly, and the number an average participant would solve. Hierarchical regression analyses were conducted with performance (number of correct responses) in the first, and personality factors in the second step as predictors of two indicators – self-assessed performance and self-evaluation (difference between self and other's assessment of performance). Self-assessment was predicted by performance ($F(1, 69) = 9.48$, $p = .003$, $R^2 = .12$) with personality factors contributing significantly beyond that ($F(5, 64) = 4.45$, $p = .002$, $\Delta R^2 = .23$). Performance and extraversion were positive predictors ($\beta = .32$ and $\beta = .35$ respectively), and agreeableness was a negative predictor ($\beta = -.40$). Similarly, performance accounted for a smaller portion of variance in self-evaluation ($F(1, 69) = 4.62$, $p = .035$, $R^2 = .06$) while personality factors explained more ($F(5, 64) = 7.95$, $p < .001$, $\Delta R^2 = .36$). Performance and extraversion were positive ($\beta = .25$ and $\beta = .45$ respectively), and agreeableness was a negative predictor ($\beta = -.51$). Extraverts tend to estimate their performance as higher in general which may be related to previous findings of self-confidence as a general trait often correlated with extraversion. This is also true for participants low in agreeableness who have less of a need to relate and belong in groups, and to curtail their self-confidence. It would be interesting to investigate whether these results extend to a problem solving, reasoning and decision making.

Keywords: metacognition, reasoning, personality, metacognitive judgments

---

[*] corresponding author e-mail: *valerjev@unizd.hr*

BUG OR A FEATURE: MYSIDE BIAS IN INFORMAL REASONING

Milica Mitić[*]& Kaja Damnjanović
University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology

Two theories explain myside bias, an inclination of individuals to produce and judge arguments in a way that favors their own beliefs. Default interventionists see it as a type 1 reasoning error that failed to be corrected by type 2 processes, while the Argumentative theory views it as a reasoning feature, intensified by type 2 processes to persuade others. This study aimed to examine the roles of type 1 and type 2 processes in myside bias in informal reasoning, i.e., argument evaluation. To do so, the two-response paradigm was implemented. Participants (N = 73) evaluated arguments once under a time limit and once without time constraints, reporting how confident they were in each evaluation. Argument evaluation tasks (AETs) consisted of a conclusion and an argument that supports it, and were constructed based on arguments collected in a pilot study. Eight pro-trans and eight anti-trans AETs of equal argument strength, assessed by three independent raters, were used in the final study. Participants were instructed to evaluate how well the argument supports the conclusion, on a scale ranging from 1 to 7. Because of the informal nature of evaluated arguments, no conventional normative criteria could be used to register bias. Rather, myside bias was registered as a difference in argument strength ratings depending on participants' agreement with the conclusion. Furthermore, we have collected measures of cognitive ability and existing attitudes towards transgender people. Results show that attitudes were highly skewed, indicating no attitude polarization. Hence, the final sample consisted of 68 participants categorized as pro-trans only. Two-way repeated ANOVA revealed a significant effect of attitudes ($F(1, 66) = 44.61$, $p < .05$) showing that participants exhibited myside bias – they evaluated pro-trans arguments as stronger than anti-trans arguments. The effect of the time limit was not significant, suggesting that type 2 processes did not override, nor promote intuitive answers. Furthermore, significant correlations were only found between argument evaluations and attitude importance ($r = .31$ with, and $r = .30$ without time limit), indicating that myside bias is independent of cognitive capacity. These results show that myside bias can not be explained by the default-interventionist framework, nor by the argumentative theory of reasoning. A larger and attitudinally more heterogeneous sample is needed to further unveil the relationship between type 1 and type 2 processing in myside bias.

Keywords: myside bias, informal reasoning, dual process, argument evaluation, argumentative theory of reasoning

SCEPTICISM TOWARDS SCIENCE: THE PREDICTIVE UTILITY OF COGNITIVE STYLE MEASURES

Marin Dujmović[1,*] & Pavle Valerjev[2]
[1]University of Bristol, Pharmacology and Neuroscience, School of Physiology
[2]University of Zadar, Department of Psychology

In a world dominated by social media and a steady diet of bite-sized chunks of information – confidence in science – the approach and institutions producing it – has steadily eroded. The aim of this study was to determine how much of this scepticism may be explained by cognitive styles. Previous research has aimed at relating certain individual differences (e.g., religiosity, conservativism, conspiratory thinking) to pseudoscientific beliefs. Theoretical frameworks have attempted to lay out factors affecting antiscientific attitudes such as the method of message delivery, group membership, individual differences and framing. Cognitive styles have usually taken a peripheral role as one of the factors. We propose that basic cognitive styles represent earlier antecedents of antiscientific beliefs as they make individuals more likely to develop those aforementioned traits. In order to properly relate cognitive style to antiscientific attitudes, more than one or two cognitive style measures have to be taken into account considering the most popular ones (need for cognition and actively open-minded thinking) are only moderately correlated. Further, we aimed to measure antiscientific attitudes explicitly rather than via pseudoscientific beliefs. Participants (N = 167, 91.02% female, M_{age} = 22.20, SD_{age} = 2.47) completed the following cognitive style measures: Actively Open Thinking (AOT), Need For Cognition (NFC), Dickman's Impulsivity Inventory which measures dysfunctional and functional impulsivity (DII_D, DII_F), and the Decision Style Scale which measures rational and intuitive style (DSS_RAT, DSS_INT). Finally, participants completed the Scepticism toward the Scientific Method Scale (SSMS). Multiple linear regression with SSMS as the criterion and aforementioned cognitive style measures as predictors revealed that the overall model explained 24% variance ($F(6, 160)$ = 8.43, $p < .001$). Measures of intuitive and dysfunctional impulsive thinking were positive predictors of scepticism (β_{DSS_INT} = .22, $t(160)$ = 2.96, $p = .004$; β_{DII_D} = .28, $t(160)$ = 3.65, $p < .001$). The tendency towards open thinking and functional impulsivity were negative predictors (β_{AOT} = -.21, $t(160)$ = 2.85, $p = .005$; β_{DII_F} = -.22, $t(160)$ = 3.02, $p = .003$). These findings show that a significant amount of variance in antiscientific attitudes can be explained by focusing purely on cognitive styles. Interestingly, it was not a need for cognition and rationality but openness and proper balance of impulsive thinking (functional vs. Dysfunctional) that explained unique variance beyond what they all share. Interventions toward improving cognitive styles may lead to more appreciation of the scientific method and science in general.

Keywords: scepticism towards science, cognitive style, conspiracy mentality

---

* corresponding author e-mail: *marin.dujmovic@bristol.ac.uk*

THE INFLUENCE OF THE NUMBER OF MODALITIES THROUGH WHICH A CONCEPT COULD BE EXPERIENCED IN THE INCIDENTAL RECOGNITION TASK

Marko Janković[*], Senka Vasović, Dunja Mićunović, & Anja Lujić
Singidunum University, Faculty of Media and Communications, Department of Psychology,
FMK Lab Laboratory for Psychological Research

Based on the dual coding theory (DCT; Paivio, 1991), the embodiment theory (Barsalou, 1999), and the depth of processing theory (Craik & Lockhart, 1972), we conducted research to examine the impact of the depth of processing and the concreteness of words on the success of word recognition in implicit learning. In a previous study with the same stimuli and design, where the learning effect was measured through performance in cued and free recall tasks, we observed a depth of processing effect, defined by the time participants spent evaluating words. However, contrary to the initial hypothesis, both recall tasks showed a reverse concreteness effect (Janković et al., 2023). This study aimed to investigate whether the reverse concreteness effect would also occur in the word recognition task, considering the importance of familiarity in this task, requiring less cognitive engagement. Seventy-two psychology students (18% male), with an average age of 24.5 years ($SD = 6.77$), were divided into three groups based on the type of word assessments they performed during the implicit learning phase (assessment of vividness, concreteness, and context availability; depth of processing factor). All groups evaluated 45 Serbian nouns (15 abstract and 30 concrete, including 15 concepts experienced through fewer senses and 15 through more senses; modality factor; Popović Stijačić, 2021). Three groups of words were averaged by length, frequency, familiarity, context availability, emotional valence, and arousal. Afterwards, all three groups had an incidental word recognition task preceded by a mental rotation task. The dependent variable was the percentage of correctly recognized words. In the stimuli analysis, the main effects of depth of processing ($F(2, 84) = 23.1, p < .001, \eta^2 = .36$) and the number of modalities ($F(2, 42) = 3.91, p = .028, \eta^2 = .16$) were observed. Consistent with previous research, the most accurate recognition was recorded for the vividness group (lowest for the context availability group). Concepts experienced through several senses were recognized most accurately, while abstract words were recognized least accurately. Post hoc tests by Tukey revealed significant differences in reproduction accuracy between these two groups ($p < .05$). Although these findings are in line with expectations, the results raise new questions about the memory processes related to word concreteness, given the different concreteness effects observed on the same stimulus material.

Keywords: Dual coding theory, depth of processing theory, embodiment theory, implicit learning, recognition task

DETERMINANTS OF CHANGES IN EMOTIONAL VALENCE AND AROUSAL RATINGS OF WORDS: A REPEATED MEASURES STUDY

Aleksandra Stanimirović[*], Vladislav Pančevački, & Milica Popović Stijačić
Singidunum University, Faculty of Media and Communications, Department of Psychology,
FMK Lab Laboratory for Psychological Research

The dimensions of emotional experience of words, emotional valence (EV), and arousal (A) are increasingly becoming the focus of research in psycholinguistics. Most previous studies have explored their relationship, as well as their stability, investigating test-retest correlations with prior studies (e.g., Popović Stijačić et al., 2023; Stanimirović et al., 2023). One such study showed that under uncertainty conditions, arousal increases for negative concepts while decreasing for positive ones compared to a 'normal' situation (Delatorre et al., 2019). A similar trend was observed during and after the COVID-19 pandemic in a study conducted in the Serbian language (Popović Stijačić et al., 2023). In our study, we conducted a repeated measures design, considering that previous research was carried out on independent participants. In the second measurement, in addition to the situation of uncertainty, we introduced an induction of a positive context, which has not been explored before. In the pretest, 212 psychology students (M = 24.3) evaluated Serbian nouns (N = 450; Popović Stijačić et al., 2023) using the standard instructions for assessing EV and A. After three weeks at the retest, participants were divided into three groups: control (C; N = 57), a group that imagined a situation of uncertainty (U; N = 61), and a group that imagined pleasant events (P; N = 60). The participants then rated their mood over the past ten days (DASS-21), emotional experiences during word evaluation (control of mood manipulation), and concerns about socio-political events. A decrease in EV ratings compared to the pretest was observed in the U group ($F(2, 449) = 21.00, p < .05$), while all groups had lower A scores at the retest. However, an interaction between the experimental situation and word category was noted ($F(4, 449) = 5.96, p < .001$), where the C group gave significantly lower A ratings for the pleasant word category ($p < .01$). In the subject-level analysis it was shown that participants in the U group, with higher scores on DASS-21, gave lower EV ratings ($r(38) = -0.38, p < .005$). Although our study could not determine the cause of the decrease in A, the results unequivocally showed that uncertainty contributes to a reduction in EV. Additionally, it was shown that a positive context does not contribute to a change in either dimension. A potential explanation for the lack of effect could be attributed to increased stress at retest in all groups.

Keywords: arousal, emotional valence, mood induction procedures (MIP), repeated measures

LESS AROUSAL - BETTER RECALL, EXCEPT FOR THE NEGATIVE ABSTRACT WORDS

Katarina Protić[*]**& Milica Popović Stijačić**

Singidunum University, Faculty of Media and Communications, Department of Psychology, FMK Lab Laboratory for Psychological Research

Recent studies demonstrated inconsistent results about memorizing words regarding emotional valence (EV) and arousal (A). According to the representational substitution hypothesis, emotions play a central role in representing abstract words, predicting a larger valence effect in the processing of abstract words (Yao et al., 2018). On the contrary, the multimodal induction hypothesis suggests that emotions may be more accessible for concrete words, as emotions can be readily evoked by activating relevant sensorimotor experiences (Yao et al., 2018). This research aimed to test these hypotheses through the implicit memory task. In this research, 276 psychology students were split into three groups. The vividness group (V; N = 89) estimated the vividness of mental images of the words; the EV (N = 93) and A group (N = 85) estimated EV and A for the same words in the incidental learning phase. The stimuli were 64 Serbian nouns (32 concrete and 32 abstract words) from the Popović Stijačić normative study (2021). Concrete and abstract words were divided into four groups based on the emotional experience (EV+A+, EV+A-, EV-A+, and EV-A-) and averaged for length, frequency, familiarity, imageability, age of acquisition, and context availability. After the learning phase, participants had incidental free recall preceded by a mental rotation task to prevent potential rehearsal. The dependent variable was the proportion of correct reproduction. "By subject" ANOVA showed the main effect of concreteness ($F(1, 264) = 112.8$, $p < .00$; $\eta^2 = .30$), the main effect of emotional experience category ($F(3, 792) = 57.4$, $p < .00$; $\eta^2 = .18$), and their interaction ($F(3, 792) = 42.7$, $p < .00$, $\eta^2 = .14$). The recall was better for concrete words, and for those that has positive EV. "A" had a different effect on positive and negative words. It inhibited recall of positive words regardless of concreteness. However, it boosted recall of negative abstract and inhibited recall of negative concrete words. The A estimation enhanced the recall of abstract E-A+ words and inhibited recall of concrete E-A-, in comparison with the V and EV estimation group, leading to significant triple interaction ($F(6,792) = 3.4$, $p < .01$; $\eta^2 = .03$). Our results align with the multimodal induction hypothesis since the recall was higher for concrete words regardless of EV. However, we found a moderating effect of arousal, which inhibited the recall of positive words regardless of concreteness but enhanced the recall of abstract negative words.

Keywords: emotional valence, arousal, free recall, incidental memory, multimodal induction hypothesis

THE FORECAST IS BLUE, AND MIDNIGHT IS ROUND: COLORS AND SHAPES OF ABSTRACT WORDS IN THE SERBIAN LANGUAGE

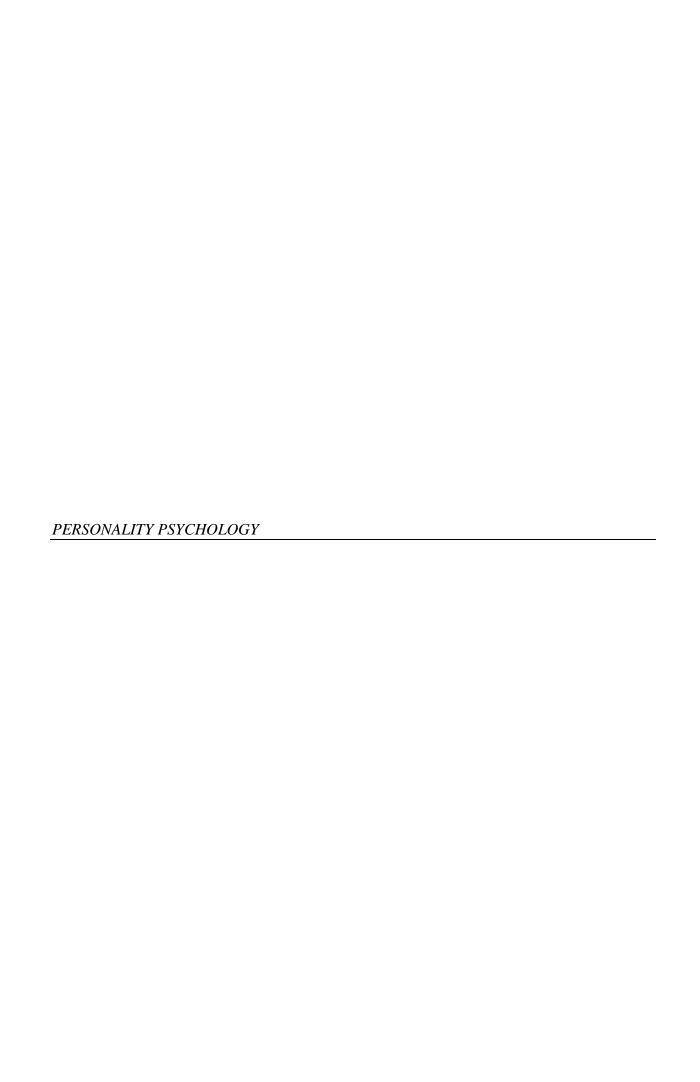**Aleksa Luburić[1,*], Ivana Jakovljev[1,2], & Milica Popović Stijačić[1,3]**
[1]University of Novi Sad, Faculty of Philosophy, Laboratory for Experimental Psychology
[2]University of Novi Sad, Faculty of Philosophy, Department of Psychology
[3]Singidunum University, Faculty of Media and Communications, Department of Psychology

Embodiment theories assert that conceptual representations are rooted in sensorimotor experiences associated with the represented concepts (Barsalou, 1999). One challenge these theories confront is explaining how abstract words are represented. Some authors propose reliance on emotional experiences (Wang et al., 2019), while others suggest drawing from concrete experiences (Günther et al., 2020). This study investigated the possibility of operationalizing the concrete experience of abstract words by examining the convergence in free associations of colors and shapes for Serbian abstract nouns and exploring their relationship with words' psycholinguistic and perceptual properties. Participants (N = 46) were given a list of 803 abstract words sampled from a previous normative study (Popović Stijačić, 2020). Their task was to write down the first color and shape associations related to each word. The uniqueness of color (UoC) and shape (UoS) associations were calculated as the ratio of produced names to total responses for each word (a lower ratio denoted greater uniqueness). These measures, reflecting abstract words' concrete experience, were correlated with psycholinguistic measures and words' perceptual strength (Popović Stijačić, 2020). Recorded correlations between UoC and UoS with psycholinguistic variables were in the expected direction. The UoC was negatively correlated with concreteness ($r(801) = -.21$, $p = .001$), imageability ($r(801) = -.27$, $p = .001$), context availability ($r(801) = -.23$, $p = .001$) and familiarity ($r(801) = -.20$, $p = .001$). For the UoS measure, similar results were observed. The UoC had the highest correlation with visual ($r(801) = -.24$, $p = .001$) and olfactory strength ($r(801) = -23$, $p = .001$), while the UoS correlated with visual ($r(801) = -.16$, p = .001) and tactile strength ($r(801) = -.18$, $p = .001$). Inspection of the words and their color and shape associates revealed plausible pairs for those words with the highest UoC and UoS measures (e.g. *nature-green, love-red, vortex-cone, world-ball*). These results indicate the potential of defining the abstract words' concrete experience by associating color and shape labels and expressing it via UoC and UoS measures. The plausibility of UoC and UoS was investigated only by correlations with psycholinguistic measures. However, the lexical processing task should be applied to conclude whether the measures are cognitively relevant and to draw conclusions about the nature of the abstract word representations.

Keywords: embodied cognition, abstract words, Serbian language, colors, shapes

---

[*] corresponding author e-mail: *aleksaluburic@yahoo.com*

PERSONALITY PSYCHOLOGY

WITH GREAT HUMOR COMES MODERATE ACADEMIC RELEVANCE? PERCEIVED AMUSEMENT, ACADEMIC RELEVANCE & CITATIONS OF HUMOROUS ("IG NOBEL") SCIENTIFIC PAPERS

Siniša Subotić[1],*, Aleksandar Tošić[2], Arijana Radić[2], Aleksandar Slijepčević[2], & Tatjana Dobraš[3]

[1]University of Banja Luka, Department of Psychology & Faculty of Natural Sciences and Mathematics
[2]University of Banja Luka, Faculty of Philosophy, Psychology BA Program
[3]University of Banja Luka, Faculty of Philosophy, Psychology MSc Program

Ig Nobel Prize is a light-hearted "parody", awarded for scientific findings that "first make people laugh, and then make them think". In this study, we examined how humor in presumably "highly amusing", Ig Nobel winning scientific articles, is perceived and related to their citation counts and to context in which they were cited. We studied four scientific article groups (29 articles each). 1) A "highly amusing" group comprised a subset of Ig Nobel 2018-22 winning papers (IG), and was paired with 2) a control group selected from the same journal volumes as IG (CTRL). We also selected two article groups that cited 3) IG (IG_CIT) or 4) CTRL (CTRL_CIT) papers. Raters (N = 37), proficient in reading English-written scientific papers, and similar in personality and sense of humor scores, were divided into four groups, and were given mixed abstract selections from all paper groups. They rated the abstracts for perceived levels of Amusement and Academic Relevance. These ratings were correlated with total WoS citations and citational context (mentioning, supporting, contrasting – assessed by five coders & coordinator) in which the papers were mentioned in IG_CIT or CTRL_CIT group. The results show that IG papers were rated half a point below moderately amusing ($M = 3.51$, $SD = 1.22$), which is actually significantly higher than the other groups (M_s: 2.69-2.77; d_s: 0.53-0.57, $p_s < .01$). IG papers' relevance was rated as moderate ($M = 3.98$, $SD = 1.45$), with other groups rated higher (Ms: 4.26-4.69; significant against CTRL: $d = 0.41$, $p = .038$, and CRTL_CIT: $d = 0.69$, $p < .001$). IG papers had non-significantly more citations than their matched CTRL counterparts. Both IG and CTRL groups had similar absolute proportions of citations in three examined contexts (and humor was mentioned only once). Different correlation patterns emerged for IG & CTRL: correlation between citations and amusement is stronger in CTRL ($r = .41$, $p = .026$, vs. $r = .04$. $p = .821$). Citations in IG correlated more strongly with supporting ($r = .37$, $p = .047$, vs. $r = -.02$, $p = .923$) and contrasting citing contexts ($r = .68$, $p < .001$, vs. $r = .08$, $p = .690$; this was the only significantly different correlation between the groups: $Z = 2.71$, $p = .007$). The findings suggest that IG articles are perceived as moderately more amusing, while other articles are viewed as moderately more academically relevant. However, this does not hinder IG papers' citations: they are being cited on their merit, to support the ideas, or even more so – to refute them.

Keywords: Humor in Science, Ig Nobel, Academic Relevance, WoS Citations, Contextual Citation Analysis

---

* corresponding author e-mail: *sinisa.subotic@pmf.unibl.org*

TO BE SAFE IS TO TRUST: FINDING THE COMMON ATTITUDINAL CORE FOR VACCINATION INTENTION

Marija Kušić[1,*], Sandra Ilić[2], Milica Lazić[3], & Kaja Damnjanović [2,4]
[1]University of Belgrade, Faculty of Philosophy, LIRA lab
[2]University of Belgrade, Faculty of Philosophy, Laboratory for Experimental Psychology
[3]University of Novi Sad, Faculty of Philosophy
[4]University of Belgrade, Faculty of Philosophy, Institute of Philosophy

Finding common psychological features that positively predict vaccination intention or hinder it is paramount for devising immunization strategies that will make use of the facilitating factors and mitigate people's concerns. Vaccination intention is dependent on psychological dispositions such as thinking styles, freedom of choice, vaccination conspiracy beliefs, perceived vaccination consensus, and trust toward different sources of information, as well as specific social roles regarding vaccination (e.g., experts, lay people, parents). Hence, the present study aimed to examine the function (promotive, protective, risk, and vulnerability) of the above dispositions in the intention to vaccinate one's (future) child among three social groups regarding vaccination. The three samples comprised healthcare providers (HPs; N = 219; $M = 46.31$, $SD = 10.12$, 81.7% women), parents ($N = 263$; $M = 41.93$, $SD = 8.74$, 91.3% women), and lay people ($N = 263$; $M = 34.93$, $SD = 9.81$, 72.2% women). We conducted a series of hierarchical linear regressions, with negative attitudes toward vaccination as a predictor, intention to vaccinate one's child as a criterion, and psychological dispositions as moderators in the analysis. Negative vaccine attitudes lower vaccination intention in all regression models in all samples (all βs ranging from -.128 to -.983, all $p_s < .01$). However, the same attitudinal core for positive vaccination intention can be found regardless of the social roles. This core consists of high trust in formal sources of information, i.e., large corporations, government, and healthcare system, alongside high perceived consensus on vaccine efficacy and safety (protective factors), and low vaccination conspiracy beliefs, choice overload, and trust in more informal sources like social media (risk and vulnerability factors). There are no common promotive factors. For parents, perceived scientific consensus about vaccines, and trust in corporations and the healthcare system are promotive for vaccination intention, while for HPs this role is played by the experience of freedom. No unique promotive factors were found for lay people. Our findings provide insights into psychological factors of vaccination intention across different social roles and indicate a common attitudinal core for vaccination intention. They can be used to devise common strategies that respond to people's concerns regarding vaccination, as well as interventions tailored relative to specific social roles.

Keywords: vaccination intention, common attitudinal core, trust, parents, healthcare providers, lay people

---

[*] corresponding author e-mail: *marija.kusic996@gmail.com*

INDICATIONS OF NATURAL SELECTION ON CONSCIENTIOUSNESS AND OPENNESS IN A LARGE INTERCULTURAL DATA

Janko Međedović[*]

Institute of criminological and sociological research, Belgrade

The evolution of personality traits is crucial theoretical question in personality psychology; however, the empirical data that examine natural selection on personality traits are still scarce. In the present research we used the subsample of World Values Survey (wave 6) data that incorporated personality measures (BFI-10) to estimate natural selection on Big Five traits. Reproductive success (number of children) was used as an indicator of evolutionary fitness. The data were analyzed on representative samples originated from 17 countries (N = 22636). We fitted multilevel Poisson's regressions in order to estimate the prediction of reproductive success; participants' sex, age, education, and social status (measured via social ladder item) were controlled in the analysis as well. Estimated models showed that random slopes regression (AIC = 73895; BIC = 74192) significantly better described the data compared to random intercept model (AIC = 74976; BIC = 75064; $\chi^2(26)$ = 1133.40; $p < .001$) which suggested considerable variation in regression slopes across the countries. Fixed coefficients explained 41% of reproductive success' variation (Marginal R^2). The only Big Five personality trait that significantly contributed to the prediction was Conscientiousness (B = 0.07; $p < .001$). However, when quadratic relations were added to the model, Openness showed contribution as well (B = -0.02; $p < .001$). Additional graphical and ANOVA analyses showed that only the participants with the higher scores on Openness (above average) had lower number of children, which produced nonlinear association. Finally, we explored the variation in slopes across the countries both graphically and in separate regression models. The results showed heterogeneity in effects for all personality traits: the variation was the lowest for Agreeableness and highest for Extraversion; all traits except Agreeableness even showed the coefficients of opposite signs in different countries. In sum, the data suggest relatively consistent positive directional selection on Conscientiousness and negative selection on high Openness to experience, which is in accordance with the existing data; although, the potential selection effects are rather small. However, high variation in selection gradients across the countries suggests that specific ecological conditions may moderate the links between personality and fitness, thus contributing to the phenotypic variation in personality traits, both between and within populations.

Keywords: Big Five personality traits, reproductive success, natural selection, Conscientiousness, Openness to experience

---

[*] corresponding author e-mail: *janko.medjedovic@fmk.edu.rs*

THE INTERDEPENDENCE OF PRE-PANDEMIC STRESS AND HEALTH ANXIETY IN PREDICTING LONG COVID-19-RELATED WORK CAPACITY DECLINE

Katarina Babnik[1,*], Žan Lep[1,2], Gaja Zager Kocjan[1], & Kaja Hacin Beyazoglu[1]
[1]University of Ljubljana, Faculty of Arts, Department of Psychology
[2]Educational Research Institute, Centre for Applied Epistemology, Ljubljana

Some people experience persistent symptoms (post-acute sequelae of SARS-CoV-2 infection; PASC) following the acute phase of COVID-19, which can impair their functional capacity, ability to work, and well-being. One of the goals of the research project Long-COVID as a Legacy of the Pandemic was to investigate the changes in work ability factors in people with PASC, operationalised as perceived deterioration in work performance, efficiency, and engagement. In a quantitative cross-sectional study, we analysed the relationships between the deterioration of work ability in people with PASC and individual factors, work-related characteristics, and the severity of the COVID-19 acute phase assessed using validated self-assessment instruments and questions developed for the study. The sample comprised 847 Slovenian residents in employment (56.3% female) who were experiencing PASC (World Health Organisation diagnostic criteria) and were aged 21 to 64 years ($M = 43.33$, $SD = 10.09$). In a multiple hierarchical linear regression, the first step (gender, educational level, employment type, occupational infection risk) showed that female gender and holding an occupation with an increased risk of infection predicted a deterioration in work ability ($F(5, 840) = 6.24$, $p < .001$, $R^2 = .04$). In the second step (general stress before and during the COVID-19 pandemic, severity of the COVID-19 acute phase, health anxiety), pre-COVID-19 pandemic stress, severity of the COVID-19 acute phase, and health anxiety predicted the outcome variable ($F(9, 836) = 21.70$, $p < .001$, $R^2 = .19$). Finally, in the third step, we examined the interaction between health anxiety and general stress before and during the COVID-19 pandemic, and the severity of the acute phase of COVID-19. The results confirmed ($F(12, 833) = 17.01$, $p < .001$, $R^2 = .20$) the interdependent role of health anxiety and stress before the COVID-19 pandemic in worsening of the work ability while only education level served as an independent predictor. The results suggest that lifestyle factors (general stress before the COVID-19 pandemic) and personality traits (health anxiety) play an interdependent role in the self-rated deterioration in work ability of individuals with PASC. In future studies, the consistent role of gender in the severity of PASC found in previous studies should be verified by possible covariates (e.g. type of job, stress level, education level).

Keywords: post-acute sequelae of SARS-CoV-2 infection, individual characteristics, work and job characteristics, work capacity, health anxiety

THE INTERPLAY OF MINDFULNESS, PERSONALITY, AND DECISION-MAKING

Jelica Milojičić[*] & Ksenija Krstić
University of Belgrade, Faculty of Philosophy, Department of Psychology

Mindfulness, as a dispositional trait characterized by being fully present and engaged in the current moment, without judgment, has several cognitive and emotional benefits that can contribute to improved decision-making. The primary objective of this study is to investigate the relationship between mindfulness, personality traits and active open-minded thinking and passive risk taking as specific approaches in decision making. A total of 255 participants aged 18 to 59 ($M = 31.58$, $SD = 8.14$; 80.8% females) participated in the research, responding to demographic variables (age, sex, education), the Five Facet Mindfulness Scale, Passive Risk Taking (PRT) Scale, Actively Open-Minded Thinking (AOT) Scale, and HEXACO-60 Personality Inventory. Results revealed significant correlations between mindfulness and all personality traits, most significantly a negative correlation with emotional stability ($r = -.398$, $p < .001$) and a positive correlation with extraversion ($r = .577$, $p < .001$). Furthermore, mindfulness had a low negative correlation with passive risk-taking ($r = -.148$, $p < .05$) and a low positive correlation with open-minded thinking ($r = .176$, $p < .001$). Hierarchical regression suggested that mindfulness (Step 3), combined with all HEXACO personality traits (Step 2) and demographic variables (Step 1; age, gender, education), predicts PRT ($F(10, 244) = 5.107$, $p < .05$, $R^2 = .139$). However, when controlling for personality traits, mindfulness additionally explained small (F Change $(1, 244) = 4.597$, $p < .05$, R^2 Change $= .016$) although significant percentage of variance in PRT ($\beta = -.179$, $p = .033$). Similar, demographic variables (age, gender, education), personality traits and mindfulness explained 19.0% variance in AOT ($F(10, 244) = 6.942$, $p < .05$, $R^2 = .190$), but mindfulness didn't have incremental value over and above personality traits (F Change $(1, 244) = 2.565$, $p = .111$, R^2 Change $= .008$; $\beta = .130$, $p = .111$). In summary, the study contributes to our understanding of how mindfulness, in combination with personality traits, connects to specific aspects of decision-making, emphasizing its potential for future research.

Keywords: mindfulness, active open-minded thinking, passive risk-taking, HEXACO

---

[*] corresponding author e-mail: *jeca.97.milojicic@gmail.com*

SCHIZOTYPY, MALADAPTIVE TRAITS, THE DARK TRIAD AND AMORALISM VERSUS OPENNESS AS PREDICTORS OF CREATIVITY

Mina Hagen[1],[*], Goran Knežević[2], & Johannes Keller[3]
[1]Singidunum University, Faculty of Media and Communications, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]Ulm University, Social Psychology Lab,

We explored whether creativity is a robust correlate of schizophrenia (as assessed with measures of schizotypy [SCY], psychoticism or psychosis proneness) as implicated in the mad-genius hypothesis. Specifically, our study is an extended conceptual replication of Miller & Tal (2007) who tested the validity of the mad-genius hypothesis. Whether psychopathology is positively related to creativity is a debate between two camps: proponents of a reliable relation between creativity and psychopathology and critics who consider creativity as related to the personality trait Openness. Miller & Tal (2007) analyzed the data of a student sample, running regression analysis with creativity (divergent thinking, DT) as criterion and the Big Five factors, a measure of intelligence plus indicators of positive and negative SCY as predictors. Results revealed that intelligence and openness were reliable predictors of creativity whereas SCY had no predictive power. This study had two limitations: 1) generalizability of findings; 2) SCY was not assessed as a broad personality trait. We aimed to test the stability of the Miller & Tal (2007) findings. Analyses were conducted using two samples: 1) student sample (N = 403, 21.3% male); 2) community sample (N = 383, 49.1% male). SCY was assessed with broad and well validated measures of enhanced awareness, general executive impairment and magical thinking (positive SCY), social anhedonia, paranoia and flattened affect (negative SCY). Need for cognition (NFC) scores served as a proxy for intelligence. We ran regression analysis with DT scores as criterion and NFC, HEXACO dimensions and positive and negative SCY as predictors. To extend the analysis, we tested whether other maladaptive (DSM-5 factors) or dark (Dark Triad, amoralism) personality traits emerge as correlates of creativity. Openness emerged as strongest predictor of creativity in the analyses (student: β = .28; p < .001; community: β = .19; p < .001). No other variable showed explanatory power in the conceptual replication. In the extended analysis, we ran stepwise regression analyses entering the HEXACO factors first and DSM-5 factors plus the Dark Triad and amoralism in the second step. None of the factors added in the second step emerged as significant predictor of creativity. These results provide a conceptual replication of Miller and Tal (2007) providing robust evidence that is incompatible with the mad-genius hypothesis.

Keywords: creativity, dark triad, amoralism, openness, schizotypy

---

[*] corresponding author e-mail: *mina.hagen@gmail.com*

THE LOCATION OF OPENNESS, DISINTEGRATION AND CREATIVITY IN THE PERSONALITY SPACE

Mina Hagen[1],[*], Goran Knežević[2], & Johannes Keller[3]
[1]Singidunum University, Faculty of Media and Communications, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology
[3]Ulm University, Social Psychology Lab,

This research aimed to answer the question of whether there is a positive association between creativity and psychoticism and the proneness to psychotic-like experiences as implicated in the famous mad-genius hypothesis. In sum, the current state of the art seems to suggest that the veracity of the mad-genius hypothesis - as reflected in an association between psychoticism and quantitative indicators of creativity - is questionable. However, further substantive evidence is needed to make a more conclusive statement possible. The study was conducted using two samples: 1) student sample (N = 403, 21.3% male; the mean age was 21.6 (*SD* = 3.5) years) and 2) community sample (N = 383, 49.1% male; the mean age was 41.2 (*SD* = 12.1) years). We assessed basic personality traits using HEXACO PI-R and the Delta-9 as a marker for Disintigration; creativity was represented with three inventories measuring divergent thinking (DT; Consequences Test), creative achievement (CAQ) and creative activities and accomplishments (CAAI). We also used need for cognition scale (NCS) to assess enjoyment and engagement in thinking. As a marker of psychoticism we used the PID-5 Psychoticism scale. To determine the location of creativity, as well as psychoticism markers and the need for cognition scale (NCS) extension analysis was performed. In the first step, the core space is predefined as in an exploratory factor analysis. In this case, since the results of the Multi-group ESEM confirmed that the core space is best described using a 7-factor structure, we inserted HEXACO PI-R and Delta-9 as core variables. In the second step, NCS, PID-5 Psychoticism factor and facet scales, as well as three markers of creativity – DT, CAQ, and CAAI – were used as extension variables. The results in both samples of the exploratory factor analysis revealed that the extracted seven factors can be interpreted as Disintegration + HEXACO factors. Indicators of psychoticism had primary loadings on the Disintegration factor, whereas loadings on the openness factor ranged were low. Looking at the creativity indicators, the analysis revealed that none of them showed a noteworthy relation to proneness to psychotic-like experiences, whereas all of them are again primarily loading on openness. NCS showed a substantial loading on openness. The results provide clear-cut evidence revealing that creativity is located on the openness factor in the personality space and virtually unrelated to proneness to psychotic-like experiences, which is incompatible with the quantitative version of the mad-genius hypothesis.

Keywords: personality, openness, psychoticism, creativity, mad-genius hypothesis

---
[*] corresponding author e-mail: *mina.hagen@gmail.com*

DEVELOPMENT AND PSYCHOMETRIC EVALUATION OF THE PICTORIAL TEST OF GENERAL KNOWLEDGE: PRELIMINARY FINDINGS

Marko Živanović[*]

University of Belgrade, Faculty of Philosophy, Department of Psychology,
Institute of Psychology & LIRA lab

The present study aims to provide preliminary findings on psychometric properties and external validity of the Pictorial test of general knowledge (PTGK) developed as a nonverbal crystallized intelligence test. In this test, each item contains six images, five of which share a relevant characteristic, and participants are instructed to find the odd one out, i.e., to rely on their knowledge and select the image that does not belong with the rest. An item content covered broad domains of knowledge, such as biology, geography, philosophy, history, art (e.g., film, visual arts), sports, pop culture (e.g., fashion, entertainment). A total of 186 participants ($M_{age} = 23.45$, $SD_{age} = 5.83$, 88.0% females), primarily undergraduate and graduate psychology students (80.6%), took part in the study. The PTGK comprised 103 items presented in a randomized order, with a time limit of 25 seconds per item. To assess its construct validity, six cognitive tests measuring broad factors of cognitive abilities were used. Namely, to measure fluid reasoning (Gf), we used Raven's progressive matrices–short form (RPM, 18 items, time limit 6 min; $\alpha = .65$) and verbal analogies (ALF7, 39 items, 2 min; $\alpha = .85$); to assess visual processing (Gv), IT2 (39 items, 10 min; $\alpha = .85$) and Puzzles test were used (PZL, 36 items, 7 min; $\alpha = .93$); to assess crystallized intelligence (Gc), we used test of synonyms (GSN, 39 items, time limit 2 min; $\alpha = .86$) and crystallized associations test (CA, 32 items, 4 min; $\alpha = .79$). In addition, a subsample of psychology students provided information on their achievement on the General knowledge test that was part of their entrance exam. The PTGK proved to be somewhat difficult, with an average accuracy of 38% ($SD = .10$); however, it demonstrated satisfactory reliability ($\alpha = .83$). The instrument positively correlated with all external measures – as expected, the highest correlation was found for CA test, a marker of Gc ($r = .64$, $p < .01$), while lower correlations were observed for other measures of cognitive abilities (RPM $r = .31$, $p < .01$; ALF7 $r = .32$, $p < .01$; IT2 $r = .34$, $p < .01$; PZL $r = .33$, $p < .01$; GSN $r = .28$, $p < .01$). Finally, PTGK positively correlated with self-reported achievement on verbal general knowledge entry exam ($r = .36$, $p < .01$). Overall, results indicate that crystallized abilities can be reliably measured exclusively using pictorial content. However, further refinement of the instrument is needed to make it a useful alternative to standard verbal general knowledge tests.

Keywords: general knowledge test, pictorial test of general knowledge, crystallized intelligence, Gc

WHO CARES? DARK TETRAD TRAITS AND GENDER DIFFERENCES IN ADOLESCENTS' PERCEIVED STRESS RELATED TO CURRENT AFFAIRS

Anja Wertag[*]
Institute of Social Sciences Ivo Pilar, Zagreb

The Dark Tetrad traits (i.e., Machiavellianism, narcissism, psychopathy, and sadism) can serve both adaptive and maladaptive purposes. Previous research has demonstrated that some of the Dark Tetrad traits can have a protective role in experiencing stress, and that there are gender differences in the relations between the Dark Tetrad traits and stress. However, such research on adolescent samples is scarce. This study aimed to investigate the relationship between the Dark Tetrad traits and adolescents' perceived stress related to current affairs (i.e., war in Ukraine and economic crisis) and possible gender differences in these relations. Data were collected within a larger ongoing longitudinal research project, and the reported results are from its first wave (April/May 2022). The sample consisted of 1329 first and second grade high-school students (42% male, M_{age} = 15.85, SD_{age} = 0.67) from Zagreb, Croatia, and data were collected via mobile application. Dark Tetrad traits were measured with The Short Dark Tetrad (α's ranged from .70 to .83), while perceived stress related to current affairs was assessed with four items measuring the level stress regarding the possibility of war spreading from Ukraine to other parts of Europe, nuclear danger because of war in Ukraine, inflation, and a shortage of products (α = .86). Females reported higher perceived stress related to current affairs than males ($M_{females}$ = 2.71, M_{males} = 2.00, $t(1271)$ = -12.98, $p < .001$, d = 0.73), and males scored higher than females in all Dark Tetrad traits except Machiavellianism, where there were no significant gender differences ($t(1405)$ = 0.60, p = .554). Regression analyses showed that Dark Tetrad traits explained 4% of variance of perceived stress related to current affairs in males ($F(4, 552)$ = 7.13, $p < .001$), with Machiavellianism being a positive (β = .19, t = 4.12, $p < .001$) and sadism negative predictor (β = -.19, t = -3.44, p = .001), while in females Dark Tetrad traits did not have a significant contribution to the explanation of the perception of such stress ($F(4, 687)$ = 1.85, p = .117). Thus, it seems that Dark Tetrad traits are related to perceived stress related to current affairs only in adolescent males, with adolescents higher in Machiavellianism reporting more perceived stress, and adolescents high in sadism reporting less perceived stress.

Keywords: Dark Tetrad, perceived stress related to current affairs, adolescence, gender differences

THE ROLE OF PERSONALITY TRAITS AND EMOTION REGULATION STRATEGIES ON ORAL HYGIENE BEHAVIORS IN ADOLESCENTS

Jelena Prijić* , Nikola Adamov, Ilija Milovanović, Anja Aleksić, Jovana Gvozdenović Lalović, & Teodora Subotić
University of Novi Sad, Faculty of Philosophy, Department of Psychology

Previous studies had shown that personality traits are significant predictors of oral hygiene behaviors in adolescence. Some authors stated that the way we regulate emotions can contribute to different behaviors, regardless of the personality traits. The aim of this study was to examine the prediction of oral hygiene behaviors in adolescents, based on the personality traits of Gray's model, considering the role of emotion regulation strategies. The main hypothesis is that emotion regulation strategies will predict oral hygiene behaviors, above and beyond personality traits. The sample consisted of 283 adolescents (M_{age} = 12.6; 59.2% female) who filled out: RSQ-ch scale with three personality dimensions of the Gray model: Behavioural Inhibition System (BIS), Behavioral Activation System (BAS) and Fight/Flight/Freeze System (FFF); ERQ questionnaire with two emotional regulation strategies: cognitive preformulation and emotional suppression, and POH questionnaire aimed to measure three types of oral hygiene behaviors: dysfunctional, functional and dental health knowledge. We conducted three hierarchical regressions with oral hygiene behaviors as criteria. In the first step, we examined relations between personality traits and oral hygiene behaviors, and in the second step we added emotional regulation strategies. The results showed that in the second step there was a significant change in the prediction two cases: functional (R^2 = .05, $\Delta F(5, 278)$ = 3.41, $p < .05$) and dysfunctional (R^2 = .06, $\Delta F(5, 278)$ = 3.06, $p < .05$) behaviors. BAS was a significant predictor of functional (β = .12; $p < .05$) and FFF was a significant predictor of dysfunctional (β = .15; $p < .05$) behaviors. In second step of analysis after adding cognitive preformulation there was no contribution of BAS in prediction of functional (β = .08; $p > .05$), but FFF stayed a significant predictor of dysfunctional (β = .13; $p < .05$) behaviors. Emotion suppression was not a significant predictor of oral hygiene behaviors, while cognitive preformulation was a significant predictor of functional (β = .17; $p < .01$) and dysfunctional (β = -.13; $p < .01$) behaviors. The obtained results suggest that cognitive preformulation has a significant and adaptive role in oral hygiene behaviors but its' effectiveness may be different depending on which personal predisposition prevails in the context of dental health care. BAS was found to contribute to functional and FFF to dysfunctional oral hygiene behaviors.

Keywords: BAS, BIS, FFF, emotion regulation, oral hygiene behaviors

---

* corresponding author e-mail: *jelena.subotica01@gmail.com*

PERSONALITY TRAITS AND DENTAL ANXIETY AS PREDICTORS OF ORAL HYGIENE BEHAVIORS IN ADOLESCENTS

Nikola Adamov[*]**, Jelena Prijić, Ilija Milovanović, Anja Aleksić,
Jovana Gvozdenović Lalović, & Teodora Subotić**
University of Novi Sad, Faculty of Philosophy, Department of Psychology

Previous research results indicate that interventions at the dentist are associated with fear, and that 6 to 20% of adolescents experience dental anxiety. Some authors argue that dental anxiety and dental fear have different etiologies. Moreover, it is shown that dental anxiety is linked to personality traits, but its role in the relationship between personality and behavior is relatively unexplored. The aim of this study was to examine the relation of personality traits and oral hygiene behaviors in adolescents, considering the role of dental anxiety. The hypothesis is that dental anxiety will predict oral hygiene behaviors, above and beyond personality traits. On the sample of 283 adolescents (M_{age} = 12.6; 59.2% female), three scales were applied: the RSQ-ch measuring personality dimensions (Behavioral Activation System (BAS), Behavioral Inhibition System (BIS), and Fight/Flight/Freeze (FFF) System); MCDAS, measuring dental anxiety; and POH measuring functional and dysfunctional oral hygiene behavior, as well as knowledge about oral hygiene. Three hierarchical regressions were conducted. In the first step, personality dimensions were set as predictors; in the second step we added dental anxiety as predictor, while the criteria were three dimensions of oral hygiene behavior. A significant change in the contribution of variables in the second step occurred in two cases: (1) predicting dysfunctional behaviors (R^2 = .09, $\Delta F(4, 278)$ = 26.70, $p < .01$) and (2) predicting functional behaviors (R^2 = .05, $\Delta F(4, 278)$ = 15.50, $p < .01$). The results showed that the FFF system was related to dysfunctional behaviors (β = .13, $p < .05$), but only before adding dental anxiety in the second step. FFF was the only personality trait that was positively associated with dental anxiety (r = .41, $p < .01$). BAS was significantly linked to functional behaviors (β = .18, $p < .01$), while BIS was associated with knowledge about dental health (β = .24, $p < .01$). Dental anxiety was negatively related to functional behaviors (β = -.23, $p < .01$), positively related to dysfunctional behaviors (β = .32, $p < .01$), and showed no incremental value in the prediction of knowledge about dental health. The findings indicate that adolescents who are more prone to fear are more afraid in situations related to dental interventions, which is also correlated with dysfunctional oral behaviors. BIS was correlated with knowledge about dental health, but not with behaviors related to oral hygiene, while BAS was a significant factor in functional dental behaviors. It seems that the concept of dental anxiety is related to the perceived threat of potential pain and discomfort during adolescents' (ir)regular visits to the dentist, but the role of personality traits in this context cannot be neglected.

Keywords: personality traits, dental anxiety, oral hygiene behaviors, adolescents

---

[*] corresponding author e-mail: *nidzaadamov@gmail.com*

OPTING OUT OF PARENTHOOD: WHAT MECHANISMS MEDIATE THE NEGATIVE LINK BETWEEN OPENNESS AND FERTILITY?

Aleksandra Milić[1],[*] & Janko Međedović[2]

[1]Singidunum University, Faculty of Media and Communications, Department of Psychology
[2]Institute of criminological and sociological research, Belgrade

Previous findings consistently suggest a negative association between Openness to Experience and fertility, potentially implying that this trait is not favored by natural selection pressures. This research aims to further investigate this relationship, providing insights into possible future selection processes on Openness to Experience and exploring mediating factors linking it to fertility (number of children). Participants were recruited both online and in person, completing the Openness scale from Mini IPIP-6 personality inventory, a scale measuring reasons for childbearing (fertility intentions), number of sexual partners, duration of the longest romantic relation, and the age of first reproduction. Positive reasons for childbearing included extending a family line, validating oneself as an adult, manifestation of parental instincts, etc. Negative reasons included struggling to meet the child's needs and desires, loss of independence, concern for the child's future in the contemporary world, etc. The sample comprised 398 individuals, with an average age of 33.58 (SD = 9.73) years. Openness to Experience showed a negative association with the number of children (r = -.20, p < .01), positive reasons for childbearing (r = -.18, p < .01), and the duration of the longest relationship (r = -.20, p < .01). Conversely, it showed a positive association with negative reasons for childbearing (r = .10, p < .05), the number of sexual partners (r = .18, p < .01), and the age of first reproduction (r = .12, p < .05). Path analysis was conducted to evaluate the potential mediating mechanisms in the Openness-fertility link. After adjusting for sociodemographic variables (gender, age, and education), the results of testing the full model (mediators: number of sexual partners, duration of the longest relationship, reasons for childbearing, and age of first reproduction) revealed that the association between Openness and the number of children was significantly mediated via decreased positive reasons for parenthood, higher age of first reproduction, and lower duration of the longest relationship, with a total indirect effect of -.08, p = .01. The overall fit of the final model is good (χ^2(21) = 639.48, p < .01; CFI = .99; NFI = .98; RMSEA = .05). In conclusion, the explored relationship between Openness to Experience and fertility, as assessed in this research, provides insights into potential yet undiscovered reproductive mechanisms that mediate their connection.

Keywords: personality traits, dental anxiety, oral hygiene behaviors, adolescents

---

[*] corresponding author e-mail: *aleksandra.milic.20201049@fmk.edu.rs*

AGE AND GENDER DIFFERENCES IN POSITIVE AND NEGATIVE AFFECT

Marina Ilić[1,*], Milica Đukanović[1], Jovana Trbojević Jocić[1], & Pavle Jovanov[2]
[1]University of Kragujevac, Joint Study Program of Psychology
[2]Institute of Food Technology in Novi Sad

The age at which we find ourselves, as well as the developmental tasks that are expected of both men and women, can affect self and life satisfaction, and thus also the manifestation of positive and/or negative affect. The aim of this research is to examine whether there are gender and age differences in experiencing positive and negative affect. The sample consisted of 1732 participants (62.4% women), aged 14 to 72 ($M_{age} = 36.21$; $SD_{age} = 12.36$). Data was collected online during 2020. Scale of Positive and Negative Experience (SPANE, Diener & Biswas-Diener, 2009) was used for the purposes of this research and it consists of two dimensions: Positive Feelings (SPANE-P) and Negative Feelings (SPANE-N). The results of the t-test showed that there was statistically significant gender difference in SPANE-N ($t_{(1730)} = -10.074$, $p < .001$, $d = .01$) in favor of women ($M_W = 13.63$; $M_M = 16.08$), but not in SPANE-P ($t(1319) = 1.682$, $p = .093$). When it comes to age differences, participants were divided into 4 age groups by Levinson's theory: adolescence (14-19); early adulthood (20-39), middle adulthood (40-59), and late adulthood (60+). The results of ANOVA showed that there were age differences in the level of experiencing positive ($F(3, 1731) = 7.023$, $p < .001$) and negative affect ($F(3, 1731) = 5.177$, $p < .001$). Despite the statistical significance, the actual difference between the mean values of the groups is very small (eta square is .02). Tukey post hoc test showed that adolescents achieve significantly higher scores on positive affect ($M = 22.30$) than middle ($M = 20.77$) and late age adults ($M = 19.37$), and that early age adults achieve higher scores than late age adults. In negative affect only a significant difference was obtained between early age adults ($M = 15.58$) and middle-aged adults ($M = 14.65$). These results show that with age there is a decline in the degree of feeling positive emotions. Early adulthood, as well as late adulthood, has many developmental tasks that can contribute to higher stress and negative affect. Because of the small effect size of the obtained differences, these results should be taken with caution and called out for further investigation of changes in affect through the years. Besides early and late age adults, women are at risk of feeling more negative feelings than men. Some research has shown that women achieve higher scores on anxiety and negative affect which can speak about different socialization of women where the focus is on learning to recognize one's own emotions and their expression.

Keywords: negative affect, positive affect, age differences, gender differences

---

[*] corresponding author e-mail: *marina.ilic1008@gmail.com*

PERSONALITY TRAITS AND MENTALIZATION AS PREDICTORS OF EXPERIENCE IN CLOSE RELATIONSHIPS

Jelisaveta Todorović [*] **& Miljana Nikolić**
University of Niš, Faculty of Philosophy, Department of Psychology

Experiences in close relationships, apart from being conditioned by early experiences with attachment figures, are partly conditioned by personality dispositions and partly by the capacity to recognize one's own intentions and needs, as well as the needs and intentions of others. The aim of the research was to examine whether personality traits (activity, aggressiveness, sensations, neuroticism, sociability) and mentalization (mentalization of self, mentalization of others, motivation for mentalization) can predict experiences in close relationships (anxiety/avoidance). The sample was convenient and consisted of 291 respondents (N_{female} = 72.5%). The age of the respondents ranged from 18 to 24 years, while the average age was 19.19 (SD = 1.37). The research used the ZKPQ test (Zuckerman-Kuhlman Personality Questionnaire) that measures basic personality traits, the questionnaire for measuring mentalization (UM) and the scale of experience in close relationships (SM-ECR-R). Hierarchical regression analysis was used for data processing. The results show that neuroticism (β = .37, t = 5.81, p < .01) and mentalization of self (β = -.17, t = -2.40, p < .05) were statistically significant predictors of anxiety. Significant predictors of avoidance in close relationships were sociability (β = -.38, t = -5.45, p < .01), mentalizing oneself (β = -.20, t = -2.99, p < .00) and motivation to mentalize (β = -.32, t = -3.96, p < .01). The model composed of personality traits and mentalization subscales, when it comes to anxiety, explained 19% of the criterion variance (R^2 = .19, F(8, 218) = 6.51, p < .01). The same model explained 29% of the variance of the criterion, avoidance in close relationships (R^2 = .29, F(8, 221) = 11.37, p < .01). More pronounced neuroticism was associated with higher anxiety in close relationships, which was also associated with a lower ability to mentalize oneself. Also, less mentalization of oneself, as well as motivation to mentalize, contribute to avoidance in close relationships. Avoidance in close relationships is also more prone to those who have a less pronounced sociability, i.e. tendency to develop and maintain social contacts.

Keywords: personality traits, mentalization, anxiety, avoidance

---

[*] corresponding author e-mail: *jelisaveta.todorovic@filfak.ni.ac.rs*

RELATIONSHIPS BETWEEN DARK TETRAD TRAITS AND ONLINE SELF PRESENTATION: MODERATION EFFECT OF GENDER

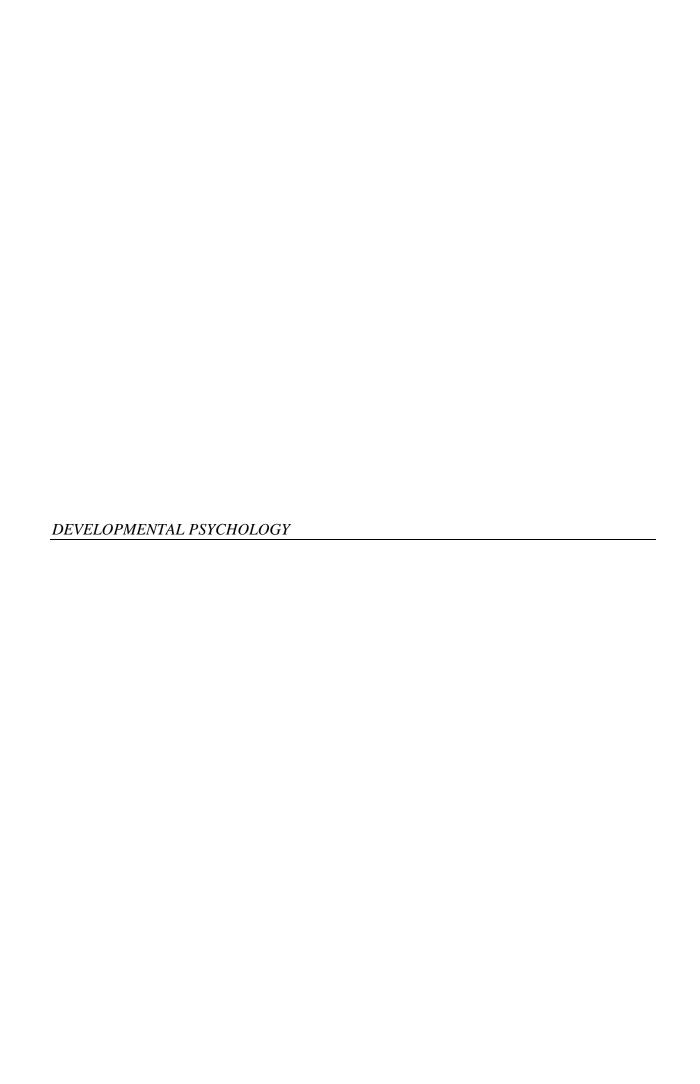**Isidora Majstorović**[*], **Jovana Derajić, & Bojana M. Dinić**
University of Novi Sad, Faculty of Philosophy, Department of Psychology

Online self-presentation is the virtual representation of an individual identity on the Internet. It includes various strategies, such as presenting the real, ideal, or false self (false self-deception, false self-comparison, and false self-exploration). The first aim of this research was to examine the associations between these strategies and Dark Tetrad traits. Considering the socially aversive characteristics of dark traits, we expected to find positive relationships between them and the use of false presentations. Given that gender differences exist in using these strategies, the second aim was to explore the moderating role of gender in the relationship between dark traits and online self-presentation strategies. We anticipated stronger positive relationships between dark traits and false presentation strategies in women compared to men. A sample comprised of 361 participants (39% men), aged 18-76 ($M = 22.71$, $SD = 6.77$), of which 70% were students. The Serbian adaptation of the Short Dark Tetrad (SD4) and the Self-presentation on Facebook Questionnaire (SPFBQ) were used. Results of hierarchical regression analysis showed that dark traits, gender, and their interactions explained 6-9% of strategies. Machiavellianism was significant positive predictor of real ($\beta = .19$, $p < .05$) and ideal self ($\beta = .27$, $p < .01$). Machiavellianism and gender showed significant interaction in explanation of real self ($\beta = -.79$, $p < .01$), ideal self ($\beta = -.64$, $p < .05$), and false self-deception ($\beta = 1.12$, $p < .01$). Machiavellianism was positively associated with real self in men, but negatively in women; it was positively associated with false self-deception only among women and with ideal self only among men. In addition, psychopathy showed a significant interaction with gender in predicting false self-exploration ($\beta = .49$, $p < .01$) and the real self ($\beta = .40$, $p < .05$), with a significant positive association only among women. Finally, narcissism and sadism showed no significant contributions, although sadism showed significant correlations with some false presentation strategies. Results indicated a tendency toward false self-presentation in women with higher Machiavellianism, compared to men. In addition, women with higher psychopathy showed inconsistent presentation which reflect their real multiple self. The results provide new insights into the manifestation of dark traits in the online environment. It is possible that the online environment offers greater opportunities for women with higher dark traits for manipulation and deception, compared to the offline environment.

Keywords: online self-presentation, Dark Tetrad, Dark Triad, gender, moderation

DEVELOPMENTAL PSYCHOLOGY

EXPLORING ADULTS' MEDIATION IN COLLABORATIVE PROBLEM SOLVING AMONG ADOLESCENTS

Smiljana Jošić[1,*], Ivana Stepanović Ilić[2], &Aleksander Baucal[2]
[1]Institute for Educational Research, Belgrade
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology

Peer Collaborative Problem Solving (CPS) is recognized as a pivotal factor in shaping positive learning outcomes and developmental progress across various educational levels. This systematic review aims to comprehensively synthesize existing research on the adults' scaffolding modalities that effectively facilitate adolescents' engagement in CPS. According to PRISMA guidelines, an extensive search across PsycInfo, WoS, and ERIC databases yielded 5256 English abstracts, from which 160 papers were selected for in-depth analysis. Among the chosen papers, 110 provided valuable insights into adult mediation, i.e. the supportive role of teachers/researchers. Notably, while 17 papers (15.4%) detailed cooperation training, scaffolding emerged as a predominant focus in the selected research (N = 78; 70.9%). Additionally, 13 papers (11.8%) explored both training and scaffolding methodologies. Examining the impact of such support on collaborative problem-solving, a majority of published papers reported positive effects (N = 60, 53.6%), with a minimal number indicating negative effects (N = 7, 6.3%). The remaining 44 papers (40%) did not analyse an impact of training or scaffolding on CPS. Thematic analyses uncovered crucial insights into the multifaceted ways in which adults (teachers/researchers) contribute to successful CPS. Moderation of peer interaction was observed through a tripartite focus on cognitive processes (N = 82; 75%), group discussions (N = 73; 66%), and classroom management (N = 23; 21%). The main characteristics identified in this review provide a comprehensive understanding of the dynamics involved in fostering effective CPS among adolescents. The ensuing discussion will delve into these characteristics, offering concluding remarks with pertinent educational implications.

Keywords: adolescence, collaborative learning, collaborative problem solving, peer interaction, systematic review

SERBIAN ADOLESCENTS AS DIGITAL NATIVES: DO OUR STUDENTS FIT THE MOULD?

Kristina Mojović Zdravković[1,2,*], Anđela Joksimović[2], Mina Grujić[2], & Stanislava Perić[2]
[1]University of Belgrade, Faculty of Philosophy, Institute of Psychology
[2]University of Belgrade, Faculty of Philosophy, Laboratory for Developmental Psychology

The term "digital natives", introduced by Prensky (2001), refers to a generation of individuals who have grown up in an environment saturated with digital technologies, such as computers, smartphones, the internet, and different electronic devices. They are considered "native speakers of the digital language", in contrast to "digital immigrants" - individuals that adopted digital technologies later in life. Digital natives are described as those who are comfortable with multitasking, often active on social media platforms and use them for communication, networking, and self-expression, tend to prefer visual and interactive content, and thrive on instant gratification and frequent rewards. In this paper we will present the first study conducted within our research group, which aimed to explore how Serbian adolescents interact and learn with technology and whether we can consider them to be digital natives with the characteristics previously described. In total, 391 high-school students participated in research (64% female, $M_{age} = 16$, $SD_{age} = 1.4$) and completed the Digital Natives Assessment Scale (DNAS; Teo, 2013) as part of the online questionnaire. The sample is convenient, collected via SNSs (snowball method) and through cooperation with several secondary schools in Belgrade and Kragujevac. This is the exploratory study, and our primary goal was to use this instrument to see to what extent their items can represent the digital behaviour of Serbian adolescents. The instrument had satisfactory metric characteristics ($\alpha > .75$ for all subscales), and we replicated the four-factor structure on our sample. Descriptive analysis showed that our adolescents have very high scores on subscales "Grow up with technology", which represents the frequency of using digital technologies daily ($M = 31.8$, theoretical $M = 17.50$; $SD = 6.79$; $Sk_{stand.} = -16.04$; $Ku_{stand.} = 23.69$), and "Comfortable with multitasking" ($M = 31.79$, theoretical $M = 21$; $SD = 3.59$; $Sk_{stand.} = -5.74$; $Ku_{stand.} = 0$). Our students are less recognized on the factor "Thrive on instant gratification and rewards" ($M = 26.35$, compared to theoretical $M = 17.50$; $SD = 5.33$; $Sk_{stand.} = -5.25$; $Ku_{stand.} = 0.70$), and when we analyze the factor "Reliant of graphics for communication", we see that this is the characteristic attributed to digital natives which at least applies to our adolescents ($M = 17.08$, theoretical $M = 17.50$; $SD = 7.18$; $Sk_{stand.} = 3.49$; $Ku_{stand.} = -1.40$). We discussed these findings in the context of updated conceptualisation, critics and alternatives of „digital natives", and proposed the following qualitative research in order to understand better the potential of this concept.

Keywords: digital natives, adolescents, digital technology usage, online communication

* corresponding author e-mail: *kristina.mojovic@f.bg.ac.rs*

REVELING THE FACTORS INFLUENCING SOCIAL MEDIA USAGE IN SERBIAN YOUTH

Kristina Mojović Zdravković[1,2,*], Ana Serafijanović[2], Nevena Živanov[2], & Teodora Mašković Đeri[2]

[1]University of Belgrade, Faculty of Philosophy, Institute of Psychology
[2]University of Belgrade, Faculty of Philosophy, Laboratory for Developmental Psychology

Adolescents, often referred to as digital natives, navigate a world where virtual connections coexist with face-to-face interactions. Social networks have become an integral aspect of their socialization process, providing them with platforms to connect, share content, and communicate. In this study, we wanted to explore why Serbian adolescents use social media and what they consider the advantage of online communication compared to communicating face-to-face. In total, 405 high-school students participated in research by filling out online questionnaire, and 391 (64% female, $M_{age} = 16$, $SD_{age} = 1.4$) reported using social network sites (SNSs). All of them answered open-ended questions about their behaviour on SNSs and described the reasons for preferences made in choosing a particular SNS. Results showed that Serbian adolescents are, on average, active on four different SNS ($M = 4.21$, $SD = 2.12$), they most often communicate with their friends (91.6%) and romantic partners (4.2%), and 81% of them had their first SN profile by the age of 12. The most popular SNSs among them are Instagram (97.2% reported having a profile on this SN), TikTok (65.2%), Facebook (51.4%) and Snapchat (46.5%). An inductive qualitative content analysis assessed the main reasons for using their favourite (and most often used) SNS. Overall, we identified six main categories of reasons i.e. factors influencing social media usage: (1) social interaction (e.g. staying in contact, feeling of belonging, communication; 53.2%); (2) content (interesting, educational, sphere of interest; 37.6%); (3) specific (primarily technical) characteristics of that SNS (16%), (4) search for information and inspiration (7.4%), (5) boredom (2.8%) and (6) escaping or distraction from problems (0.8%). Discussing the results, we compared them to previous results about the internet behaviour of Serbian children.

Keywords: social media, social network sites, digital natives, online communication

THE ROLE OF EMPATHY IN THE RELATIONSHIP BETWEEN BASIC PERSONALITY TRAITS OF THE BIG FIVE PLUS TWO QUESTIONNAIRE FOR CHILDREN AND BULLYING BYSTANDING

Damjan Kopilović[*], **Danica Stojković, Tatjana Đukić, Selka Sadiković, & Milan Oljača**
University of Novi Sad, Faculty of Philosophy

Empathy, bullying and personality traits have been linked in previous studies, and the findings so far indicate negative correlations between empathy and the tendency towards passivity or participation in bullying. Low-expressed empathy and hostile behavior are associated with low scores on dimensions of agreeableness and conscientiousness, however, there is a small number of empirical findings linking together basic personality traits, empathy, and bullying bystanding. This research examined the role of empathy in the relationship between basic personality traits and the bullying bystanding in elementary school-aged children. 255 elementary school students (202 seventh graders and 53 eighth graders) participated in the research. The sample consisted of 255 children (62% female sex), aged 12 to 15 years ($M = 13.49$; $SD = 0.61$). The instruments used were BF+2 - the Big Five plus Two for children (Kodžopeljić et al., 2019), the Adolescent Measure of Empathy and Sympathy (AMES) scale of empathy and compassion for adolescents (Milovanović i Pekić, 2023) and the SUP scale of reasons for taking on the role of a bullying bystander (Pekić et al., 2019). AMES and SUP scales were both treated as unidimensional due to the fact that some of their dimensions showed unacceptably low Cronbach's Alpha reliabilities, high correlations and conceptual similarities. A mediation model was tested with basic personality dimensions from the Big Five plus two as predictors, the mediator variable empathy, and the criterion was the variable bullying bystanding. The results show direct effects between predictors and criteria in case of neuroticism ($\beta = .288$, $p < .01$) and openness to experience ($\beta = -.184$, $p < .01$). With empathy, the mediator variable, the dimensions of neuroticism ($\beta = .424$, $p < .01$) and positive valence ($\beta = .249$, $p < .05$) were directly related. Mediation analysis indicates a partial mediation of empathy between the dimension of neuroticism and the bullying bystanding ($\beta = -.073$, $p < .05$). The results indicate that empathy has the role of a partial mediator only between neuroticism and the bullying bystanding. The results suggest that empathy can be a protective factor in the relationship between neuroticism and bullying bystanding at primary school age. It's worth mentioning that, even though the results considering positive valence were not the focus of this research, they present an interesting finding – children high in empathy also have higher opinions of themselves.

Keywords: empathy, BF+2, bullying bystanding, partial mediation

---

[*] corresponding author e-mail: *damjan.kopilovic@uns.ac.rs*

THAT IS NOT NICE! - THE CHILDREN'S UNDERSTANDING OF THE GUILT AND RULE-BREAKING BEHAVIORS^

Teodora Mašković Đeri[*]
University of Belgrade, Faculty of Philosophy

During the preoperational stage, children begin to differentiate bad from good behaviour and develop a sense of guilt when the rules are broken. This study investigates the children's understanding of the stories in which rule-breaking behaviours were described. Four short stories were designed with newly created characters, accompanied by drawings of the characters and questions. In each story, the main conflict concerns some kind of rule-breaking close to children's experiences (for example, Dad gets himself two scoops of ice cream while his daughter gets one). The questions were about how the main "perpetrator" of the injustice feels, what is "good" and what is "bad" behaviour. In addition, they had to compare how the perpetrator and others in that situation feel and justify their answers. The data collection technique was semi-structured interviews, which were conducted face to face with four four-year-olds and six seven-year-olds. The obtained data were processed by thematic analysis. The following topics were identified through the analysis: understanding the rules of good behaviour, commenting on the consequences, "it is logical, but not fair", and thinking in context. Participants easily recognised what behaviour is "nice" and what is "forbidden", but it was difficult to determine whether someone felt bad because of their actions or because their unfair behaviour caused negative emotions in others. They can differentiate that it is not always enough for an action to be just right but also that it should be kind. They can draw parallels with private life, so they do not evaluate these situations as abstract and hypothetical. However, they know and expect how characters can feel and react, considering previous experiences. The results show that children's moral reasoning could be investigated by understanding the stories. We discussed the difference in understanding the cause and effect of the action between two age groups and proposed directions for future research.

Keywords: preoperational stage, understanding of guilt, moral decisions, theory of mind

EARLY DEVELOPMENT OF BODY PARTS VOCABULARY IN SERBIAN: PARENT REPORT DATA

Maja Savić[1,*], Darinka Anđelković[1,2], & Nada Ševa[1,3]
[1]University of Belgrade, Faculty of Philology, Laboratory for Experimental Psychology
[2]University of Belgrade, Faculty of Philology, Institute of Psychology
[3]Institute for Educational Research, Belgrade

The human body has a special status during the child's development because through the body she learns about the world around her, but the body itself is also an object of the child's experience. Words that refer to body parts are among the first words in children's vocabulary, yet there are few studies on the development of body parts vocabulary. The study aimed to explore the early acquisition of body part terms based on the adapted Serbian version of MacArthur-Bates parent report inventories CDI I (8-18 months) and CDI II (19-30 months) (Anđelković et al., 2017). 22 body parts items were listed in the CDI I inventory, and 28 (6 additional) body parts in the CDI II. In CDI I, 74 parents marked the words their children only comprehend or comprehend and produce. In CDI II, another group of 73 parents marked only the words their children produced. The mean number of comprehended words for children aged 8–18 months was 5.9 ($SD = 5.7$, range 0–19), but 24% of children did not understand any body part word. The mean number of words comprehended and produced was 1.3 ($SD = 3.8$, range 0-19), but 83% of children did not produce any body part word. To follow more precisely developmental trends, children were grouped into four age categories: 8-9, 10-12, 13-15 and 16-18 months. Analysis of variance revealed that the average number of comprehended body part words per participant significantly increased with age, $F(3, 70) = 17.58$, $p < .001$, $\eta_p^2 = .43$. Significant age effect was also obtained for the average number of produced words, $F(3, 70) = 6.72$, $p < .001$, $\eta_p^2 = .22$. In the sample of children aged 19–30 months, the mean number of words produced was 16.3 ($SD = 8.4$, range 0-27), but 9% of children did not produce any body part word. This sample was also divided into four age categories: 19-21, 22-24, 25-27 and 28-30 months. Analysis of variance with the average number of produced body parts words per participant significantly increased with age, $F(3, 69) = 7.74$, $p < .001$, $\eta_p^2 = .25$. As in previous studies, the first comprehended and produced words refer to body parts that are perceptually salient and included in a child's everyday routines: *leg, mouth, tummy, hand, and finger*. However, the words less conspicuous from the child's perspective regarding experience and perception were also recorded, which reveals the importance of playful verbal interaction sequences with adults (e.g., *head, tooth*).

Keywords: language acquisition, body parts vocabulary, MacArthur-Bates' CDIs, Serbian

THE ROLE OF SPORTS IN SHAPING BODY IMAGE AND EMOTIONAL EXPRESSION IN ADOLESCENCE

Milica Đukanović[*], **Marina Ilić, & Jovana Trbojević Jocić**
University of Kragujevac, Joint Study Program of Psychology

In adolescence, physical appearance becomes an extremely important aspect that deeply affects various spheres of life and the behavior of a young person. Sports can have a positive or negative impact on sense of one's physical appearance, but it has also been shown to have a positive effect on experiencing positive emotions. This research aims to examine whether there are differences in the evaluation of one's physical appearance, and the manifestation of positive and negative affect depending on the level of sports activity of adolescents. The sample consisted of 122 participants (55.7% girls), aged 14 to 19 (M_{age} = 17.55; SD_{age} = 1.46). Data was collected online during 2020. Scale of Positive and Negative Experience (SPANE, Diener & Biswas-Diener, 2009) was used, which consists of two dimensions: Positive Feelings (SPANE-P) and Negative Feelings (SPANE-N). Evaluation of physical appearance was estimated with one item question, scaled from 1 to 5. Sport activity was defined through three categories: I do not engage (N = 27), I engage in sport recreationally (N = 48), I engage in sport at a competitive level (N = 47). The results of ANOVA showed that there were significant differences in the evaluation of one's physical appearance depending on engagement in sport activity ($F(2, 119) = 7.697$, $p < .001$, $\eta = 0.11$). Adolescents who engage in sports at a competitive level experience their appearance more positively ($M = 4.06$), than those at recreational level ($M = 3.90$) or those who are not engaged in sport ($M = 3.30$). Statistically significant difference in experiencing positive and negative affect depending on the physical activity were not found. However, the post hoc test showed that adolescents who engage in sports recreationally experience the most positive emotions ($M = 22.97$), while the least negative affect is experienced by those who play sports at a competitive level ($M = 13.62$). The research emphasizes the significance of sports activity in shaping a positive body image in adolescents. It is important to understand the connection between physical activity, body image and emotional well-being to create interventions aimed at improving the positive development of adolescents.

Keywords: adolescents, body image, emotional expression, physical activity

---

[*] corresponding author e-mail: *milicadjuukanovic@gmail.com*

RELATIONSHIP BETWEEN CHILDREN'S MENTAL HEALTH AND SOCIAL SUPPORT FROM PARENTS, PEERS AND TEACHERS

Lorelaj Lukačin[*], **Mislav Sudić, & Ružica Đonlić**
Center of Excellence of the Split-Dalmatia County

Based on a large body of evidence, perceived social support plays an important role in the development and maintenance of an individual's long term mental health, and how one perceives the support tends to be even more important than the actual levels of support one receives. This finding has been replicated over time, across cultures and different populations. The goal of this research was to determine relationship between mental health of fourth grade primary school students (N = 2376) and their perceived social support from multiple sources. Students filled out Strengths and difficulties questionnaire (SDQ) which contains five subscales; emotional symptoms, conduct problems, hyperactivity, peer relationship problems and prosocial behavior, and three subscales of Child and adolescent social support scale (CASSS); perceived social support from parents, teachers and school peers. Five multiple regression analyses were conducted, with five SDQ subscales as criterion and three CASS subscales as predictors. Multiple regression coefficient varied from $R = .23$ (5% of variance explained – emotional symptoms) to $R = .43$ (18% of variance explained – prosocial behavior). Beta coefficients were lowest for teacher's support in all the regression models. Parent's support was highest for hyperactivity ($\beta = -.20$), conduct problems ($\beta = -.20$) and prosocial behavior ($\beta = .24$), and peer support was highest for emotional symptoms ($\beta = -.16$) and peer relationship problems ($\beta = -.38$). In conclusion, we determined that social support likely plays a significant role in the child's mental health. However, social support plays a different role in different kinds of mental health outcomes, and sources of that support do not seem to be equally influential. The most surprising finding is that, at least in our sample, teacher support (although significant) seems to be consistently less connected to their mental health than parent or peer support. This is more surprising considering that the rated importance of teacher's support is not that lower than parent's support ($d = .04$).

Keywords: wellbeing, mental health, social support, primary school

---

[*] corresponding author e-mail: *lorelajlukacin@ci-sdz.hr*

PARTICIPANTS IN ADOLESCENT CONFLICTS: A THEMATIC ANALYSIS OF ADOLESCENT CONFLICT NARRATIVES

Jovan Mihojević & **Lenka Protić**
University of Belgrade, Faculty of Philosophy

During adolescence, the social sphere undergoes a substantial expansion, enabling interactions with a wider range of individuals, which, in turn, increases the likelihood of conflicts emerging (Petrović, 2009). While existing research has predominantly centered on conflicts between adolescents and their parents (Juang et al, 2017), only few studies address the various participants in adolescent conflict (Hadley, 2003). Therefore, the aim of our research is to investigate adolescents' experiences within conflicts, focusing on identifying various participants that are involved. Given the fact that the majority of research in this domain has predominantly utilized scale-based methods (e.g., Petrović, 2008), we employed a narrative-based method to collect more nuanced data that would help us gain a more in-depth understanding of adolescent conflicts. Research conducted in a grammar school in Belgrade, involved a convenient sample of 145 second year students. We focused on grammar school students because we anticipated richer narratives and because we were able to obtain consent directly from them, bypassing the need for parental consent. The number of students was defined to satisfy the criteria of theoretical saturation (Willig, 2013). Students were instructed to write about a conflict using the following prompt: "Write a story about a conflict that really happened to you. The conflict can be an argument or any misunderstanding. Try to remember all the details of what happened and describe the conflict from beginning to end." Out of 145 narratives, 14 were excluded from the final analysis as they did not address conflicts. Therefore, we analyzed a total of 131 narratives using qualitative thematic analysis. Total of 142 coded segments were identified in these narratives. We systematically coded for explicit indications of all participants involved in the described conflict. In analyzing the coded segments, peers emerged as the primary participants ($f = 64$), followed by parents ($f = 39$). A relevant category of codes ($f = 13$) depicted varied conflicts with non-family elders or unspecified individuals encountered in random contexts like interactions with retail workers, trainers, or foreigners. Fewer conflicts were with sport teammates ($f = 10$) and romantic partners ($f = 7$). Furthermore, a similar number of codes referred to conflicts with passengers in public transportation ($f = 6$) and the least, only few mentioned conflicts were with siblings ($f = 3$). These findings are not entirely consistent with similar research that has been done with adolescents in Serbia, mainly because of the lack of conflicts with siblings (Petrović, 2008). The application of a different method of data collection and analysis allowed the emergence of new categories of participants in adolescent conflicts (e.g. sport teammates and passengers of public transportation) that represent the foundation for later research.

Keywords: adolescence, conflict, thematic analysis, qualitative research

---

* corresponding author e-mail: *jokimihoevic@gmial.com*

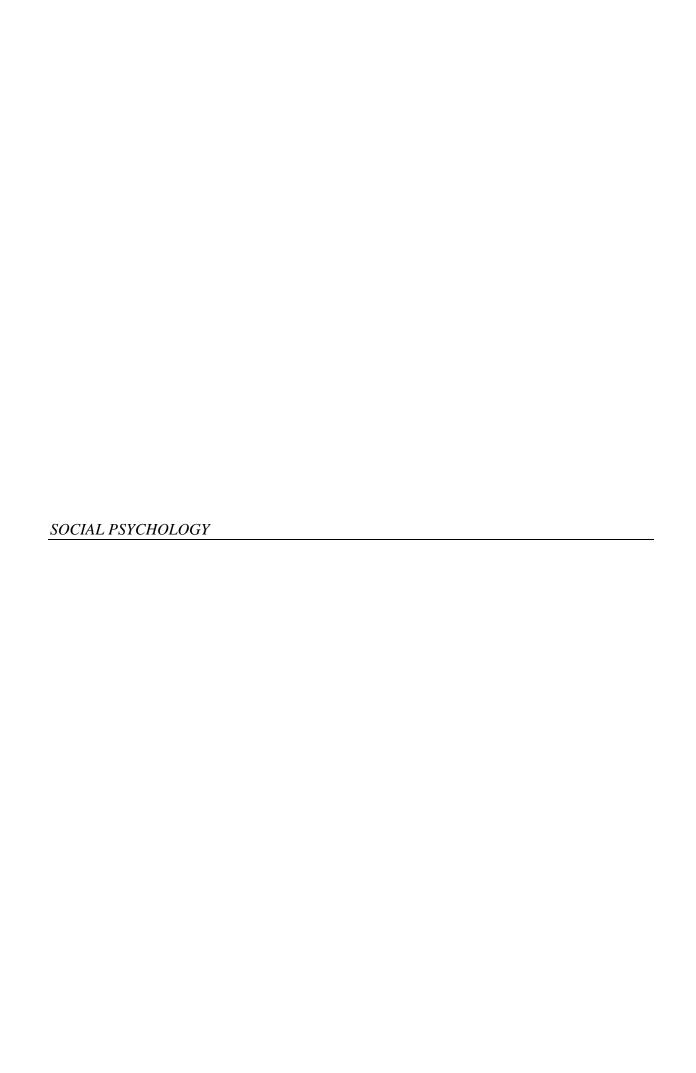# RESILIENCE IN EMERGING ADULTHOOD: DO MEN AND WOMEN COPE DIFFERENTLY WHEN MUSIC HELPS?

Anđela Milošević[*]
University of Belgrade, Faculty of Philosophy,
Department of Psychology

Resilience is a dynamic process that implies relative resistance to stressful life experiences (Rutter, 2006). On the other hand, mood regulation is one of the most important functions of music in the period of emerging adulthood (Schäfer et al., 2013). A study examines the relationship between seven strategies of mood regulation through music (Entertainment, Revival, Strong Sensations, Diversion, Discharge, Mental Work and Solace) (Saarikallio, 2008) and resilience, defined as the ability to recover from stressful events (Smith et al., 2008). The sample consisted of 507 young adults in emerging adulthood ($M = 22.8$, $SD = 2.9$), collected using the snowball method through social networks (e.g. Facebook, Instagram, WhatsApp). Correlation analysis revealed low negative correlations between resilience and Solace, Discharge, Strong Sensation and Mental Work. Gender differences were found in the use of Entertainment, Revival, Strong Sensation, Diversion, and Solace, in a way that women use these strategies more often. Subsequently, different regression models were created in order to examine whether mood regulation strategies and gender predict resilience. It was shown that the strategies Solace, Revival and Discharge are significant predictors of resilience over and above gender ($R^2 = .092$, $F(4, 499) = 12.588$, $p < .001$). Based on the mentioned models, it was shown that men report greater resilience compared to women, that Revival is most likely a suppressor variable in the model, while Solace and Discharge are negative predictors that, together with gender, explain about 9% of the variance of resilience. The results of the research provide significant insights into the characteristics of emotional development in the period of emerging adulthood, as well as some of the factors for the development of youth resilience. Given that resilience is an important protective factor in human health and well-being throughout the lifespan (Fraser, 2015), the importance of examining factors associated with this capacity is clear. However, replication of the obtained findings is needed, and future research should include additional variables in order to further determine and clarify the origin of established differences and correlations.

Keywords: resilience, music, mood regulation, emerging adulthood

---
[*] corresponding author e-mail: *milosevicka012@gmail.com*

SOCIAL PSYCHOLOGY

PREDICTORS OF ETHNIC IDENTITY DELEGITIMIZATION IN TWO ENTITIES IN BOSNIA AND HERZEGOVINA

Milica Ninković[*] & Iris Žeželj
University of Belgrade, Faculty of Philosophy, Department of Psychology & LIRA lab

Ethnic identity delegitimization (EIDL) is a belief that ethnic groups with a shorter history have less rights to self-determination and recognition than those with a longer history. Although this belief is defined as a general tendency - i.e., unrelated to a particular ethnic group - it can be exploited in (post-)conflict contexts to deny the rights of adversarial groups. In the region of ex-Yugoslavia, it is a widespread defensive strategy to diminish the outgroup's legitimacy, especially for those groups whose ethnic identity was defined through religious affiliation (e.g., Bosniaks, who were labeled as Muslims in Yugoslavia). Previous studies showed that EIDL is rooted in ideological attitudes and meta-identity beliefs. EIDL was also found to predict attitudes towards the groups whose identity is usually disproven in nationalistic narratives but not towards those whose identity is perceived as stable. However, there is still no evidence that the predictors of EIDL are unique across ethnic groups. We address this gap using a community sample from Bosnia and Herzegovina (N = 763). Around half of the participants (51%) self-declared as Bosniaks, while the rest self-declared as Serbs. Participants filled in the short EIDL scale (four items, α = .94) and three items measuring Ethnic identification (α = .85), and reported their religiosity (single-item) and social and economic political orientation (single-item measures, high scores indicating right-wing/conservative orientation). To test the predictors of EIDL across the two ethnic groups, we built a hierarchical linear regression model. The first step indicated that Serbs hold higher EIDL beliefs on average (β = .19, $p <$ .001). In the second step, social political orientation (β = .21, $p <$ .001) and Ethnic identification (β = .15, $p <$ .001) emerged as significant predictors of EIDL over and above ethnicity (ΔR^2 = .12, $\Delta F(4, 757)$ = 24.89, $p <$ .001). Finally, in step 3 (ΔR^2 = .01, $\Delta F(2, 755)$ = 4.43, p = .012), we observed a significant interaction between Ethnic identification and ethnicity (β = .07, p = .018). However, their main effects were insignificant ($p_s >$ .11), indicating that Ethnic identification predicted EIDL only in the sub-sample of Serbs, but not Bosniaks. Our results are in line with previous studies suggesting that EIDL is rooted in ideology. They also shed new light on its relation to Ethnic identification, indicating that it varies across the groups regarding their perceived identity stability.

Keywords: trust, parliament, politicians, conspiracy theories, conspiracy beliefs

PREVALENCE AND CHARACTERISTICS OF NON-AUTHORITARIAN RELIGIOSITY AMONG YOUTH IN THE REPUBLIC OF SRPSKA

Siniša Lakić[*], Srđan Dušanić, & Vladimir Turjačanin
University of Banja Luka, Faculty of Philosophy, Department of Psychology

Numerous studies spanning the past decades robustly support a positive association between authoritarianism and religiosity. On the other hand, freedom-oriented declarative values of worldwide religions coexist alongside prescriptive doctrines, and a series of studies have attempted to identify characteristics of non-authoritarian religiosity. Observing a lack of such research in our region, we conducted a study employing a simple typological methodology to ascertain the prevalence and distinct traits of non-authoritarian religiosity. The sample comprised 337 students from the Republic of Srpska (Mdn = 21, age range 18-28 years; 84.2% female), self-identified at least as moderately religious and as believers in God (99.7% of whom are also Orthodox Christians). They completed a self-assessment battery consisting of: 49 items reflecting a broad spectrum of religious attitudes and beliefs mostly drawn from various multidimensional religiosity scales (e.g. PCB, CROI, ROS), a three-item formative authoritarianism scale, a concise HEXACO personality traits inventory (BHI), an eight-item ethnocentrism scale (ω = .90), and a five-item out-group attitude thermometer (ω = .97). As expected, authoritarianism correlated significantly with individual religious beliefs ($|r_{avg}|$ = .21, $p < .001$; additionally, for 20 of 49 items we observed both $p < .05$ and $BF_{10} \geq 3.0$). Based on theoretically defined thresholds on the authoritarianism scale, participants were classified into three ordinal groups; the non-authoritarian group - scoring below 2.5 on a five-point Likert scale - encompassed 72 individuals (21.4% of the sample). This group was distinctly differentiated ($d \geq .30$ and $BF_{10} \geq 3.0$) from the moderately authoritarian and highly authoritarian groups by four items which were indicators of an authoritarian mindset on their own: dogmatic thinking, conformity to authority, in-group favoritism, and authoritarian aggression in the form of belief in the divine retribution. Non-authoritarian individuals also exhibited lower levels of ethnocentrism compared to two other groups (e.g., only one highly ethnocentric individual versus 25.0% in the high authoritarian group), but we observed no differences in out-group attitudes (BF_{01} = 9.7) or among the personality traits (from BF_{01} = 3.2 for honesty-humility to BF_{01} = 24.4 for conscientiousness). We discuss our findings in the context of contributing to a more nuanced view of the interplay between religiosity and societal attitudes.

Keywords: Religiosity, Authoritarianism, Ethnocentrism, Personality Traits, Youth

---

[*] corresponding author e-mail: *sinisa.lakic@ff.unibl.org*

IDEOLOGICAL AND SOCIAL IDENTITY PREDICTORS OF PRO-WAR ATTITUDES

Vladimir Turjačanin[*]**, Srđan Dušanić, & Siniša Lakić**
University of Banja Luka, Faculty of Philosophy, Department of Psychology

The issue of attitudes toward war and peace is significantly related to entire belief systems and support for policies related to war or peace-making actions. Attitudes towards war are most often defined in relation with the defense of one's own group and its interests and a preference for aggressively dealing with out-group threats. Every conflict involves some social identifications, almost always nationalistic beliefs, and sometimes different ideologies. As a society that itself went through war conflicts in the recent past, it was interesting for us to examine the attitudes of young people towards war, and their socio-identity and ideological correlates, which is the main problem of this research. The research was conducted by surveying on a convenient sample of 1396 young respondents in Bosnia and Herzegovina (Republic of Srpska) during 2022. The instruments used included measures of pro-war attitudes as a criterion, and a set of predictor variables that included socio-identity (ethno-religious identification, supra-ethnic identification, social essentialism, socio-identity exclusivity), and ideological variables (political orientation, social dominance orientation, militant extremism and speciesism). The first regression analysis, in which the predictors were ideological variables, yielded an optimal model that explains about 24% of the variance of the results ($R^2 = 0.239$, $F(4, 1297) = 101$, $p < .01$) using the variables speciesism ($\beta = 0.406$; p < .01), militant extremism ($\beta = 0.268$; $p < .01$), social dominance orientation ($\beta = 0.103$; $p < .01$) and right-wing political orientation ($\beta = 0.079$; $p < .01$). Adding a block of identity variables increases the prediction by about 4%: supra-ethnic identification ($\beta = -0.177$; $p < .01$), social identity exclusivity ($\beta = 0.102$; $p < .01$). Essentialism ($\beta = 0.038$; $p = .24$) and ethno-religious identification ($\beta = 0.015$; $p = .61$) do not contribute significantly to the model. The results show consistent relationships of pro-war attitudes with an ideological set of variables that typically constitute more illiberal sociopsychological structures. We discuss the insignificant contribution of ethno-religious identification, which indicates close relations between identity and ideological processes and their effects on political attitudes in our context.

Keywords: Pro-War Attitudes, Social Identity, Ideology, Youth

---

[*] corresponding author e-mail: *vladimir.turjacanin@ff.unibl.org*

THE DUAL STRUCTURE OF SOCIAL IDENTITY OF RUSSIANS AND THEIR SELF-ESTEEM: RESULTS OF NETWORK ANALYSIS

Zarina Lepshokova[1, 2,*], Ekaterina Kodja[1], & Jelena Đukic[3]
[1]National Research University Higher School of Economics, Faculty of Social Sciences, Moscow
[2]National Research University Higher School of Economics, Centre for Sociocultural Research, Moscow
[3]College of social work, Belgrade

According social identity theory and conception of multiple identities people define themselves as members of many groups that are valuable to them. As a result, people have a complex set of identities that can affect how they view themselves. In difficult times of crisis, a strong identity helps to survive. At the same time, identities can come into conflict with each other. In modern complex geopolitical conditions, the identity of Russians is experiencing these processes. We constructed a network structure in order to understand the pattern of relationship between seven most significant social identities of Russians and their self-esteem (as an outcome of identification). We performed network analysis, where every variable is represented as a 'node', and the partial correlation between any two variables is represented as an 'edge'. Network analysis was performed using 'R' statistical software and the R-packages 'bootnet' and 'qgraph' in particular. For controlling spurious connections, we utilized the 'graphical LASSO' algorithm. The sample includes 307 ethnic Russians living in Russia (46% female), ranging in age from 18 to 70 years old (M = 39.86, SD = 10.19). The study uses scales for ethnic identity (α = .94), civil identity (α = .91), slavic identity (α = .96), religious identity (α = .97), European identity (α = .96), global identity (α = .96), Soviet identity (α = .95), and self-esteem (α = .73). Network analysis showed that for Russians the central 'node' of the network is ethnic identity, which is strongly positively related to civil (r = .68, $p < .001$), Slavic (r = .35, $p < .001$) and Orthodox (r = .22, $p < .001$) identities, the last two are associated with Soviet identity (r = .16, p < .01; r = .15, $p < .01$), forming a powerful cluster (with high centrality measures) that can be called "pro-Russian". The second cluster, less powerful (with low centrality measures), consists of a positive relationship between global and European identities (r = .29, $p < .001$), which can be called "pro-Western". The 'bridge' between the two clusters is self-esteem, which is positively associated with ethnic (r = .18, $p < .01$) and global (r = .12, $p < .05$) identities only. The results of the analysis show the dual structure of the social identity of Russians, their central and peripheral identities, as well as the important unifying role of Russians' self-esteem in this network. This is the first network analysis that shows the complex structure of identity of an ethnic group in the context of global challenges.

Keywords: ethnic identity, civil identity, Slavic identity, religious identity, European identity

---

[*] corresponding author e-mail: *taimiris@yandex.ru*

SOCIOCULTURAL ADAPTATION STRATEGIES AS PSYCHOLOGICAL WELL-BEING PREDICTORS AMONG MIGRANT CHILDREN IN RUSSIA

Marina Chibisova[1,*], Natalya Tkachenko[2], & Olga Pavlova[2]
[1]Moscow Pedagogical State University
[2]Moscow State University of Psychology & Education

The aim of the study is to examine how psychological well-being of migrant children is determined by their acculturation characteristics, namely focusing on preserving the culture of the country of origin and accepting Russian culture, as well as by salience of their national (Russian) and ethnic identity. The study was based on J. Berry's theory that describes acculturation as a combination of preserving the culture of origin and accepting host country culture accompanied by the salience of corresponding identities. Multidimensional Students' Life Satisfaction Scale by Huebner was used to measure psychological well-being, Acculturation Scale for Children and Adolescents, Measure of Youth's Ethnic and National Identity (for middle and high school only) for acculturation. All instruments were adapted and validated for migrant children. *The sample* consisted of 669 children of migrants from the countries of Tajikistan, Uzbekistan, Kyrgyzstan and others, aged 7 to 17 years. The average duration of residence in Russia for primary school was 3.5 years, for middle – 4.3 years, and for high school – 5 years. Hierarchical linear regression analysis was carried out with control of social demographic variables. In the sample of primary school children, significant predictors of overall life satisfaction turned out to be attitudes towards both preserving the country of origin culture ($\beta = 0.18$) and host society culture acceptance ($\beta = 0.44$) with adjusted $R^2 = 0.24$. As for middle school students, such predictors are the salience of national ($\beta = 0.38$) and ethnic identities ($\beta = 0.25$) with adjusted $R^2 = 0.28$. In the sample of high school students, no statistically significant connections with overall well-being were found. For primary schoolchildren and for middle school students integration as acculturation strategy (with a stronger bias towards host culture) is a predictor of psychological well-being but its different indicators are crucial, namely, preserving the norms of their country of origin culture and host society culture acceptance for the former and salience of national (Russian) and ethnic identities for the latter, which might be explained by the importance of identity for adolescents. The lack of significant relationships for high-school students might be explained by their longer period of residence in Russia. The results argue that the importance of acculturation strategies as a determinant of psychological well-being manifests itself already at primary school age.

Keywords: sociocultural adaptation, psychological well-being, life satisfaction, migrant children

[*] corresponding author e-mail: *chibisovamarina0@gmail.com*

TURNING AWAY FROM CONVENTIONAL MEDICINE TO TRADITIONAL, COMPLEMENTARY, AND ALTERNATIVE MEDICAL TREATMENTS - AN IRRATIONAL CHOICE

Milica Ninković[*], Goran Knežević, Danka Purić, Goran Opačić, Ljiljana Lazarević, Marija Petrović, Predrag Teovanović, Sanda Stanković, & Zorana Zupan
University of Belgrade, Faculty of Philosophy, Department of Psychology & LIRA lab

Although it lacks a solid evidence base, people use traditional, complementary, and alternative medicine (TCAM), and they do so in three distinct ways: 1) for preventive purposes, 2) complementarily to prescribed therapy, and 3) as an alternative to it. While preventive use of TCAM is of least concern, these treatments can sometimes have detrimental interactions with conventional when used as complementary, and especially as an alternative to treatment. Using TCAM instead of conventional treatments can delay efficient cure and decrease the chance of recovery. Previous studies have indicated that the use of TCAM is rooted in the "irrational mindset" (IM) - a composite of irrational beliefs and cognitive biases. However, different ways of using TCAM may not be equally irrational. Here, we explored whether the IM predicts the three ways of TCAM use. Participants from a nationally representative Serbian sample (N = 1003) filled in a set of the IM measures: Medical conspiracy theories (α = .83), Superstition (α = .70), Magical beliefs about health (α = .77), Extrasensory beliefs (α = .77), and Naturalness bias (single item). They also indicated how they typically used different domains of TCAM practices (preventively, complementarily, alternatively, or none). We coded their answers "1" if they indicated that they used a domain in a particular way and with "0" otherwise. We tested the explanatory power of IM variables for the ways of TCAM use within three binary logistic regression models, one for each way of use. The irrational mindset was the most predictive for the alternative use of TCAM ($\chi^2(5) = 40.56$, $p < .001$; Nagelkerke $R^2 = .07$). Those endorsing medical conspiracy theories (OR = 1.48, $p = .001$) and extrasensory perception beliefs (OR = 1.41, $p = .009$) were more likely to turn to TCAM alternative to the prescribed therapy. On the other hand, the predictive power of IM was quite weak for preventive ($\chi^2(5) = 14.39$, $p = .013$; Nagelkerke $R^2 = .02$) and complementary use ($\chi^2(5) = 18.06$, $p = .003$; Nagelkerke $R^2 = .02$) suggesting these behaviors not to be irrational. Whilst abandoning treatment and turning to TCAM is the rarest scenario (17%), it is the most dangerous one, particularly in case of life-threatening illnesses. This is why health communication interventions must cut deeper and also address its underlying irrational beliefs: endorsing unfounded extrasensory abilities and dismissing official medicine due to so-called "Big pharma conspiracies".

Keywords: Irrational beliefs, Complementary and alternative medicine, Traditional medicine, Health behaviors

LIFETIME PREVALENCE OF NON-ADHERENCE TO MEDICAL ADVICE AND TRADITIONAL, COMPLEMENTARY, AND ALTERNATIVE MEDICINE USE: EVIDENCE FROM A REPRESENTATIVE SAMPLE IN SERBIA

Petar Lukić[*], **Goran Knežević, Goran Opačić, Ljiljana Lazarević, Marko Živanović, Milica Ninković, Predrag Teovanović, Sanda Stanković, & Zorana Zupan**
University of Belgrade, Faculty of Philosophy, Department of Psychology & LIRA lab

Rather than following official medical advice, people often succumb to different questionable health practices to improve their health or recover from illness. For example, they may intentionally not adhere to official medical advice by making decisions about their therapy or self-medicating, or use complementary, traditional, and alternative medicine (TCAM). Research from other countries suggests that these two types of behavior are widespread, however, their prevalence in Serbia is unknown. To address this, we asked a nationally representative sample of Serbian citizens (N = 1003) about their lifetime experiences with non-adherence to official recommendations (12 items) and the use of TCAM practices for health reasons (22 items). On average, respondents reported not adhering to 4.01 (SD = 2.94) out of 12 proposed medical recommendations, while 88.9% reported at least one non-adherence. The most prevalent non-adhering behaviors were not going to the doctor when feeling ill (77.6%), taking antibiotics without a prescription (46.7%), and refusing to change unhealthy lifestyle habits (40.4%). The least frequent non-adhering behaviors were not reporting or minimizing symptoms when talking to a doctor (23.6%), self-determining the dosage of the prescribed medicine (16.2%), and avoiding a medical check-up (16.2%). For TCAM practices, respondents reported using, on average, 7.51 (SD = 3.27) out of 22 practices at some point in their life. At the same time, 99.3% had used at least one of the proposed TCAM practices. The most frequent TCAM practices were consuming herbal products (88.8%), using herbal balms, pledgets, creams, or ointments (85.2%), and eating herbs (garlic, houseleek, etc.) for improving health (87.7%). The least prevalent practices were quantum medicine (6.7%), crystal therapy (6.1%), and spiritual healing (4.6%). Even though behaviors covered by the checklists were quite diverse, both instruments proved to be fairly internally consistent - Cronbach's alpha for non-adherence was α = .79 and for TCAM α = .77, suggesting common latent tendencies. The correlation between lifetime non-adherence to medical recommendations and use of TCAM was r = .29. Based on observed prevalences, clinicians should be advised not to assume a fully compliant patient, since it seems that non-adherence and trying alternatives is more a norm than an exception.

Keywords: prevalence, complementary and alternative medicine, health behaviors, traditional medicine

IT'S CONTRADICTORY, BUT NOT WHEN I BELIEVE IT: STRATEGIES FOR RECONCILING MUTUALLY INCOMPATIBLE BELIEFS

Marija Petrović[*] & Iris Žeželj

University of Belgrade, Faculty of Philosophy, Department of Psychology & LIRA lab

People can simultaneously endorse mutually incompatible beliefs - for example, they believe that all people should be obligated to vote, but, also, that some individuals should be prohibited to do so. If they hold such contradictory beliefs, we say they are prone to doublethink. However, while we can reliably capture individual differences in doublethink, i.e. that people are prone to it, it is not clear whether they are aware that they hold contradictory beliefs. Moreover, while such beliefs are normatively contradictory, those who hold them might have different strategies to reconcile them and thus not view them as such. To explore this, we first had the participants fill out the Proneness to doublethink scale, and then conducted follow-up semi-structured interviews with them. We showed the participants the pairs of contradictory beliefs they previously endorsed, and then asked them to explain how they understand their relationship. Analysis showed that when faced with their contradictory beliefs, most participants acknowledge that the statements can be seen as contradictory, but almost none had an issue with their own agreement with both. Instead, they adopt three main strategies to reconcile the statements. Firstly, most participants focused on their degree of agreement with a statement (e.g. indicating a 3 on a 4-point scale signals that they only agree with a part of the statement). Secondly, participants came up with specific conditions under which each of the general beliefs holds to reconcile them (e.g. for the pair "No matter how hard they try, people cannot escape their genetics" and "Regardless of their genetic predispositions, people forge their own destinies", participants came up with characteristics that are highly dependent on genetics, and others that are not, thus allowing them to believe both statements simultaneously for different traits). Finally, participants explained one of the statements as prescriptive, and the other as descriptive (e.g. they believe that voting should be obligatory for everyone, but since it is not, we need to prohibit voting for some people). Our study offers insight into the mechanisms that allow contradictory beliefs to persist within the belief system. People are aware of contradictions, but only if they look at them independently of their own beliefs. However, once they are considered within the belief system, people try to reconcile incompatible beliefs and frame them in a non-contradictory manner.

Keywords: doublethink, irrational beliefs, incompatible beliefs

---

[*] corresponding author e-mail: *marija.petrovic@f.bg.ac.rs*

ASTRAL MERIOTHERAPY AND PHYSIOPHOTON BELTS: FAMILIARITY WITH NON-EXISTENT MEDICAL PRACTICES IS ROOTED IN IRRATIONAL MINDSET

Marija Petrović[1,*], Danka Purić[1], Marija Branković[2,3], Goran Knežević[1], Ljiljana Lazarević[1], Petar Lukić[1], Goran Opačić[1], Sanda Stanković[1], Predrag Teovanović[1], Marko Živanović[1], & Iris Žeželj[1]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology & LIRA lab
[2]University of Belgrade, Institute for Philosophy and Social Theory
[3]Singidunum University, Faculty of Media and Communication

Medical practices outside of conventional medicine can be classified into the broad category of traditional, alternative, and complementary medicine (TCAM). To appeal to people's biases and play into their irrational beliefs, TCAM practices are often presented so as to appear scientific, for example, through the use of pseudoscientific jargon (e.g. biofeedback or chelation therapy). Their names are strategically crafted to signal that fact - the name should serve as a heuristic of a kind. Drawing from pseudoscientific jargon, we invented five fake medical practices and embedded them in a list of 71 existing TCAM practices. A total of 500 Serbian respondents (73% women, mean age $M = 38.59$) assessed how familiar they were with all of them. Next, we explored if those who claimed they were familiar with non-existent practices were also (1) more likely to have a positive attitude towards TCAM and use TCAM practices in general and (2) more likely to have the so-called "irrational mindset" (a set of beliefs such as conspiracy mentality, superstition, and biases such as illusory correlation, omission, and naturalness biases). On average, around 22% of people reported having heard of at least one practice that does not exist. Also, the more fake practices participants recognized, the more likely (albeit to a small degree) they were to have a positive attitude towards TCAM ($r = .13$, $p = .003$) and to use existing TCAM practices ($r = .09$, $p = .035$). Most importantly, the more fake practices they recognized, the more likely they were to hold magical beliefs about health ($r = .21$, $p < .001$), and conspiratorial beliefs ($r = .14$, $p = .002$), to be susceptible to illusory correlation ($r = .11$, $p = .016$), and omission bias ($r = .11$, $p = .010$). Once all of these predictors are entered into a regression model, the model significantly predicts familiarity with non-existent practices ($F(6, 493) = 4.343$, $p < .001$, $R^2 = .039$), with only magical health beliefs contributing significantly ($\beta = 0.187$, $p = .004$). Our findings suggest that people more prone to non-normative reasoning, with a conspiratorial worldview, and especially those endorsing false beliefs about health tend to rely more on pseudoscientific proxies when navigating the offer of TCAM practices. The fact that they claim having heard about fake practices they have no prior information on, could potentially make them candidates to try different non-evidence-based treatments, thus endangering their health.

Keywords: irrational beliefs, complementary and alternative medicine, health behaviors, traditional medicine

---

ARE VEGANS HAPPY? THE RELATIONSHIPS BETWEEN MEET CONSUMPTION, MOOD, PERSONALITY TRAITS AND LIFE SATISFACTON

Slađana Stoilović[1],[*], Jelisaveta Miletić[1], & Marija Branković[1, 2]
[1]Singidunum University, Faculty of Media and Communication
[2]University of Belgrade, Institute for Philosophy and Social Theory

Vegetarian and vegan diet is becoming increasingly prevalent and accepted worldwide. With the growing trend, there is a growing need for research investigating the impact of this dietary choice on the physical and mental health of individuals. Therefore, this study aims to expand knowledge in this area. Accordingly, our research aimed to examine differences between groups based on their dietary preferences omnivores (N = 100), vegetarians (N = 94), vegans (N = 76) regarding the Big Five neuroticism scale and several mental health-related outcomes: anxiety, stress, depression, psychological well-being. In this study, the sample consisted of 270 participants (25 males, 244 females, and 1 participant who did not specify gender identity, age ranged from 18 to 66). Participants indicated their preferred dietary choices and responded to the the Big Five neuroticism scale (α = .71), Personal Well-being Index - Adult (PWI-A) (α = .89), and the DASS-21 Scale, which measured stress (α = .89), anxiety (α = .87) and depression (α = .89). First, we did not observe any differences in groups on general neuroticism (M_{omni} = 2.95, SD = .74; M_{veget} = 2.91, SD = .65; M_{vegan} = 2.76, SD = .82, $F(2, 267)$ = 1.49, $p > .05$). Research results indicate a statistically significant difference between groups on perceived stress. Vegans scored significantly lower on the stress subscale compared to omnivores (M_{omni} = 20.38, SD = 11.75; M_{veget} = 18.36, SD = 10.13; M_{vegan} = 16.05, SD = 11.43, $F(2, 267)$ = 3.27, $p < .05$). The same tendency appeared on depression (M_{omni} = 11.38, SD = 10.86; M_{veget} = 8.98, SD = 9.86; M_{vegan} = 10.61, SD = 11.21, $F(2, 267)$ = 1.27, $p > .05$) and anxiety subscales (M_{omni} = 13.28, SD = 11.66; M_{veget} = 11.14, SD = 10.81; M_{vegan} = 9.29, SD = 10.16, $F(2, 267)$ = 2.90, $p > .05$), however these differences were not statistically significant. Additionally, there was no statistically significant difference between groups on general well-being (M_{omni} = 6.83, SD = 1.80; M_{veget} = 6.58, SD = 1.92; M_{vegan} = 6.29, SD = 2.32, $F(2,267)$ = 1.60, $p > .05$).Therefore our findings show that most differences between omnivores, vegetarians and vegans regarding mental health outcomes are not statistically significant. Vegetarian and vegan diets should not be portrayed with a negative connotation, suggesting adverse effects on health and well-being. Possible positive relationships with a reduced perception of stress or mood-related outcomes should be studied further.

Keywords: Vegetarians, Vegans, Omnivores, Stress, personal well-being

[*] corresponding author e-mail: *sladjana.stoilovic.20221519@fmk.edu.rs*

EXPLORING PREDICTORS AND THE EFFECTS OF LABELING ON THE PREFERENCE FOR ALTERNATIVE PROTEIN PRODUCTS

Anastasija Budžak[1,*], Itana Đurašković[1], Branko Vlajin[1], & Marija Branković[1, 2]
[1]Singidunum University, Faculty of Media and Communication
[2]University of Belgrade, Institute for Philosophy and Social Theory

Consumption of alternatives to meat has become a blossoming area of research, given the unfavorable impacts of meat consumption on health and the environment. However, little is known about the social-psychological determinants of preference for alternative protein. Research in social perception shows that it is possible to influence people's preferences depending on the way we interpret and name things. Labeling of alternative protein products can affect how likely people are to choose them, as these labels also communicate certain social images of consumers. In this pre-registered experiment we had two aims: 1. to test whether the preferences for alternative protein products will depend on the label assigned to them (specifically: lenten, vegan or plant-based); 2. to examine potential predictors of preference for different food labels (previous experience of using alternative sources of protein, frequency of meat consumption, speciesism and religiousness). We expected that products marked as "Lenten" will be more positively evaluated compared to the other two labels, considering that fasting is part of tradition and part of the ethno-religious identity in our country. We also believe that religious participants will prefer "Lenten" products to a greater extent, while respondents who do not support exploitation of animals will prefer "vegan" products. Participants (N = 290) were randomly assigned to one of three experimental groups. Each group was shown the same photos of 5 types of products (alternative burger, sausage, cheese, meat, milk), and the label attached to the products was either lenten, vegan or plant-based. The most positively rated products were labeled as "Lenten", although the contrast analysis did not show that there was a significant effect of the product label on products preference ($F(2, 289) = 0.67$, $p = .51$) Regardless of the label, preference for the products was predicted by the previous experience of using alternative sources of protein ($\beta = .33$, $SE = .10$, $p = .000$), speciesism ($\beta = -.21$, $SE = .18$, $p = .000$) and diet habits – frequency of meat consumption ($\beta = .14$, $SE = .09$, $p = .017$), explaining 15.6% of the variance, while religiousness remained non-significant ($\beta = -.07$, $SE = .09$, $p = .797$). If we want to influence on the preference of alternative protein products, public communications should be directed towards a more positive attitude to animals and their rights and the importance of reducing the amount of meat in the diet.

Keywords: words: food labels, speciesism, diet habits, preference of alternative source of protein

---

* corresponding author e-mail: *anastasija.budzak@fmk.edu.rs*

BULLYING VICTIMIZATION EXPERIENCES AMONG BELGRADE HIGH SCHOOL STUDENTS

Marija Trajković[1],*, Branislava Popović-Ćitić[2], & Lidija Bukvić[2]
[1]Institute for Educational Research, Belgrade
[2]University of Belgrade, Faculty of Special Education and Rehabilitation

Bullying refers to intentional actions, repeated over time, that harm, intimidate, or humiliate another person and that occur within the context of an imbalance of power, either real or perceived, between the bully and the victim. Previous research suggests that age and gender differences in bullying may be dependent upon the specific type of bullying behavior measured. In general, the serious consequences of bullying impose the need for constant examination of this negative phenomenon. To examine the frequency of personal experience of bullying victimization among high school students, a survey was conducted on a sample of 243 Belgrade students (76.5% female), aged 14–19 ($M = 16.5$; $SD = 1.1$). The Delaware Bullying Victimization Scale (DBVS) was used to examine the frequency of personal experience of bullying victimization. The DBVS is a six-point Likert-type scale (1 – never; 6 – every day), which consists of a total of 16 items, which are further grouped into four subscales: Verbal, Physical, Social/Relational and Cyberbullying. A separate score is computed for each subscale (Verbal, Physical, Social/Relational, and Cyberbullying) and a total Bullying in School score is computed by summing the scores on the first three subscales (under the recommendation of the authors of the instrument). Internal reliability of the scale was high ($\alpha = .92$). In general, it can be said that high school students very rarely experienced bullying victimization (M = 1.63; SD = .89). Verbal bullying victimization was the most common of all forms ($M = 1.85$; $SD = 1.21$), while cyberbullying was the least pronounced ($M = 1.3$; $SD = .73$). Male students more often than female students experienced verbal ($t(242) = 3.21$, $p < .01$, $d = .53$), physical ($t(242) = 3.8$, $p < .01$, $d = .63$), cyberbullying victimization ($t(241) = 2.67$, $p = .01$, $d = .45$), as well as bullying victimization in general ($t(242) = 3.29$, $p < .01$, $d = .55$). The student's age had weak positive correlations with the total score ($r = 0.17$, $p = .01$), but also with the scores on all subscales (except for the Physical bullying). Based on the obtained findings, it can be concluded that in the examined sample of high school students bullying victimization is not frequent, male students experience bullying victimization more often, and the frequency of bullying victimization increases with age. The results can serve as an initial insight and a starting point to further assessments of bullying and intervention planning.

Keywords: bullying, victimization, high school students

---

* corresponding author e-mail: *marija.stojanovic@ipi.ac.rs*

DAZED AND CONFUSED: THE MEDIATING ROLE OF PERCEIVED MORAL COMPLEXITY IN ATTITUDES TOWARDS ISRAELI-PALESTINIAN CONFLICT

Žiga Mekiš Recek[1],* & Žan Lep[1,2]
[1]University of Ljubljana, Faculty of Arts, Department of Psychology
[2]Educational Research Institute, Centre for Applied Epistemology, Ljubljana

An armed conflict broke out in the Gaza Strip in October of 2023, characterised by its moral and historical complexity. Because of decades-long tensions, it is hard to attribute causes and blame with certainty, yet many feel pressured to form an opinion and take sides. Their judgements, however, can be affected by both their stable traits and perceptions of the situation. We explored the psychological predictors of political endorsement in information-rich and cognitively demanding circumstances regarding a topic previously not salient in Slovenia but one that could represent an ideological divide and lead to (unfavourable) civic action. We hypothesised that those perceiving the situation as highly complex will find it challenging to take a position (e.g., considering various causes). Hence, their perceptions would weaken the relationship between demographic, informational, and psychological predictors, and the relative strength of support for either Israel or Palestine, attenuating attitude radicalisation. We obtained preliminary data from 344 Slovenian residents (aged 18–58, $M = 29.2$, $SD = 8.0$, 58% male) on their demographics, experiences with the region, how informed and interested they are in the conflict, their actively open-minded thinking (predictors), perceived moral complexity (mediator), and their support for both sides in the conflict. The relative strength of support (dependent variable) was calculated as the absolute difference between support for the Israeli and Palestinian side, reflecting the tendency to take a position for one side relative to the other. The path analysis model predicting the dependent variable had a good fit to the data ($\chi^2 = 11.20$, $p = .13$, CFI = .98, TLI = .94, RMSEA = .057, 90% *CI* [.000, .116], SRMR = .016) and explained 48.4% of the variance in the outcome variable. Actively open-minded thinking ($\beta = .33$, $p < .001$) and higher perceived informedness ($\beta = -.38$, $p < .001$) contributed to higher perceived moral complexity, while knowing Israelis had an inverse effect ($\beta = -.12$, $p = .05$). In turn, those perceiving the situation as more complex ($\beta = -.54$, $p < .001$) and males ($\beta = -.16$, $p < .01$) had a harder time attributing support to a side, while those more interested in the conflict held stronger attitudes ($\beta = .28$, $p < .001$). The results show that many people – especially those more reflective and open-minded – remain cautious in taking sides. In contrast, others are prone to binary thinking, which can have adverse societal effects. Thus, providing complete information focused on the situation's complexity seems promising in combatting the potential polarisation.

Keywords: moral complexity, attitudes, actively open-minded thinking, Israel, Palestine

"YOU'LL BE THE ROCK OF GOD" – ANALYSIS OF THE EXPERIENCE OF RELATIONSHIPS WITH COACHES AMONG RHYTHMIC GYMNASTIC[^]

Milica Stijačić[*]

University of Belgrade, Faculty of Political Sciences

The sensitive topic of abuse and harassment is one of the unfairly hidden items of sports culture. Emotional abuse and harassment in sports occurs by coaches in three ways: *through physical abuse, verbal abuse or denial of attention and support*. The aim of this research was to point out how rhythmic gymnasts perceive behavior of their trainers towards them. It also tells us what the gymnasts' opinion is about how much the coach-athlete relationship affects their motivation and success in training and competition, but also on private aspects of life, self-confidence or self-image. The research is qualitative, the data collection technique was a semi-structured interview, conducted with 4 participants aged 15 to 22 who were professionally engaged in rhythmic gymnastics and have experience with the coach-athlete relationship. Data were processed by thematic analysis techniques. In this research, few major topics were singled out: *the intensity of the relationship with the coachs, the mood and motivation of the gymnasts, the beginnings of abuse, commenting on the body weight*. The participants talked about the intense relationship with their coaches, which is full of emotions an is extremely important to them. The results of the analysis of the interviews with the research participants showed that gymnasts believe that the coach's mood directly affects their mood, that they feel motivated when the coach has a positive attitude, as well as that they think they perform more successfully when they have the coach's support behind them, but worse when the coach's attitude is negative. Although the participants were not explicitly led to talk about their experiences of abuse or harassment, different forms of such behavior are present. Through the analysis, the following types of abuse can be seen: ignoring and disregarding threats, insults, intimidation, behavior without understanding and empathy. An example of this type of behavior is also the subject of body weight, which coaches bring up every day, and which is very often accompanied by insults. Analyzing the interviews, we also conclude that gymnasts often have a distorted image of themselves. Such pressure and attitude of the trainers, to which the gymnasts are directed, encourages them to use unhealthy or pathogenic methods of losing body weight, so some interview participants showed a tendency towards eating disorders. This type of research opens up space for discussion on painful topics for many athletes.

Keywords: rhythmic gymnastic, abuse, harassment, coach-gymnastic relationship, body-weight image

GENDER STEREOTYPING OF CONTESTANTS IN THE SERBIAN VERSION OF TELEVISION GAME SHOW "THE CHASE"

Ivana Milenković[*], Lara Perić, Neda Bralović, & Nevena Mijailović
University of Belgrade, Faculty of Philosophy, Department of Psychology

Game shows are beloved leisure programs. As they are often broadcasted by public services they tend to reach wide audiences. Notably, however, the majority of game show contestants are male. In addition, there is anecdotal evidence that male and female contestants are being treated differently, so that women are patronised and their gender is put forward by game hosts. In this research we systematically study these differences in a game-show "The Chase" (Potera). We hypothesise that the differences will be reflected in: different sum offers made by the so-called "chaser" (challenger), emphasis put on the gender of female contestants and their selective encouragement by the chaser and the host. To test this, we randomly selected 20 episodes and had two independent coders analyse the scenes in the most interactive, "Head-to-head" rounds. The interclass correlation coefficient was high for the assessment of emphasising the gender (*ICC* = .86), and somewhat lower for assessment of selective encouragement (*ICC* = .73). We observed the expected differences in both ratio of lower to middle offers (on average the lower sum was 4.56 times smaller than the middle sum for male, and 1.96 for female contestants; $t(22) = 3.271$, $p = .003$), and ratio of higher to middle offers (on average the higher sum was 5.04 times larger for male and 6.71 times for female contestants; $t(33) = -2.677$, $p = .011$). Consequently, female contestants were given more favourable offers compared to their male teammates. There were also expected differences in both *emphasis on the gender* ($t(29) = -7.571$, $p < .001$) and *encouragement* ($t(38) = -5.044$, $p < .001$), which was measured by notating frequencies of previously determined behaviours. Women were more likely to have their gender accentuated in conversation (e.g. "lady", "gentlemanly behaviour") by the chasers and the host; they were also encouraged and motivated more frequently (e.g. "don't worry, you're doing great"). Finally, women were more likely than men to choose the lower sum ($\chi2(1, N = 40) = 13-189$, $p < .001$), but equally likely to pass to the further stage ($\chi2(1, N = 40) = .107$, $p = .744$). This content analysis illustrates how gender stereotypes (e.g. women are less likely to take risks, men should behave "gentlemanly") are reinforced, albeit maybe inadvertently and well-intentioned, and how different role models are subtly set for male and female audience and future contestants.

Keywords: gender stereotypes, content analysis, game show, benevolent sexism

---
[*] corresponding author e-mail: *ivanamilenkovic27@gmail.com*

POSITIVE DEVIANTS ACROSS EUROPEAN SOCIETIES: THE ROLE OF VALUES IN ECONOMIC MOBILITY

Milica Vdović[*], Marko Ercegović, Aleksandra Milić, Aleksandra Stanimirović, & Vladislav Pančevački
Singidunum University, Faculty of Media and Communication

Economic inequality persists globally, exacerbated by recent crises, it poses a challenge for developing and developed countries. In this study, our goal is to explore the experiences of individuals who, contrary to their peers, have achieved upward economic mobility by transcending poverty, a phenomenon referred to as positive deviancy. Using the Schwartz value model, we try to identify individual qualities that can contribute to escaping poverty, as well as values that predict a greater tendency to support systemic measures against poverty. We examine the role political-economic regions have on positive deviants. This research can offer a framework for helping the poor in the current economic-political order. Using the ESS10 survey of 10 countries we investigate: 1) the link between positive deviance (PD) rates, hypothesizing that richer, more democratic countries have more PDs; 2) whether positive deviants hold different values to other SES groups; and 3) weather these values shape attitudes toward systematic aid differently within different SES groups. Our findings show that there were more PDs in post-communist countries (24%) than in democratic ones (20%) (*Chi square* (1) = 3.51, $p < .05$). Two separate binary logistic regressions show that different values predict whether someone is PD in different regions. "Openness to change" and "Conservation" were significant predictors of being a positive deviant in democratic countries ($b = .521$, $p < .01$ and $b = .268$, $p < .05$) , while in post-communist countries "Self-Enhancement" was the only predictor ($b = .355$, $p < .01$). When it comes to systematic aid, ANOVA results show that all SES groups, and political-economic systems support the poor equally. We conclude that democratic and post-communist countries hold different values, which further translates into regional SES groups being distinctively different across their value ratings. We discuss the implications for value-based interventions in different regions.

Keywords: positive deviants, SES, Schwartz's values, economic mobility, systemic aid

[*] corresponding author e-mail: *milica.vdovic@fmk.edu.rs*

VALIDATION OF THE SPORT MOTIVATION SCALE-6 (SMS-6) IN SERBIAN ATHLETES

Dušana Šakan[*], Mihajlo Ilić, & Željka Bojanić
Faculty of Legal and Business Studies dr Lazar Vrkatić, Department of Psychology

The Sport Motivation Scale-6 (SMS-6), rooted in the Self-Determination Theory, is a widely utilized instrument for assessing sport motivation across all aspects, from amotivation to the most autonomous forms of motivation. The aim of this study was to to examine the SMS-6 factor structure through both Confirmatory Factor Analysis (CFA) and Exploratory Structural Equation Modeling (ESEM), addressing conflicting findings from prior research. The sample consisted of 338 amateur athletes (M_{age} = 21.55, SD = 4.45, 69.2% males, average training duration 9.85 years, SD = 5.15). SMS-6 includes six subscales measuring amotivation, extrinsic motivation, introjected motivation, identified motivation, integrated motivation and intrinsic motivation. The proposed six-factor solution was tested using CFA and the model did not fit the data ($\chi^2_{(237)}$ = 622.78, CFI = .827, TLI = .798, RMSEA = .069 [90% CI .063-.076], SRMR = .076). Further, the model was re-estimated using ESEM with a Target rotation. This approach removed zero cross-loading constraints and corrected for misspecifed latent factors, resulting in a well-fitting model ($\chi^2_{(147)}$ = 273.62, CFI = .957, TLI = .919, RMSEA = .044 [90% CI .034-.054], SRMR = .027). ESEM revealed significant cross-loadings between several items and non-target latent factors. Two out of four items (Item 15 and 20) on Identified regulation no longer had significant factor loadings on that factor (λ = .24, p = .11; λ = -.12, p = .11, respectively). They showed greater loadings on Extrinsic Regulation (λ = .38, p < .001) and Integrated Regulation (λ = .32, p < .001), respectively. Additionally, item 13, intended to load on Integrated Regulation (λ = .15, p = .16), now exhibited a greater loading on Intrinsic Motivation (λ = .33, p < .001). These results indicate that the factors designed to assess autonomous forms of sport motivation, i.e., identified, integrated and intrinsic motivation, are ill-defined. Some items intended to load solely on factors describing autonomous forms of motivation achieve significant loadings on other factors. This indicates that the mentioned items do not tap into theoretically distinct dimensions, and that the proposed six-factor structure does not adequately assess different forms of autonomous motivation, rendering those factors distorted. In conclusion, the SMS-6 requires further refinement, and certain items need reevaluation to accurately capture theoretically differentiated constructs.

Keywords: sport, motivation, CFA, ESEM, Sport Motivation Scale-6

IS THE BASIC PSYCHOLOGICAL NEED SATISFACTION AND FRUSTRATION SCALE (BPNSFS) AN ADEQUATE MEASURE OF BOTH NEED SATISFACTION AND FRUSTRATION?

Mihajlo Ilić[*] & Dušana Šakan

Faculty of Legal and Business Studies dr Lazar Vrkatić, Department of Psychology

Self-determination theory and the recently added dual model postulate that satisfaction and frustration of the autonomy, competence and relatedness needs represent separate dimensions. Since previous studies have brought into question the dual model, the aim of this research was to explore whether the mostly used Basic Psychological Need Satisfaction and Frustration Scale scale (BPNSFS) effectively differentiates these dimensions. To attain this goal, a comparison between the solutions provided by Confirmatory Factor Analysis (CFA) and Exploratory Structural Equation Modeling (ESEM) was conducted. The examination was carried out on a sample of 387 Serbian adults (M_{age} = 38.49, SD = 8.92, 21-58, 54% females). BPNSFS consists of twenty-four items and six subscales measuring autonomy, competence, relatedness satisfaction and autonomy, competence and relatedness frustration. First, the six-factor solution was evaluated by CFA, demonstrating an acceptable fit to the data ($YB\chi^2_{(236)}$ = 466.22, CFI = .919, TLI = .906, RMSEA = .050 [90% CI .043, .057], SRMR = .052). After that, ESEM with a Target rotation was used, providing an even better fit ($YB\chi^2_{(147)}$ = 270.04, CFI = .957, TLI = .919, RMSEA = .047 [90% CI .038, .055], SRMR = .024). Subsequently, interfactor correlation between corresponding need dimensions were assessed in both solutions. Autonomy satisfaction and autonomy frustration (r = -.57, p < .001 CFA; r = -.41, p < .001 ESEM), competence satisfaction and competence frustration (r = -.77, p < .001 CFA; r = -.53, p < .001 ESEM), relatedness satisfaction and relatedness frustration (r = -.90, p < .001 CFA; r = -.48, p < .001 ESEM) all correlated negatively, as they represent opposing constructs. It is evident that the CFA solution provided significantly higher correlations between opposing dimensions of the same need. Such high correlations bring into question the use of both dimensions and indicate that frustration and satisfaction subscales measure the same phenomenon. Since ESEM provided significantly lower correlations between the same latent variables, it is possible that the original factor structure was distorted and misspecified, which was corrected by removing zero cross-loading constraints. To some extent, this result corroborates the previous findings, which provided evidence that the use of both satisfaction and frustration dimensions of three needs is redundant. Further examination on whether frustration subscales are method factors is needed.

Keywords: basic psychological needs, ESEM, CFA, method factors

GENDER AND SEXUAL ORIENTATION DIFFERENCES IN SELF-OBJECTIFICATION ON TINDER

Iva Lazić[*], Jelena Stanojević, Milica Dobrosavljević, Tamara Milić, & Una Branković
University of Belgrade, Faculty of Philosophy, Department of Psychology

According to the Objectification theory, sexual objectification refers to treating something that is not otherwise an object, as an object that can be used and controlled, and that we identify through its physical properties. The greatest psychological consequence of objectification is that it leads people to adopt and internalise a third-person perspective about themselves, which is called self-objectification. Previous studies, on the one hand, showed negative effects of self-objectification on well-being (e.g. anxiety related to the person's appearance), while, on the other hand, Tinder users seem to be more prone to internalise external societal beauty standards. That said, we aimed to identify groups of Tinder users that would be particularly at risk of sexual self-objectification, by testing for gender differences, as well as differences between heterosexual and queer people. The sample consisted of 192 Tinder profiles, from users aged 18-30, out of which 26% were self-identified heterosexual men, 25% heterosexual women, 25% queer men, and 24% queer women. The content analysis method was used. The profile picture, with a person presented in it as the coding unit, was coded by predefined criteria (exposure of body parts, gaze, provocative dress, sexual posing and seductive facial expressions) and by five coders independently (ICC = .872). The results showed a significant difference between women and men in self-objectification, $\chi^2 = 16.258$ (1, N = 192), $p = .000$. In women, self-objectification occurred in 62% of cases, and in men in 33% of cases. In terms of sexual orientation, heterosexual women self-objectified the most on Tinder (38%) when compared to queer women (23%), queer men (18%) and straight men (14%). Lastly, our study showed that in nearly half of the individuals in the study (47%) self-objectification on their Tinder profiles was present, which is an alarming result that may indicate that many users of this platform suffer from the negative effects of self-objectification. In conclusion, our results show that primarily heterosexual women are at the most risk of self-objectification, which presents a substantial issue, especially considering that the trend in dating app usage is at a steady increase. These trends are present in queer people as well, which can probably be explained by social pressure for them to affirm heterosexual beauty standards, especially on a platform developed mainly for heterosexual people.

Keywords: self-objectification, Tinder, gender, sexual orientation, content analysis

[*] corresponding author e-mail: *iva.lazic.02@gmail.com*

MUNDIALISM, NATIONAL PRIDE, REHUMANIZATION, MISTRUST AND WILLINGNESS TO FORGIVE AS PREDICTORS OF CHAUVINISM AMONG YOUNG PEOPLE IN BOSNIA AND HERZEGOVINA

Srđan Puhalo[*]

Pro Educa Banja Luka, Bosnia and Herzegovina

Chauvinism is the most extreme form of nationalism and, as such, represents a danger to every society. In this research, we define it as the refusal to enter into mixed marriages, avoidance of contact with other nations, feeling safe only when surrounded by members of our own nation, and the perception that other nations are working against us, even when not overtly visible. In Bosnia and Herzegovina (BiH), distinguishing between where patriotism ends and chauvinism begins is exceptionally challenging. Therefore, it is interesting to investigate the connection of this phenomenon with other variables. This research aims to determine the extent to which mundialism, national pride, rehumanization, mistrust and willingness to forgive are related to chauvinism. The study, conducted in mid-2019, involved a sample of 1,321 young people in BiH aged 11 to 30. We measured reconciliation with the scale of readiness for reconciliation, which was authored by Nebojša Petrović and consists of 40 items. Through factor analysis, we singled out three factors: rehumanization, willingness to forgive and mistrust. We measured nationalism with 16 items and factor analysis separated into three factors: mundialism, national pride, and chauvinism. The results obtained through regression analysis are statistically significant ($F = 360.566$; $df_1 = 5$; $p = .000$). With five predictors – "mundialism"; "national pride"; "mistrust"; "rehumanization" and "willingness to forgive" - the study explains 49% of the variance of the variable "chauvinism". The obtained results show that the mistrust of respondent's towards other nations is greater the more pronounced chauvinism is ($\beta = .417$; $p = .000$). Similarly, an increase in national pride corresponds to an increase in chauvinism ($\beta = .321$; $p = .000$). The connection between mundialism and chauvinism is low and positive ($\beta = .066$; $p = .000$). Additionally, respondents who are more inclined to forgive are less prone to chauvinism ($\beta = -.146$; $p = .000$). The connection between chauvinism and rehumanization is not statistically significant ($\beta = -.044$; $p = .128$). National pride in itself is not something bad, but the question arises when, in a society in which mistrust towards other peoples is systematically fostered by ethnic politicians, that pride turns into chauvinism and an obstacle to common life, humane relations, forgiveness and trust towards others.

Keywords: mundialism, national pride, rehumanization, mistrust, forgiveness, chauvinism, Bosnia and Herzegovina

[*] corresponding author e-mail: *puhalosrdjan@gmail.com*

ATTITUDE TOWARDS FOREIGN LANGUAGES IS PREDICTED BY DISGUST SENSITIVITY, FOREIGN LANGUAGE KNOWLEDGE, AND MUSICAL EXPERIENCE

Viktor Veselinov[*] **& Filip Nenadić**

Singidunum University, Faculty of Media and Communication, Department of Psychology

Social interactions inevitably lead to forming of linguistic groups, with occasional animosity towards outgroup members. The goal of the present study is to investigate predictors of attitudes towards foreign languages (FL). We expected to find a negative correlation between FL attitudes and disgust sensitivity, defined as an aversion caused by something distasteful, as disgust sensitivity is often related to negative outgroup evaluations. Following the "rigidity of the right" hypothesis, we assumed to find lower FL attitudes in participants with a right-leaning political orientation. Knowing FL or having musical training, which was found to be related to better perception of nuances in spoken FL, was expected to be related with higher FL attitudes. A convenience sample of 159 participants (86% female, 14% male; age M = 24, SD = 7; 43% had musical training; 47% declared to be left, 43% center, and 10% right on the political spectrum) listened to recordings of native male speakers reading the Aesop's fable "The North Wind and the Sun" in Albanian, Kurdish, French, German, Arabic, English, Hungarian, and Serbian. They evaluated each language using a five-point Likert scale for 13 out of 15 items (two items were omitted due to a technical error) of the Attitudes Towards Languages scale (AToL; Schoel et al., 2012). Afterwards, the participants filled out the 25-item Revised Disgust Sensitivity Scale (α = .88; Haidt, McCauley, & Rozin, 1994) and provided sociodemographic information. Linear mixed-effects models with language included as a fixed effect showed that higher ratings on the superordinate Value factor of the AToL scale (α = .94) are predicted by lower disgust sensitivity (β = -0.1, 95% CI [-0.14, -0.05], t = -4.31, $p < .001$), extending the relationship between disgust sensitivity and negative outgroup evaluations to FL attitudes. However, contact in form of learning different languages (β = 0.12, 95% CI [0.03, 0.21], t = 4.40, $p < .001$) or simply training in listening to musical sound patterns (β = -0.1, 95% CI [-0.14, -0.05], t = 2.65, $p < .01$) is related to a greater appreciation of FL. Political orientation (left vs. non-left) was not found to be a significant predictor, but this may due to a low number of right-leaning participants. The same pattern of results was noted for the two subordinate AToL subscales, Sound (α = .87) and Structure (α = .86). Future studies should investigate the direction of the effects noted in the present study.

Keywords: language attitudes, foreign language, disgust sensitivity, musicality

[*] corresponding author e-mail: *viktorveselinov@gmail.com*

SERBIA'S POLITICAL TAPESTRY: EXPLORING THE (DIS)HARMONY BETWEEN INTEREST IN POLITICS, POLITICAL ENGAGEMENT AND LIFE SATISFACTION OF SERBIAN CITIZENS

Hristina Kamenović[*] **& Tiana Aleksandra Marić**

Singidunum University, Faculty of Media and Communication, Department of Psychology

Modern-day research conducted in countries with well-established democracies suggests a positive correlation between interest in politics, political participation, and life satisfaction among their citizens. This study examines the generalizability of such findings to less stable democracies, with a primary focus on Serbia. Neighboring Balkan European Union and non-EU countries with similar cultural and historical backgrounds (Croatia, Slovenia, and Montenegro) are also included for comparative analysis. Our main hypothesis proposes a negative correlation between interest in politics, political participation, and life satisfaction among Serbian citizens, considering life satisfaction's three dimensions: *Basic needs* (overall happiness, life satisfaction, and health status), *Microsystem* (interpersonal relationships), and *Macrosystem* (current state of the economy, education, and healthcare in Serbia). We analyzed data from Serbian respondents (N = 2008) aged 18 years and older (European Social Survey database, round IX) using the correlation regression method. The analysis results contradicted our hypothesis. In Serbia, the overall model was statistically significant ($R^2 = 0.319$, $F(2, 1453) = 340.140$, $p = .000$) and both interest ($\beta = 0.624$, $p = .000$) and participation ($\beta = 0.184$, $p = .030$) significantly and positively correlated with life satisfaction. Other countries showed positive correlations, with Montenegro having the highest variance explained ($R^2 = 0.460$, $F(2, 969) = 411.945$, $p = .000$), followed by Slovenia ($R^2 = 0.275$, $F(2, 999) = 189.148$, $p = .000$) and Croatia ($R^2 = 0.220$, $F(2, 1554) = 219.159$, $p = .000$). As a second objective of this study, we wanted to see how expressing interest in politics translates to taking actual political action, specifically voting. Cross-tabulation analysis showed that only 399 of 1933 respondents who expressed strong or relatively strong interest in politics voted in the 2016 election. Conversely, 1051 respondents declared they voted in the elections, despite expressing they were hardly or not at all interested in politics. The findings challenge the perception of Serbian society as apolitical and suggest potential for political optimism. This invites further research and policy creation to understand and leverage the intricate relationship between political and personal life, focusing on motivation behind political engagement and exploring the potential of its amplification.

Keywords: political optimism, apolitical climate, life satisfaction, political activism, interest in politics

---

THE IMPACT OF SOCIO-DEMOGRAPHICAL FACTORS ON SUBJECTIVE PERCEPTION OF SOCIAL INSECURITY

Nada Đorđević[*]

Singidunum University, Faculty of Media and Communication

In global and local circumstances, negative social processes occur almost every day, directly affecting the subjective perception of political and individual security, with a potential possibility of destabilization of both the individual and the society. Factors affecting subjective perception of social insecurity can be internal and external. Subjective perception of external circumstances might form social circuses with a high impact on the individual and public sphere. Therefore, relatively small differences in socio-psychological factors can have surprisingly large consequences on the perception of the individual's subjective perception of social insecurity and further ability to cope with them. We will analyze potential socio-psychological factors of subjective perception of social insecurity. Those factors are independent of the individual's inner world and are mainly the result of the global geopolitical processes. The goal of this research is to examine the impact of socio-demographical factors (gender, age, education, economic situation, place of living, political orientation and religiosity) on the subjective perception of expected political and social insecurity (food shortages, energy shortages, economic inflation, political insecurity, war conflicts measured on a Likert scale from 1 to 5). In this analysis, we used data from the nationally representative sample of the adult population in Serbia ($N = 1199$), conducted by the Institute for Political Studies (June/July of 2022). Factor analysis defines one factor of social insecurity from measured social deficits (explaining 52,77% of the variance). Results revealed no significant correlation between subjective perception of social security and religion ($r = .478$, $p > .5$) and political orientation ($r = .092$, $p > .5$). However, higher subjective perception of social security significantly correlates with higher education ($r = -.085$, $p < .005$), lower financial resources ($r = -.071$, $p < .02$) and citizens of nonurban settlements ($r = .156$, $p < .00$). Considering that most measured variables do not show a statistically significant correlation (or with low effect) with the measured socio-demographical variables, we can assume that other factors play a more important role in the subjective perception of social security. Other studies have suggested that individuals' perception of social security is influenced by their understanding of the system, expectations of the future and perceived reliability of the government, as well as socioeconomic status, cultural values, etc. Following these results, further research can focus on discovering which inner factors may play the most important role in the subjective perception of social security.

Keywords: political insecurity, socio-demographical factors, Serbia

[*] corresponding author e-mail: *nale.dj9@gmail.com*

EDUCATIONAL PSYCHOLOGY

WHAT DO WE TEACH CHILDREN AND WHY? SOCIO-EMOTIONAL LEARNING FROM TEACHERS' PERSPECTIVE

Olja Jovanović[1,2,*], Jelena Vranješević[3], Sanja Stojiljković[1], & Barbara Blažanin[4]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, Center for Teacher Education
[3]University of Belgrade, Faculty of Philosophy, Department of Pedagogy and Andragogy
[4]University of Belgrade, Faculty of Special Education and Rehabilitation

Socio-emotional learning (SEL) is the process of learning to integrate thinking, feeling, and behaving to achieve important life tasks and one of the important contexts where that learning takes place is school. Teachers play an important role in SEL by integrating it into classroom instructions or subject curricula and demonstrating socio-emotional competencies through their own actions. Yet research lacks insight into teachers' strategies to promote students' SEL within a classroom context in Serbia. The study attempted to explore teachers' practical approaches to enhance students' socioemotional competencies in school settings. It sought to answer: 1) What strategies would teachers use in challenging situations? 2) What specific goals do they aim to achieve with these strategies? 3) Do their intended aims align with the strategies implemented? The data was collected through a survey employing the vignette methodology. In this study, five vignettes were crafted, each portraying a typical school scenario where students display low socio-emotional competences (self-awareness, self-management, social awareness, relationship skills, and responsible decision-making). 122 teachers from five primary schools in Serbia participated and were asked if they would respond to the event described in the scenario, what actions they would take, and what they aim to teach students through those actions. A total of 605 responses to these vignettes were examined through qualitative content analysis conducted inductively. The analysis reveals that teachers employ a variety of strategies, with 25 teaching strategies identified, including teaching values (131), offering negative evaluations of behavior (104), advocating for a student (66), guided analysis of the situation (63), and logical consequences (56) being the most prevalent. Nevertheless, the frequency of strategy use varies across situations, indicating that teachers adapt their strategies based on the context. However, when attempting to discern patterns, it becomes evident that strategies aimed at halting undesirable behaviors are more prevalent than those geared towards reinforcing or introducing constructive behavior. In addition, teachers' reactions vary based on students' levels of participation, with lower levels being more prevalent. Notably, teachers' reactions sometimes align partially (46.5%) or not at all (27.9%) with the intended goals. The findings underline the need for educational programs supporting teachers in fostering students' socioemotional competencies.

Keywords: socioemotional learning, socioemotional competences, teaching strategies, vignette

---

EDUCATIONAL EXPERIENCE OF GIFTED STUDENTS DURING THE EMERGENCY REMOTE EDUCATION

Zora Krnjaić[*] **& Nataša Simić**
[1]University of Belgrade, Faculty of Philosophy, Institute of Psychology

Although there have been many studies on the effects of the Covid-19 pandemic and emergency remote education (ERE) on students, there has not been enough research about gifted students' experience. This paper aims to understand gifted students' perceptions of effective and ineffective school practices during ERE. Gifted students were recruited on the recommendation of school counselors based on demonstrated exceptional abilities and achievements in one or more areas. Thus, purposive homogeneous sample of gifted students in Serbia consisted of 19 gifted students from elementary schools and 11 secondary school students. Semi-structured interviews which covered various themes related to students' school and out-of-school life during the pandemic were conducted, but for this paper we focused on effective and ineffective school practices. Thematic analysis (inductive approach) yielded six themes referring to effective, engaging practices and eight themes referring to ineffective, disengaging practices. Gifted students positively assessed additional educational support, video conferencing and using LMS. Additional support was in the form of group or individual classes (in-person or online) or posting additional materials in LMS. However, students reported that additional classes were closely tied to competitions and that they are not organized regularly throughout the school year even in regular circumstances. Disengaging factors were predominantly related to traditional teaching methods and lack of interaction, absence of additional educational support from the school, difficult monitoring of assessment, epidemiological measures and lack of individualization and differentiation during the regular classes. Yet, many students showed understanding for teachers and have not developed negative emotions due to insufficient enrichment and support. In addition, when students initiated contact - teachers responded effectively. As a compensatory mechanism, younger students mentioned support from family, while secondary school students managed to improve their self-regulation and employ new learning strategies. We conclude that gifted students were not recognized as a vulnerable group, being left to organize themselves. Future studies should explore their needs related to ERE more deeply and acknowledge the perspectives of their teachers.

Keywords: gifted students, emergency remote education (ERE), teaching, educational support, qualitative study

IMPLICIT THEORIES OF EMOTIONAL INTELLIGENCE: COMMON BELIEFS ABOUT ITS RELATION WITH GENERAL INTELLIGENCE AND IMPORTANCE IN EVERYDAY LIFE

Tamara Petković[1,2,*], Siniša Subotić[3,4], Milica Drobac Pavićević[3], & Strahinja Dimitrijević[3]
[1]University of Banja Luka, Faculty of Philosophy, Psychology MSc Program
[2]RT-RK, Banja Luka / Novi Sad
[3]University of Banja Luka, Faculty of Philosophy, Department of Psychology
[4]University of Banja Luka, Faculty of Natural Sciences and Mathematics

Implicit theories (IT) are an individual's underlying beliefs about a certain phenomenon. Studying ITs can be useful for understanding common cultural views and popular thinking about psychological constructs. ITs related to intelligence have often been studied, with research mostly exploring if people perceive intelligence as a fixed (i.e., entity theory), or malleable trait, that can be improved (i.e., incremental theory). Yet, limited research is available on ITs of very popular construct of Emotional Intelligence (EI). In this study, we tried to expand the knowledge about EI ITs by exploring if 'laypeople' perceive the value of EI as more important for success in life to that of a 'general intelligence' (ITEI1), and whether they consider EI as being a separate ability, or a part of 'general intelligence' (ITEI2). We chose these two ITs in particular, given their predominance in popular media, where it is commonly asserted that EI is a completely separate form of intelligence, presumably more important than 'general intelligence'. We were also interested in determining how these implicit EI beliefs are associated with other theoretically relevant views about intelligence, namely: the view that multiple intelligences exist, and that intelligence is malleable in nature. All these implicit beliefs were rated by a convenience general sample of 484 participants (age: $M = 25.61$ ($SD = 7.61$) years; 74% women) using a set of 5-point Likert-type items, presented in a randomized order. The results show that an average agreement with the statement that EI is more important than general intelligence (ITEI1) is slightly below a scale midpoint ($M = 2.89$, $SD = 1.09$; i.e., 47% average agreement), with the agreement about EI as a separate form of intelligence (ITEI2) being above the midpoint ($M = 3.92$, $SD = 1.13$, i.e., 73% average agreement). These ratings are correlated: $\rho = .27$, $p < .001$. Both ITEI1 ($\rho = .24$, $p < .001$) and ITEI2 ($\rho = .47$, $p < .001$) correlate with the endorsement of multiple intelligences, but only ITEI2 correlates with the incremental IT of intelligence ($\rho = .18$, $p < .001$). There were no gender or educational level differences in ITEI1 or ITEI2 ratings. In line with the popular media narratives, people do tend to view EI as a distinct aspect of (multiple) intelligence, but they only moderately consider EI as being more important for success than 'general intelligence'. This suggests that the average person is not necessarily 'sold' on the idea that EI is a key to life success.

Keywords: emotional intelligence, general intelligence, implicit theories, popular beliefs, multiple intelligences

---

[*] corresponding author e-mail: *tamara.petkovic@rt-rk.com*

THE ACQUISITION OF ALPHABETS IN SECOND GRADE STUDENTS IN SERBIAN LANGUAGE

Marija Lazarević[*]

University of Belgrade, Faculty of Philology

Acquiring proficiency in written language involves mastering reading and writing skills (Gutiérrez Fresneda & Díez Mediavilla, 2018). The speed and ease of its acquisition are influenced by orthographic transparency (Viise, Richards & Pandis, 2011). Serbian, with highly transparent orthography, is expected to enable rapid and easy acquisition of its written form. However, Serbian uses two alphabets – Cyrillic (taught in the first grade, 7 years old) and Latin (taught in the second grade, 8 years old) (Piper & Klajn, 2017). This study explores how the use of these two scripts impacts the acquisition of writing skills in Serbian. A qualitative-quantitative exploratory study was conducted to identify and categorize errors in second-grade students' essays. Methodology used for data collection in *Developmental corpus of written language in Serbian* (Moskovljević Popović & Dinić Marinković, 2015) guided this research and was addapted by adding script as a variable and focusing on second-grade students. Essays were collected in one elementary school in Belgrade during two separate visits. On the first visit, all students were writing text of a narrative type and on the second visit, the expository one. One group of pupils (N = 51) wrote both essays in Cyrillic and another group (N = 51) in Latin. Due to some students' absence on one of the visits, the final corpus included only essays from pupils who were present on both occasions (Cyrillic: 88; Latin: 86). Qualitative analysis revealed two groups of errors: between and within alphabets. Errors within alphabets were then classified into the following subcategories: grapheme substitution, changes in graphical characteristics of the letters, mixing upper- and lowercase forms, letter elision, letter addition, mirror writing, cursive/non-cursive letter mixing, and diacritic mark errors. The most common mistake in Cyrillic essays was mixing upper- and lowercase forms (55.73% of all errors in Cyrillic essays), while in Latin essays it was alphabet mixing (43.07% of all errors in Latin essays). No notable difference was observed in text type (49.87% versus 48.93% of errors in the whole corpus). Letter elisions and changes in graphical characteristics were frequent in essays in both alphabets. Despite large number of error types, the majority of errors were driven by visual resemblance to other graphemes or phonological similarity to other phonemes. Alphabet mixing errors indicate certain degree of interference between alphabets, more pronounced in Latin script. Pupils showed well-established grapheme-phoneme correspondences in Cyrillic, while these were still forming and consolidating in the Latin system. As this is a pilot study, further research should follow.

Keywords: alphabet learning, Cyrillic alphabet, Latin alphabet, digraphia, written language development

DEAR MATH, I (DON'T) LOVE YOU: THE PILOT STUDY OF EVERYDAY MATH USE AND SENTIMENT TOWARD MATH

Ilija Milovanović[*], Isidora Gatarić, Luna Radević, Nikola Adamov, & Jelena Prijić
University of Novi Sad, Faculty of Philosophy, Department of Psychology

Some research shows that mathematics is the most difficult subject in school and that many people focus on professions in which they avoid contact with math. However, math is a part of everyday life, and the previous operationalization of everyday math use resulted in combined measures of the practical use of math and everyday mental arithmetic. Considering the prevalence of math anxiety, it seems that math is a negatively perceived phenomenon, but previous research has not dealt with the analysis of emotional tone for mathematics on large data sets of spoken/written language. The aim of this research was focused on the structure of the Every Day Use of Math Scale (EDUMS; Jansen et al., 2016; 13 items, 5-point scale) and the analysis of emotional tone in the context of the word "mathematics". The sample consisted of 240 respondents (18-68 years old, 75% female), who were also instructed to write at least 10 sentences related to mathematics, to express what they think about math and what feelings the word "mathematics" evokes in them. The parallel analysis proposed a two-factor solution of EDUMS (inter-factor correlation $r = .40$, $p < .01$; 35.72% explained variance). The first component, named Financial Use ($\alpha = .70$), covers characteristics of the financial element of using arithmetic in daily life (e.g., budget planning, bill payment). The second component, named Practical Household Use ($\alpha = .61$), included topics about daily practical tasks including decorating, cooking, etc. We used sentiment analysis (NLP technique) to get a more detailed insight into what feelings the word "mathematics" provokes, and the text was cleaned with the help of the "nlpheart" package in Python. Almost 60% of the comments were in a positive context, while 40% were negative. The most frequent words mentioned in positive contexts are success, happiness, school, everyday life, and IT, while the most frequent words in negative contexts were: stress, school (again), bad grades, frustration, and bad professors. The final results suggest that based on the textual information at our disposal, we can conclude whether the sentiment will be positive or negative. Besides the satisfactory factor structure of EDUMS, this research implies that math-positive associations are more related to everyday life and success, while both, positive and negative associations are related to the school context.

Keywords: mathematics, sentiment analysis, EDUMS scale

---

[*] corresponding author e-mail: *ilijamilovanovic@ff.uns.ac.rs*

VALIDATION OF THE ACHIEVEMENT EMOTIONS QUESTIONNAIRE IN MATHEMATICS AMONG HIGH SCHOOL STUDENTS

Isidora Micić[1,2,*], Jelica Milojičić[2,3], Nevena Jovčić[2], Viktorija Jovanović[2], Emilija Karalejić[2], Marko Živković[2], & Ksenija Krstić[2,3]
[1]Institute for Educational Research, Belgrade
[2]University of Belgrade, Faculty of Philosophy, Laboratory for Developmental Psychology
[3]University of Belgrade, Faculty of Philosophy, Department of Psychology

This study aims to validate the Achievement Emotions Questionnaire in Mathematics (AEQ-M) within a Serbian sample, comprising high school students aged 15 to 19. Grounded in control-value theory, the study posits that these emotions stem from appraisals related to control and value, subsequently influencing students' motivation, learning strategies, and performance. The AEQ-M instrument contains 60 items and assesses seven emotions (enjoyment, pride, anger, anxiety, shame, hopelessness, boredom) across three contexts (in class, during learning, in testing situations). The sample of 457 students (70% female; Mage = 16.35), from both grammar and vocational schools, completed the questionnaire either in the school or online format. Confirmatory factor analysis was carried out in Mplus 7 to examine the fit of our data to scale's theory-proposed factor structure. A CFA of the 60 scale items showed poor model fit. After excluding 10 items with low factor loadings (< .50) and 14 items that were cross-loaded on two or more factors, the final model consisted of 36 items and resulted in adequate model fit (χ^2(573) = 2194.50, CFI = .88, TLI = .87, RMSEA = .08 and SRMR = 0.07). To test reliability and convergent validity of constructs we conducted CR (> .70), AVE (> .50) and inspected factors loadings. Analysis showed that all emotions had acceptable values indicating good reliability and convergent validity. Comparing configural, metric and scalar invariance models, we tested cross-gender, school and grade measurement invariance. Based on differences in CFI < .01 and in RMSEA < .015, metric and scalar invariance was established. In the next step, we analyzed emotions' correlations with the math grades and motivation for learning math and correlations were in expected order and directions. In order to test discriminant validity we inspected correlations between emotions and compared AVE with the squared correlation between emotions. These analyses revealed very strong correlations (> .70) between Hopelessness and factors encompassing Anxiety, Anger, and Shame, indicative of substantial multicollinearity challenges among these constructs, as obtained in previous studies. These strong intercorrelations highlight the complexity of disentangling the specific influences of these related emotional constructs, necessitating a nuanced approach in the interpretation and refinement of the analytical model.

Keywords: adolescents, academic motivation, emotions, validity, AEQ questionnaire

---

* corresponding author e-mail: *isidora.jazz@gmail.com*

REFLECTIVE PRACTICE IN EARLY CHILDHOOD CARE AND EDUCATION LEARNING COMMUNITIES: THE MOST SIGNIFICANT CHANGE STORIES

Nada Ševa[1,*], Ivana Đerić[1], & Dušica Čolaković[2]
[1]Institute for Educational Research, Belgrade,
[2]Ministry of Education the Republic of Serbia, Belgrade School District

Reflective practice in learning communities is becoming increasingly important for Early childhood care and education (ECCE) practitioners to continue their professional development. This paper explores the professional change experienced by ECCE teachers and counsellors while applying the Model of the Professional Learning Community (MoPLC), which promoted reflective social practice. This program was organized into four stages: 1) two-day training on implementation of MoPLC for ECCE practitioners; 2) six months of reflexive practice in professional learning communities covering topics relevant to the development of curriculum within the preschool institution (PI); 3) one-day professional meeting of PIs that started with the implementation of MoPLC at the same time, focused on further analysis of practices and the formulation of action plans; 4) implementation of action plans within each PI during the six months. The main research questions were: 1) What changes do practitioners perceive in reflective-social practice as a result of implementing the MoPLC? 2) Which professional changes are considered the most significant and why? The participants were 22 practitioners (6 ECCE counsellors) from five PIs that started implementing the new ECCE curriculum "Years of Ascent" in 2019. We used the participatory technique, The most significant change (MSC) stories, to enable the evaluation of changes in complex reform processes of professional learning. Practitioners wrote stories six months after the implementation of the MoPLC in their PIs (January-February 2023). Writing of the stories was prompted with several questions, including what their most significant change was and why. To identify the most significant changes, thematic analysis was conducted on 121 sentences from stories. Most participants recognize differences in their reflective social practice due to implementing the MoPLC. However, only 55% value this professional change as the most significant for strengthening their practice. Unlike ECCE counsellors, a quarter of teachers had difficulty articulating reflective insights regarding their practice, i.e., defining why the change is significant. This might be related to differences in the levels of metacognitive competencies in teachers vs. counsellors, which is crucial for critical reflection during professional learning. The question of further improvement of the training programme within the MoPLC in developing metacognitive competencies is raised.

Keywords: critical reflection, professional learning, metacognition, participative evaluation, reform of ECCE curriculum

---

NUMERICAL GIFTEDNESS AT THE FOURTH GRADE LEVEL: A NEW TEST OF NUMERICAL ABILITY, CREATIVITY AND MOTIVATION

Mislav Sudić[*], Ana Majić, & Lorelaj Lukačin
Center for Excellence, Split-Dalmatia County

The ability and willingness to understand and reason with numbers, and to use them in constructive new ways can be a sign of giftedness in the early school years. It can also be useful for children's further cognitive development in domains that rely on numbers. Inspired by Renzulli's (1978) Three-ring conception of giftedness, a relatively short Test of Numerical Giftedness (TNG) was designed in order to assess numerical ability, creativity, and motivation in fourth graders. Numerical ability was measured with 11 number series tasks with increasing difficulty. Numerical creativity was assessed with an open-ended divergent thinking task, and five indices were calculated from it: fluency, flexibility, originality, conventionality and out-of-box thinking; as well as a composite creativity index. Numerical motivation was assessed using a simple task designed to induce boredom and apathy in students that are disinterested in numbers. The TNG was given to a large representative sample (N = 2689) of fourth grade students in Split-Dalmatia County, Croatia to test some of its psychometric properties. Subjective assessments of students' giftedness were collected from three sources (teachers, parents, self-assessment), and it was hypothesized that teachers would be better assessors of giftedness than parents, and parents better than students. It was also hypothesized that boys would be better than girls in terms of numerical ability and creativity, in line with the body of research on early sex differences. The numerical ability subtest had a one factor solution on the EFA, a solid construct validity ($r = .46$, $p < .001$ with nonverbal intelligence); a reliability of $\Omega = .79$; and could appropriately discriminate between students on the higher end of numerical abilities. The composite creativity index could discriminate between students on the higher end as well. The motivation subtest will need to be revised in the future due to low discriminative power (77% full completion rate). All three subtests correlated significantly and positively between each other ($r = .07$ - $.25$), as well as with all three subjective assessments of giftedness ($r = .13$ - $.58$) in line with our hypothesis. Boys (N = 1278) demonstrated higher numerical abilities ($t(2389) = 9.19$, $p < .001$, $d = .38$), while girls (N = 1113) tended to be more numerically creative ($t(2389) = 3.96$, $p < .001$, $d = .16$). In conclusion, there's an argument for the TNG as a quick and economical tool for mathematical giftedness identification in the fourth grade.

Keywords: giftedness, early identification, numerical ability, creativity

SCHOOL BURNOUT SYNDROME: RESULTS FROM SERBIAN SECONDARY SCHOOL STUDENTS AND REFLECTIONS ABOUT MEASUREMENT

Nevena Jovčić[1],* **& Nataša Simić[2]**
[1]University of Belgrade, Faculty of Philosophy
[2]University of Belgrade, Faculty of Philosophy, Institute of Psychology

Studies with students suggest that, similar to work, the school represents a context where individuals experience chronic stress due to requirements and achievement pressures they cannot always successfully meet. Therefore, scholars introduced the concept of school burnout that is currently operationalized through three components, like the concept of occupational burnout: exhaustion due to study demands, cynical attitude towards school, and feelings of inadequacy or low self-efficacy as a student. Like Maslach Burnout Inventory, the most commonly used measure of school burnout - School Burnout Inventory (SBI) captures these three components. Given there were no studies that explored the school burnout using SBI in the Serbian context, we aimed at determining the level of school burnout in Serbian secondary school students, as well as to explore gender, age and school type based differences. An online questionnaire was filled out by a convenient sample of 212 secondary school students from different towns and schools in Serbia (M_{age} = 17.68, 73.1% female). SBI showed good reliability (α = .85). The results suggest that Serbian students experience relatively high levels of school burnout (on the scale 1-6, M = 3.92, SD = 1.15), especially Cynicism, followed by Exhaustion. Girls have significantly higher overall scores on SBI (t = -3.61, p < .01), and particularly higher scores in the domain of Exhaustion (t = .434, p = .664). There are no significant differences between students on academic track and vocational track, nor between students from different grades, which differs from international literature. Although studies conducted in different contexts, including the Serbian one, suggest good reliability of SBI, recent studies show that the current operationalization may not be sufficient in capturing the complexity of school burnout experience. We argue that this approach equates the student to a worker, which is why it is necessary to acknowledge specificities of school context and developmental trajectory of adolescence in further research. It is also important to consider students' relationships with their families, as well as with peers and teachers, which is why we underline the need for a more relational approach to studying school burnout syndrome in the future. In order to address these conceptual and methodological issues, the SBI should be significantly improved.

Keywords: school burnout syndrome, secondary school, students, gender, construct validity

CONSTRUCTION OF THE SELF-EFFICACY SCALE FOR TEACHERS IMPLEMENTING STEAM IN THE FIRST CYCLE OF PRIMARY SCHOOL

Ivana Stepanović Ilić[1,*], Marina Videnović[2], & Milana Dabić Boričić[3]
[1]University of Belgrade, Faculty of Philosophy, Department of Psychology
[2]University of Belgrade, Faculty of Philosophy, Institute of Psychology
[3]University of Belgrade, Teacher Education Faculty

This research is a part of the international project aimed to foster teaching STEAM in the first cycle of primary school. Intending to identify teachers' needs regarding the STEAM teaching, our first step was to construct the scale investigating their self-efficacy in general and in the STEAM fields. Thus, our main goal was to exam features of the constructed scale and teachers' readiness to teach STEAM. We used already tested scales with good psychometric characteristics (covering general teaching, teachers' efficacy beliefs related to various fields of science/arts and IT use) and included additional items targeting project's goals. The final version of the scale contains 57 items on 11 seven-point Likert-type subscales: general teaching; teaching biology, chemistry, physics, math; motivating students to learn math, science and arts; ICT use in teaching; integration of various subjects in teaching. We present results obtained on the convenient sample of 564 Serbian teachers within the first cycle of primary education. Findings show high reliability of the scale (Crombach aplha .94) implying that it can be used in further research. Ten-factor solution has the best goodness-of-fit, and parameters reveal good model fit (Relative χ^2/df ratio is around 3, RMSEA - .056, and tCFI > .95). Most of the items (52 out of 57) were loaded in the 10-factor solution with factor loading higher than .7. The first two factors measure teaching in general. The first is about self-efficacy related to the curriculum, and the second describes students' behaviour management during teaching. The third factor is related to teachers' confidence in motivating students to learn science. The fourth is dedicated to self-efficacy of ICT use in teaching. Five factors distinguish self-efficacy related to five fields (math, biology, chemistry, arts and physics). Finally, four items describing confidence in the ability to integrate different disciplines are mostly loaded by separate factors. Our findings show that Serbian teachers have a relatively high self-efficacy (the factors' mean scores range from 4.9-6 out of 7). The highest is expressed towards mathematics teaching, which is not surprising because it is one of the major subjects. The lowest self-efficacy is related to teaching physics and chemistry, suggesting that teachers need support to successfully include these disciplines in their practice of teaching science topics that include notions from these fields.

Keywords: STEAM, self-efficacy, teachers, scale, first cycle of primary school

---

ORGANIZATIONAL PSYCHOLOGY

JOB AUTONOMY AND WORK-FAMILY CONFLICT: THE MEDIATION ROLE OF OPTIMISM

Biljana Mirković[*] & Dijana Đurić
University of Banja Luka, Faculty of Philosophy

Job autonomy (JA) refers to employees' flexibility in managing tasks. Previous studies show that JA is related to positive organisational outcomes such as employees' higher creativity, motivation, and work engagement. However, there has been a shortage of knowledge on how JA influences work-family conflict (WFC). This paper uses the Conservation of Resource (COR) theory as its underlying framework to examine the relationship between JA and optimism toward WFC. COR theory proposes that personal resources tend to accumulate. Previous studies show that employees working in a resourceful environment could develop optimism about their future at work. In turn, this personal resource is positively related to work engagement. Therefore, this study aimed to determine whether the relationship between JA and WFC is mediated by optimism. The sample consisted of 159 (52.2% male) employees with a mean age of 36.20 ($SD = 9.72$), a mean service of 10.7 ($SD = 8.5$), and 48.4 % was married. We used the Work-Family Conflict Scale, Job Autonomy Scale and Optimism Scale. On a bivariate level, the JA correlated significantly with optimism ($r = .33$, $p < .001$), the optimism correlated significantly with WFC ($r = -.38$, $p < .001$), and the JA correlated significantly with WFC ($r = -.18$, $p < .05$). The Hayes' PROCESS for SPPS was used for mediation analysis. By using a simple mediation model (bootstrapping on 10,000 sub-samples), it was established that the total direct effect of the JA on the WFC is significant (c: $\beta JA \rightarrow WFC = -.18$, $p = .021$, 95% CI [-0.13, -0.01]). When the optimism variable is entered as a mediator, the effect of JA on the WFC intention becomes insignificant (c': $\beta JA \rightarrow WFC = -.06$, $p = .422$, 95% CI [-0.07 0.04]). There is a significant indirect effect of the JA on the WFC through the optimism (a*b: $\beta JA \rightarrow O \rightarrow EFC = -.12$, $p = .001$, 95% CI [-0.08, -0.02]), such that the JA predicts a lower WFC through higher optimism. It can be concluded that optimism mediates the relationship between job autonomy and WFC. So, this study revealed that one of the mechanisms by which JA can reduce employees' WFC is through increased optimism. The results of this study contribute to the understanding of the relationship between job autonomy and optimism toward WFC, using COR theory as its underlying framework. Also, the obtained results can be helpful in organisational practice for developing work procedures and policies to reduce WFC.

Keywords: work-family conflict, job autonomy, optimism, mediator

[*] corresponding author e-mail: *biljana.mirkovic@ff.unibl.org*

STORIES BEHIND ITEMS: HOW EMPLOYEES IN SERBIA UNDERSTAND BURNOUT ASSESSMENT TOOL

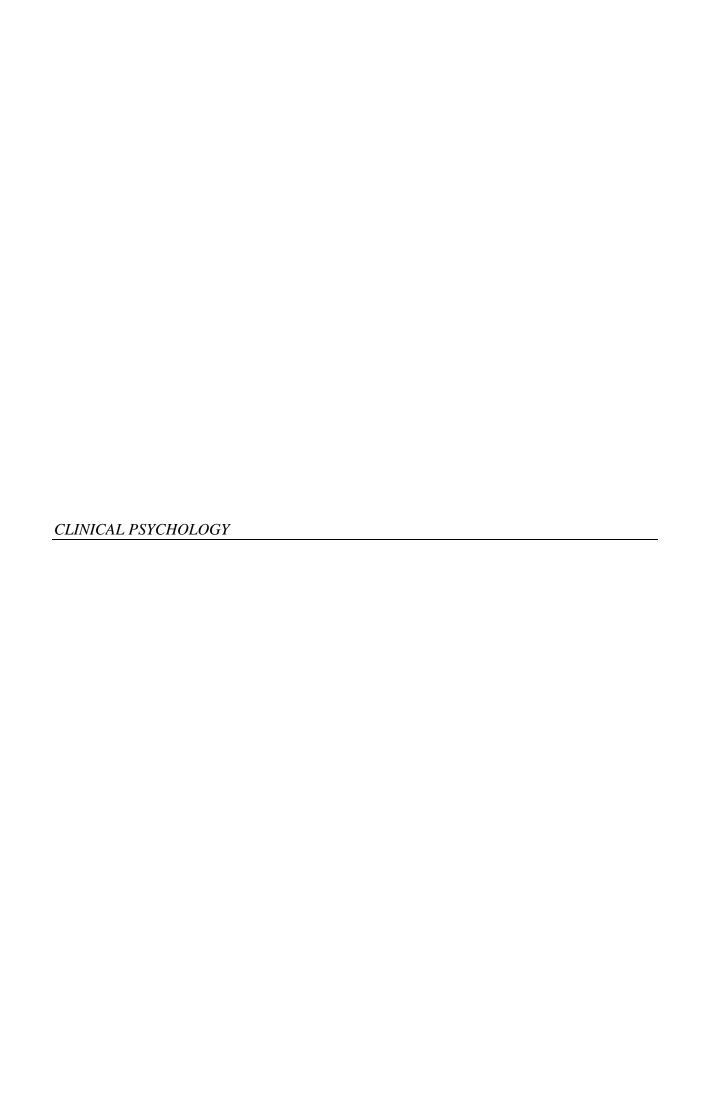## Milica Vukelić*, Ivana B. Petrović, & Svetlana Čizmić
University of Belgrade, Faculty of Philosophy, Department of Psychology

An internationally validated instrument, The Burnout Assessment Tool (BAT; Schaufeli, DeWitte & Desart) measures four core dimensions of burnout: exhaustion, mental distance, and cognitive and emotional impairment (23 items). This instrument also encompasses two secondary subdimensions: psychological distress and psychosomatic complaints (11 items). The instrument has two forms - work-related and general versions. The principal aim of this research was to explore how Serbian employees understand the work-related version of the BAT and to analyze specific 'burnout stories' of employees who scored in the 95% percentile on the BAT within a specific Serbian socio-cultural and pandemic setting. The theoretical background of the BAT lies within the description of burnout provided by Schaufeli and Taris, and Thorndike's understanding of fatigue. The research is part of the larger, ongoing study aimed at validating and adapting the BAT for the Serbian working context. This research used a qualitative approach, drawing upon 50 semi-structured interviews with Serbian employees (mean age of 35; 60% women) and five specific 'burnout stories'. Study participants first answered the BAT and then took part in the semi-structured interviews about understanding BAT items and related experiences. In addition, we asked respondents who were among the top 5% of BAT scores, indicating the strongest feeling of burnout, to share with us their own stories about being burned out. The interviews were conducted during 2021, both online and face-to-face. The qualitative analysis revealed that the understanding of specific items greatly matches the foreseen dimensions of the work-related version of the BAT. On the other hand, employees' understanding of burnout origin was not exclusively connected to work itself but also interchangeably to some wider, personal, and career issues. This study indicates that within the changing world of work, amidst a highly changeable overall context, it can be challenging to separate and assess burnout that originates exclusively from the working conditions. People also feel burned out by everyday life and seemingly usual daily activities and hassles. Further testing of the feeling of overwhelming fatigue that transcends distinct settings in different socio-cultural environments is needed. The fast-changing world of work implies a need for a deeper exploration of the origin of burnout and urgency for interdisciplinary collaboration.

Keywords: burnout, Serbia, The Burnout Assessment Tool (BAT)

CLINICAL PSYCHOLOGY

STUDYING PERSONAL FUTURE PROSPECTS IN ADDICTION DISORDERS: DRUG DEPENDENCE VERSUS PATHOLOGICAL GAMBLING

Olga D. Tuchina[1,*], Liliia Kiatrova[1], Alexander Pinegin[2], Tatiana Agibalova[3], & Dmitri Shustov[4]

[1]Russian Medical Academy of Continuous Professional Education
[2]Regional Clinical Narcological Outpatient Centre of Ryazan Region
[3]Moscow Research & Practical Centre of Addictions
[4]I.P. Pavlov Ryazan State Medical University

Future Thinking reflects people's capacity to create mental representations of their future and use them to guide their decision-making and life planning. FT seems to be greatly impaired in people with addictions leading to discounting of longer-term effects of their behaviours and choices, hence, interfering with treatment. This "myopia for the future" was well studied in alcohol-dependent samples, but remains understudied in drug and gambling addictions. Studying FT in substance and behavioral addictions may also be relevant for understanding their key differences and common addictive mechanisms providing more clarity to a long-standing debate on the nature of these disorders. The study aimed to explore personal FT in recovering drug users (DU) and pathological gamblers (PG). Methods. Site: 2 municipal addiction research and treatment centres, 2022-2023. Sample (N = 100): 34 male and 2 female recovering outpatients, mean age 35.7 (*SD* = 5.1) with opiate dependence; 22 male outpatient gamblers mean age 31 (*SD* = 9.9); 36 males and 6 females, mean age 32.5 (*SD* = 10.7) without addictions according to screening (AUDIT, DUDIT, clinical interview) (controls, CG). The participants' age ($F(2) = 2.9, p = .06$) and gender ($\chi^2(2) = 4.5, p = .1$) did not differ. Exclusion criteria: reported mental comorbidity; cognitive impairment as to admission screening; mental disorder signs according to preliminary screening. FT was studied using FT Task (FTT). The participants named positive/negative future events that would occur to them over 3 time periods ("next week", "next year", "next 5-10 years") during 1 minute per trial. Events per time/valence condition were counted (save as repetitions). The Verbal Fluency Task was used to control for VF effects on the performance. Results. The drug users had a more restricted personal FT across all time and valence conditions as compared to both the controls and gamblers, between whom almost no difference was found. On average, the DU group listed only 17 events in total as compared to 30 events named by the gambling and the control groups ($\chi^2(2) = 37.8, p = .000$). DUs had fewer positive events: 12 events in DUs *versus* 21 event-in PG and 19 events in CG, ($\chi^2(2) = 29.1, p = .000$). Strikingly, the controls and the gamblers named twice as many negative events (12.5 events in each of these groups) as compared to negative events in the DU group (6 events) ($\chi^2(2) = 35.1, p = .000$). The ratio of positive-to-negative events in the drug users was also twice as high ($\chi^2(2) = 6.6, p = .038$) (a positivity shift). The gamblers differed from the controls only in positive long-term FT (7 events in CG *versus* 5 events in PG and DU) ($\chi^2(2) = 15.1, p = .001$). Conclusion. Our findings on the constrained FT in drug users comply with the idea that drug use is related to addictive "myopia for the future" which may lead to impulsive actions and risky choices interfering with recovery. A marked positivity shift in FT may be linked to motivated forgetting of potential negative behavioral consequences and specific attention bias. Whereas the lack of long-term events in both addictive subsamples provides evidence for the initial hypothesis of marked FT deficits in all types of addiction, the lack of difference between the gamblers and controls in other FT conditions requires additional investigation and may relate to the lack of toxic drug effects on the brain in non-using samples,

---

[*] corresponding author e-mail: *shtuchina@gmail.com*

hence questioning the ideas of similar premorbid FT deficits in behavioural and substance addictions.

Keywords: Future Thinking, Future Thinking Task, drug use, addiction, pathological gambling

---

SOCIAL MEDIA AND DEPRESSION, ANXIETY, AND STRESS: THE MODERATING OR MEDIATING ROLE OF MINDFULNESS?

Azra Kapetanović[*] & Tatjana Vukosavljević-Gvozden
University of Belgrade, Faculty of Philosophy, Department of Psychology

The daily use of social media has brought up the question of its impact on users' mental health. Although there are inherent benefits to its use, research shows that those who use social media more frequently report symptoms of depression, anxiety, and stress. Considering the negative consequences of excessive social media use, there has been more talk about protective factors, among which mindfulness has received the most attention - awareness that arises through paying mindful attention to the present moment, non-judgmentally. The purpose of this study was to explore the role of mindfulness in the relationship between social media use and depression, anxiety, and stress, both as a moderator and as a mediator. The sample consisted of 398 respondents (female: 70.9%; age: $M = 27.7$, $SD = 8.3$) and was collected using the snowball method, via social networks. Data were collected using the instruments: Bergen Social Media Addiction Scale – BSMAS; Mindful Attention and Awareness Scale – MAAS; Depression, Anxiety, and Stress Scale (DASS-S), and Sociodemographic Questionnaire constructed for study. The results show that users with problematic internet use report more symptoms of depression ($r = .37$, $p < .001$), anxiety ($r = .4$, $p < .001$), and stress ($r = .4$, $p < .001$). Moderation analyses, conducted using Hayes' "Process" SPSS macro, with social media use as the predictor and mindfulness as moderator were non-significant for all dependent variables - stress ($F(1, 394) = 1.93$, $p = .166$), anxiety ($F(1, 394) = .01$, $p = .931$), depression ($F(1, 394) = .17$, $p = .676$). However, further mediation analyses have shown that mindfulness completely mediates the effect social media use has on depression ($B_{direct} = .09$, $p = .091$; $B_{indirect} = .28$, $p < .001$) and partially mediates its effect on stress ($B_{direct} = .1$, $p = .045$; $B_{indirect} = .27$, $p < .001$) and anxiety ($B_{direct} = .14$, $p = .012$; $B_{indirect} = .27$, $p < .001$). Results suggest that mindfulness influences the underlying psychological processes through which social media affects mental health, such as acting with awareness and non-judging of inner experience, rather than modifying the strength or direction of the association. This research provides important information about the beneficial effect of mindfulness as a protective factor against negative psychological states resulting from excessive social media use.

Keywords: social media, depression, anxiety, stress, mindfulness

---

[*] corresponding author e-mail: *azrakapetanovic88@gmail.com*

THE ROLE OF DIGITAL STRESS IN THE RELATIONSHIP BETWEEN SOCIAL MEDIA USE AND MENTAL HEALTH

Sanja Bradić[*], Tamara Martinac Dorčić, & Sanja Smojver-Ažić
University of Rijeka, Faculty of Humanities and Social Sciences

Given the ambiguous findings on the association between social media use and mental health outcomes and the various proposed possible mediating and moderating variables in this relationship, the aim of the present study was to examine whether social media use and various components of digital stress (connection overload, approval anxiety, availability stress, fear of missing out, and online vigilance) predict anxiety and depression symptoms. In addition, we aimed to examine the moderating role of digital stress in the relationship between social media use and anxiety and depression symptoms. The study was conducted with 267 university students ($M = 21.06$, $SD = 2.01$; 81.3% female). To achieve the objectives of the study, a new measure of social media use was developed and The Multidimensional Digital Stress Scale was applied. The Depression, Anxiety, and Stress Scale (DASS-21) was used to examine symptoms of depression and anxiety. It took about 10 minutes to complete the online questionnaire created in Google Forms. The results of hierarchical multiple regression analyses have shown that social media use does not significantly contribute to either anxiety ($R^2 = .20$; $F(8, 254) = 7.86$; $p < .001$; $\Delta R^2 = .00$; $F(5, 254) = 0.28$; $p < .05$) or depression symptoms ($R^2 = .38$; $F(8, 254) = 19.08$; $p < .001$, $\Delta R^2 = .02$; $F(5,254) = 1.12$; $p > .05$), but components of digital stress significantly contribute to both, to anxiety ($R^2 = .31$; $F(13, 249) = 8.71$; $p < .001$, $\Delta R^2 = .11$; $F(5, 249) = 8.28$; $p < .001$) and to depression ($R^2 = .42$; $F(13, 249) = 13.74$; $p < .001$, $\Delta R^2 = .04$; $F(5, 249) = 3.62$; $p < .01$). Higher digital stress is associated with more anxiety (availability stress, approval anxiety and connection overload) and depression symptoms (connection overload). Digital stress has also a moderating effect on the relationship between social media use and mental health symptoms. For anxiety, two significant interaction effects were found - between Instagram use and availability stress ($R^2 = .27$; $F(6, 256) = 15.50$; $p < .001$; $\Delta R^2 = .02$; $F(1, 256) = 5.13$; $p < .05$; $\beta = .12$; $t = 2.26$; $p < .05$), and between Instagram use and connection overload ($R^2 = .29$; $F(6, 256) = 17.61$; $p < .001$; $\Delta R^2 = .02$; $F(1, 256) = 7.16$; $p < .01$; $\beta = .14$; $t = 2.68$; $p < .01$). For depression, a significant interaction effects was found only between Instagram use and availability stress ($R^2 = .39$; $F(6, 256) = 27.08$; $p < .001$; $\Delta R^2 = .01$; $F(1, 256) = 4.18$; $p < .05$; $\beta = .10$; $t = 2.04$; $p < .05$). The results encourage further studies on the complexity of the role of digital stress and its impact on the mental health of youth.

Keywords: social media use, digital stress, anxiety, depression

[*] corresponding author e-mail: *sbradic@ffri.uniri.hr*

SEGMENTING ANTI-GENDER SENTIMENT AND UNTANGLING ITS SOCIO-PSYCHOLOGICAL ROOTS

Ivana Jakšić[1],* & Jelena Vidić[2]
[1]University of Belgrade, Faculty of Political Sciences
[2]University of Singidunum, Faculty of Media and Communications,

While the term 'anti-gender sentiment' may suggest a common motivation behind opposition to various gender equality policies and measures, the reality is that these initiatives apply to diverse aspects of life and interactions among men, women, and sexual and gender minorities. As a result, the resistance may originate from distinct socio-psychological roots. In this study, we aim to segment anti-gender sentiment, by exploring the latent structure of the resistances against different gender equality measures. This step enables us to achieve the second goal, which is to investigate differences in socio-psychological determinants of resistance to different sets of gender equality measures. Using a convenience sampling (N = 624) and e-survey, we examined the support for 22 gender equality measures and assessed beliefs on the following scales: social dominance orientation, right wing authoritarianism, hostile sexism, gender system justification, attitudes towards feminism, gender essentialism, gender conspiracy theories. Exploratory factor analysis indicated that the measures group into 5 factors: support for 1) LGBT rights, 2) reducing gender-based violence and improving work-life balance, 3) reducing workplace gender discrimination, 4) women's bodily autonomy and reproductive rights, 5) sexual education. Through five separate multiple linear regressions, we determined that support for measures ensuring LGBT rights ($R^2 = .75$, $F(8, 503) = 78.44$, $p < .01$, RWA: $\beta = ..26$) and women's bodily autonomy ($R^2 = .65$, $F(8, 503) = 45.74$, $p < .01$, RWA: $\beta = .33$) mostly reflect social conservatism, while resistances against measures aimed at reducing sexual violence ($R^2 = .55$, $F(8, 503) = 26.99$, $p < .01$) and workplace gender discrimination ($R^2 = .57$, $F(8, 503) = 29.44$, $p < .01$) stem from hostile sexism ($\beta = .28$, $\beta = .23$), social dominance orientation ($\beta = .13$, $\beta = .19$) and gender system justification ($\beta = .30$, $\beta = .25$). Resistances against sexual education mostly reflect anti-feminism attitudes ($R^2 = .43$, $F(8, 503) = 13.89$, $p < .01$, $\beta = .16$). Our results indicate that resistances to various gender equality measures stem from different psychological needs. Some are reactions to perceived violations of conventional social norms, while others can be better interpreted through intergroup relations theories. These results have implications for crafting strategies to communicate gender equality measures and overcoming resistance.

Keywords: gender equality, anti gender sentiment, sexism, system justification, right wing authoritarianism, social dominance orientation

---

* corresponding author e-mail: *ivana.jaksic@fpn.bg.ac.rs*

LEXICAL SOCIAL ATTITUDES AS THE DETERMINANTS OF AMBIVALENT SEXISM TOWARDS WOMEN

Emina Sinanović[*] & Nina Hadžiahmetović
University of Sarajevo, Faculty of Philosophy

The goal of this research was to test the adequacy of the lexical social attitudes model (LSAM), consisting of Traditional and religious sources of authority, Personal interests, Humanism, Spiritualism, Egalitarianism, and Nationalism (Study 1) in predicting the components of ambivalent sexism towards women (Study 2). Study 1 assessed the exploratory structure of the LSAM in Bosnia and Herzegovina (BH) and compared to the American and Serbian LSA models. A total of 412 participants (M_{age} = 40.16, SD = 14.05) from general population filled out the Lexical social attitudes scale Serbia (LSS-Serbia; Petrović 2018), linguistically adapted for the BH sample (LSS-BH). Additionally, two items not applicable to the BH context were left out. The Lexically derived social attitudes scale by Saucier (2000) was also used. Six factors were singled out using EFA explaining 33.19% of variance and included Authoritarian nationalism (AN), Absolutistic egocentrism (AE), Universal egalitarianism (UE), Spiritualism (S), Humanism (H), and National devotion (ND). CFA partially fit the structure ($\chi2$ = 1.19, p = .01, GFI = .74, CFI = .43, RMSEA = .02) The UE, S, and H factors were replicated from American and Serbian models, while the remaining factors showed a different item grouping. Nationalism items (its Etatism facet) loaded onto AN factor and the National devotion facet of Nationalism was extracted as an independent factor. The factors correlated significantly with the corresponding factors in the Serbian and American models (from r = .20 to r = .80). The reliability of all factors, except ND (.63) was above .70. The factors extracted in Study 1 were used as predictors of ambivalent sexism in Study 2. The hypotheses were that the LSAM was correlated with and could explain ambivalent sexism towards women. A total of 210 students (M_{age} = 22.5, SD = 3.57) participated in the study. In addition to scales used in Study 1, the Ambivalent Sexism Inventory of benevolent (BS) and hostile sexism (HS) was administered. The LSAM significantly predicted BS controlling for age, R^2 = .50, $F(9, 210)$ = 23.53, p < .001, with AN (β = .52) and AE (β = .33) as strongest predictors. The AE (β = .44) and AN (β = .22) of the LSAM also predicted HS, R^2 = .40, $F(9, 210)$ = 15.77, p < .001. Men (β = -.25) had more hostile attitudes towards women. The results show the significance of context for the lexical attitudes structure and that ambivalent sexism can be to some extent explained by general social attitudes.

Keywords: social attitudes, lexical model, ambivalent sexism, benevolent sexism, hostile sexism

---

[*] corresponding author e-mail: *emmsin6@gmail.com*

FUTURE THINKING FACILITATION IN STIMULANT USERS MAY IMPROVE ADDICTION TREATMENT OUTCOME

Olga D. Tuchina[1],[*], Yegor Leonov[2],
Dmitri Shustov[2], Ilya Fedotov[2], & Tatiana Agibalova[1]
[1]Moscow Research & Practical Centre of Addictions
[2]I.P. Pavlov Ryazan State Medical University

Future Thinking (FT) deficits may affect recovery from addiction in various ways. Intrusive mental images of substance use positive effects and/or negative images of one's death ("flash-forwards") may result in lapses and self-destructive behaviours. Short future time perspective, overgenerality of recovery intentions and plans, and blindness to the negative effects of behaviors may interfere with treatment adherence and sustained remissions. The study goal was to assess the effect of an FT facilitation intervention (FTFI) on the stimulant users' treatment outcome. A controlled study at a municipal treatment centre in 2022-2023 included 112 in-patients with stimulant dependence (F15.2 only, ICD-10). In the sample, 56 patients (mean age 24.1 (SD = 4.1); 30.4% males) received FTFI: a structured interview based on the Impact of Future Events Scale (IFES). A matched control group (N = 56, mean age 23.9 (SD = 3.3); 39.3% males) received treatment-as-usual (TAU). The screening included a Drug Use Disorder Identification Test (DUDIT). Outcome measures included the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES); months of remission (confirmed via urine tests); early dropout; imprisonment; treatment non-adherence; long-term therapy entry; outpatient rehabilitation; and inpatient rehabilitation. Tests were run at the admission (T1) and before the discharge (T2). Hospitalization lasted 21 days with a 6-month follow-up period. At T1, the groups did not differ as to their age, sex, family status and education (p > .05), and DUDIT scores (U = 1421, p = .39). TAU group had higher SOCRATES scores (49 [48÷49] vs. 48 [47÷49] in FTFI, U = 1255, p = .04). At T2, FTFI had improved SOCRATES scores (67 [65.3÷68], Z = -6.9, p = .000) and significantly outstripped TAU (U = .000, p = .000) who also had a slight increase in motivation (50 [48÷53.8], Z = -4.2, p = .000). FTFI group had longer remissions: 3.3 months [0.5÷5.4] vs. 0.5 [0.4÷1] in TAU, U = 766, p = .000); fewer early dropouts: 12.5% vs. 50% in TAU ($\chi2$ =16.6, p = .0001); more attempts at long-term therapy (30.4% vs. 8.9%; $\chi2$ = 6.8, p = .01) and outpatient rehabilitation (21.4% vs. 1.8%; $\chi2$ = 8.7, p = .001). FTFI aimed at facilitating reflection on the disturbing and positive aspects of one's personal future seemed to work well in terms of prolonging the drug-free period after treatment completion, improvement of treatment motivation and adherence. This finding was consistent with the current theoretical idea that FT facilitation might enlarge the temporal window of reinforcement, hence resulting in reduced delay discounting and a better capacity to resist temptations. The study limitations necessitate further research on larger samples with longer follow-up periods.

---

[*] corresponding author e-mail: *shtuchina@gmail.com*

OUR UNIQUE DANCE: DEVIATIONS IN THE APPEARANCE OF THE PHASES OF THE COUPLES' CONTACT EPISODE IN THE INITIAL STAGE OF COUPLE THERAPY

Dušanka Jovanović[1],[*] & Sanja Grbić[2]
[1]European Accredited Psychotherapy Training Institute – Gestalt Institute Belgrade
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology

Relying on the theory of Gestalt therapy, in this study we sequenced in-session couple dynamics aiming to identify aspects of communication that facilitate or hinder constructive exchange. Initially, we identified five phases of a contact episode, each of which has several variations: (a) Emergence of a need, (b) Habitual attempt to satisfy the need, (c) Impasse, (d) Novelty and regression, and (e) Constructive dialogical relationship. These phases are tentatively successive, i.e., there are regularities in their appearance. However, deviations in their progression were observed, which could be utilized in process diagnostics in the initial stage of couple therapy. Mapping these irregularities is the aim of this paper. The participants were six heterosexual couples (29–45 years old, ≥2 years together, 5 without children). The data was collected through videotaping the 2nd therapy session. The material for the analysis were contact episodes: couple interaction regarding the self-selected topic, during which the therapist assumed the observer role. Thematic analysis was applied by the authors, with the interpretation based on a dialogical approach and theory of Gestalt therapy. The first variability is that the appearance of the latter phases is not mandatory (e.g., unwavering defensiveness keeps the partners in the third phase, Impasse). Second, the order of the phases is not certain (e.g., the prominent power imbalance within the couple leads to skipping the Impasse). Third, the duration of the phases is not uniform (e.g., deflection prolongs the Emergence of a need phase). Fourth, the contact episode development is characterized by circularity, i.e., returning to previous stages (e.g., when partners are unequally ready for novelty, they create back-and-forth movement: one introduces constructive dialogue characteristic of later stages, the other contributes to regressing and reenacting the scheme). Fifth, if a couple has two contact episodes within the same session, their course may differ: in the second episode, the initial stages are condensed or completely skipped, and the couple begins the exchange with a rapid jump to chronologically later stages (e.g., to the Impasse – repeating their scheme until exhaustion is reached). Finally, particular variations of one phase are more often paired with specific variations of other phases of the contact episode. The findings contribute to the therapists' efforts to fine-tune their interventions to the here-and-now developments in order to facilitate the supportive aspects of dialogical relationship.

Keywords: couple therapy, in-session couple dynamics, dialogical approach, Gestalt therapy, qualitative study

"DO YOU EVEN LISTEN TO ME?": PHASES IN THE DEVELOPMENT OF COUPLES' CONTACT EPISODE IN THE INITIAL STAGE OF COUPLE THERAPY

Dušanka Jovanović[1],[*] & Sanja Grbić[2]
[1]European Accredited Psychotherapy Training Institute – Gestalt Institute Belgrade
[2]University of Belgrade, Faculty of Philosophy, Department of Psychology

From the perspective of the dialogic approach, the initial stage of partner therapy is characterized by monitoring the dialogic exchange of partners, to identify the characteristics of relational dynamics that facilitate or hinder constructive exchange. These relational micro-processes, however, are largely unexplored. The goal of this exploratory study (as a part of larger research) is to map in-session couple dynamics in the initial stage of therapy. The question that guided us was: what formally defined phases characterize the development of partner interaction? The participants were six heterosexual couples (29–45 years old, ≥2 years together, 5 without children). The data was collected through videotaping the second therapy session. The material for the analysis were contact episodes: couple interaction regarding the self-selected topic, during which the therapist entered the observer role. Thematic analysis was applied by the authors, with the interpretation based on Martin Buber's dialogical approach and theory of Gestalt therapy. Five themes, i.e., phases of the contact episode were identified, with some variations of these phases being more and some less supportive of constructive exchange. The first phase is The emergence of the need, in which the couple defines the individual or relational needs and the obstacles to their realization. Variations concern participation in problem definition (one-sided or mutual), way of defining (as relational or as personal), and communication style (e.g., criticizing). The second phase is the Habitual attempt to satisfy the needs and concerns couple's usual problem-solving style, which can be less constructive (e.g., blaming, fruitless confrontation), or more constructive (communicating personal shortcomings and boundaries). The third stage is Impasse, in which repeated unsuccessful attempts at resolution lead to a feeling of being stuck. This could appear in the form of polarization of positions, or the form of resignation and withdrawal. The fourth stage is Novelty and regression, in which a constructive change appears briefly before it is quickly lost by returning to previous communication patterns. The fifth stage is a Constructive dialogical relationship, in which the novelty introduced by one partner brings either calmness and reflection, or empathy and validation of the other partner. The paper extends the efforts of the integrative family therapists regarding the process diagnostic in the initial stage of couple therapy, by offering tools that could be useful in the shorter time frame – within one therapy session.

Keywords: couple therapy, in-session couple dynamics, dialogical approach, Gestalt therapy, qualitative study

EXPERIENCES IN CLOSE RELATIONSHIPS, STRESS COPING STRATEGIES AND TENDENCY TOWARDS PSYCHOSOMATICS
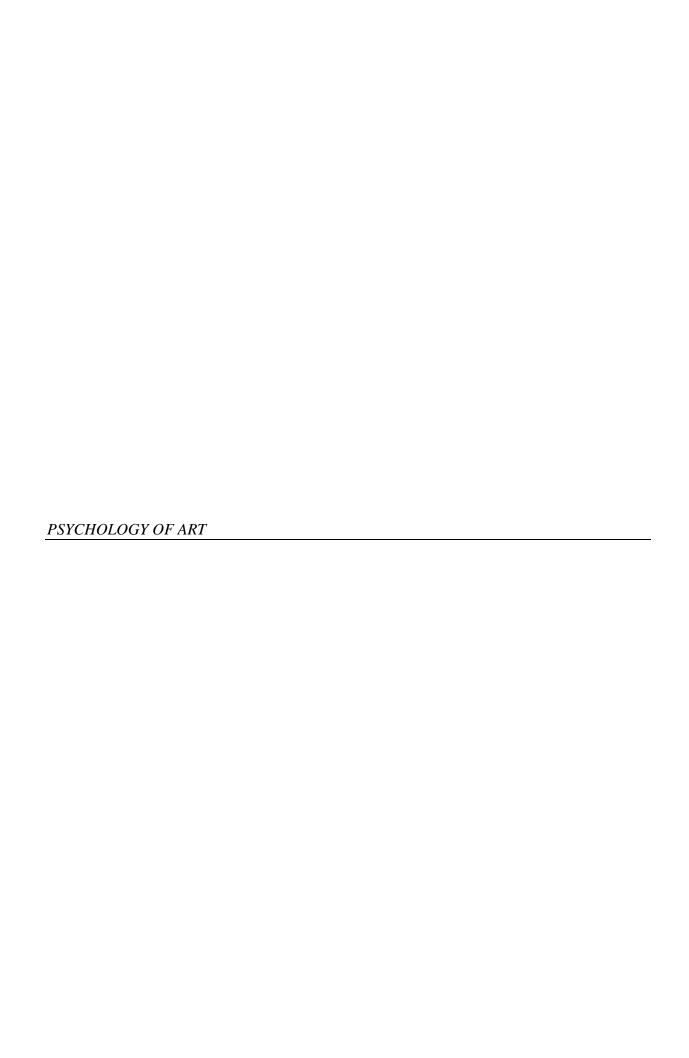
Miljana Nikolić[*] **& Jelisaveta Todorović**
University of Niš, Faculty of Philosophy, Department of Psychology

The aim of the research was to examine whether experience in close relationships (anxiety/avoidance) and stress coping strategies (task-focused coping, emotion-focused coping, avoidance-focused stress coping) can predict psychosomatic tendencies. The sample was convenient and consisted of 291 respondents (Nmale = 27.5%, Nfemale = 72.5%), students and high school students. The age of the respondents ranged from 18 to 24 years, while the average age was 19.19 ($SD = 1.37$). The following measuring instruments were used in the research: Experience Scale in Close Relationships (SM-ECR-R), CISS Coping with Stress Scale, and Psychosomatic Tendency Scale. Multiple regression was used for data processing. The predictors were anxiety and avoidance (experiences in close relationships) and the stress coping strategy subscale, while the criterion variable was a tendency towards psychosomatics. Psychosomatic tendency was significantly associated with anxiety, avoidance, and emotion-focused coping with stress ($p < .01$). All correlations are positive. The results show that anxiety ($\beta = .32$, $t = 4.64$, $p < .01$) and emotion-focused coping ($\beta = .29$, $t = 4.26$, $p < .01$) are statistically significant predictors of psychosomatic tendencies. The model consisting of the subscales of experience in close relationships and strategies for coping with stress explains 29% of the variance of the criteria ($R^2 = .29$, $F(5,191) = 15.41$, $p < .01$). It can be concluded that more pronounced anxiety, avoidance and emotion-focused coping with stress are associated with a higher tendency towards psychosomatics.

Keywords: anxiety, avoidance, stress coping strategies, psychosomatization

---

[*] corresponding author e-mail: *gc.miljana.nikolic@filfak.ni.ac.rs*

PSYCHOLOGY OF ART

EXPERTS' AESTHETIC EXPERIENCE IS MORE RELATED TO WHAT THEY THINK ABOUT THE ARTWORK THAN TO WHAT THEY SEE IN THE ARTWORK

Dragan Janković[*]

University of Belgrade, Faculty of Philosophy, Department of Psychology

Recent studies on aesthetic experience suggest that works of art evoke a wide range of different cognitive and affective responses in viewers. According to the VACe model, the aesthetic experience of an artwork is mainly determined by the affective experience of all the meanings that are activated in the viewer's mind when looking at the artwork (Janković, 2015). In the present study, we investigated whether the different types of meanings activated during the observation of artworks contribute differently to the aesthetic experience in visual art experts. In the first phase of the study, participants (N = 46) rated their aesthetic experience of fourteen paintings and were asked to report what they had in mind while making an aesthetic evaluation of each painting. Paintings were selected to cover a wide range of themes, styles and subjective experiences. In the second phase of the study, the same participants rated their affective experience of meanings (verbal responses) collected in the first phase of the study. Prior to data analysis, meanings were classified into different categories by three independent evaluators. The results indicated a strong positive correlation between the aesthetic experience of artworks and the affective experience of the cognitive meanings activated during the observation of artworks (interpretation, knowledge, and formal aspects of artworks): $r(12) = .93$, $p < .001$ for valence, $r(12) = .89$, $p < .001$ for arousal, and $r(12) = .86$, $p < .001$ for cognitive evaluation. In contrast, the correlation of aesthetic experience with the affective experience of perceptual meanings (objects, themes, colors) did not reach statistical significance. The findings of this study suggested that different types of activated meanings contribute differently to the aesthetic experience. In other words, experts' aesthetic experience of an artwork is more related to what they think about the artwork (cognitive meanings) than to what they see in the artwork (perceptual meanings). These findings make a valuable contribution to the further development of the VACe model of aesthetic experience.

Keywords: aesthetic experience; affective experience; experts; artworks; VACe model

[*] corresponding author e-mail: *djankovi@f.bg.ac.rs*

DECODING AESTHETIC TASTES: EXPLORING PREDICTORS OF PREFERENCES IN
AI-GENERATED ARTWORK

Ivan Stojilović[*]
University of Priština in Kosovska Mitrovica, Faculty of Philosophy

The recent auction of an AI-generated portrait for $432,000 at Christie's has highlighted the necessity of understanding how creative endeavours, traditionally considered uniquely human, are valued when produced by a machine. This study investigates various predictors across three domains—personality, technology, and visual art—and their impact on aesthetic preferences. The sample consisted of 517 participants from the general population (394 females, $M = 19.9$ years, $SD = 10.71$). Participants engaged in an online experiment, assessing four artworks on aesthetic scales (e.g., Beautiful, Pleasant). All artworks were human-created, with Human vs AI variation indicated by captions beneath the images. The chosen artworks were selected from the VAPS database, emphasizing extreme scores on the "Emotional arousal" variable, creating two artwork categories: expressive and non-expressive artworks. The 7 aesthetic scales were collapsed into one—General Aesthetic Preference (GAP) scale. After the experiment, participants completed Art Interest, General Attitudes towards Artificial Intelligence Scale (GAAIS), Technology Readiness Scale, HEXACO, and Disintegration questionnaires. The final model exhibited good fit measures: $X^2 (29) = 48.15$, $p = .014$, $RMSEA = .036$, $CFI = .976$, $TLI = .950$, $SRMR = .039$. Art interest is positively correlated with GAP for human-created paintings (expressive artworks $B = 0.232$, $p < .001$ and non-expressive $B = 0.152$, $p < .001$), but had a negative effect on GAP for expressive AI works ($B = -0.116$, $p < .02$). A positive dimension of GAAIS was positively connected with both types of AI works (expressive $B = 0.234$, $p < .001$ and non-expressive $B = 0.104$, $p < .02$), while a negative GAAIS component had a negative effect (expressive artworks $B = -0.150$, $p < .01$ and non-expressive $B = -0.093$, $p < .05$). Openness and Enhanced awareness traits showed positive effect on Human expressive artworks ($B = 0.097$ $p < .02$ and $B = 0.095$, $p < .05$ respectively), and Magical thinking on AI (non-expressive $B = 0.139$, $p < .001$). We have confirmed previous findings that individuals with a stronger Art interest, Openness, and Enhanced awareness tend to prefer artworks, but this relationship diminishes with AI-generated artworks. Aesthetic attitudes toward AI-generated artworks are more closely linked to attitudes toward artificial intelligence. Understanding these complex influences is crucial for navigating changing aesthetic preferences in AI art as technology reshapes the art landscape.

Keywords: AI-Generated Art, Aesthetic Preferences, Personality Traits, Attitudes Towards AI, Art Interest

[*] corresponding author e-mail: *istojilovic@gmail.com*

ARTIFICIAL VS. AUTHENTIC: UNVEILING AESTHETIC PREFERENCES IN HUMAN AND AI-GENERATED ARTWORKS

Ivan Stojilović[*]

University of Priština in Kosovska Mitrovica, Faculty of Philosophy

The integration of artificial intelligence (AI) into the production and appreciation of visual art has generated considerable interest and debate in recent years. Numerous studies have indicated that participants encounter challenges in accurately distinguishing between human and AI-generated artworks, shedding light on the negative attitudes towards computer-generated or manipulated artwork. This study explores how attributing the creation of art to either human or AI influences aesthetic preferences. The sample consisted of 517 participants from the general population (394 females, $M = 19.9$. years, $SD = 10.71$). We used a 2 (Human- vs. AI-created) x 2 (expressive vs. non-expressive) repeated measure ANOVA design. Participants assessed four artworks on 7 Likert-type scales (e.g., Beautiful, Pleasant) using a 5-point scale (1 = *not at all*, 5 = *fully agree*). All four artworks were created by humans, and the Human vs. AI variation was achieved by placing captions beneath the images indicating whether the artist was a human or AI. The chosen artworks were selected from the Vienna Art Picture System database, emphasizing abstraction, non-familiarity, and extreme scores on the "Emotional arousal" variable. Results indicate that artworks of the same level of expressiveness are consistently aesthetically preferred when attributed to human authors rather than AI (for the beautiful scale $F(1, 516) = 101.9$, $p < .001$, $\eta_p^2 = .16$ or creative scale $F(1, 516) = 144.4$, $p < .001$, $\eta_p^2 = .22$). Expressive artworks are similarly always perceived as aesthetically more preferred (for beautiful scale $F(1, 516) = 211.3$, $p < .001$, $\eta_p^2 = .29$ or creative scale $F(1, 516) = 400.5$, $p < .001$, $\eta_p^2 = .44$). However, when comparing Human-attributed artworks with low expressiveness and AI-attributed artworks with high expressiveness, results are inconsistent. In some cases, Human non-expressive artworks are more appreciated (e.g., Beautiful $F(1, 516) = 20.5$, $p < .001$, $\eta_p^2 = .04$) while in others, AI-generated expressive works are preferred (e.g., Exciting scale $F(1, 516) = 143.2$, $p < .001$, $\eta_p^2 = .22$). Art is often regarded as a human expression of experience, emotions, and ideas, which gives human-generated art a preference over AI-generated art, lacking these qualities. This underscores that people tend to value art with deeper human elements and personal expression. However, preferences vary, and AI-generated art, replicating these qualities, can also be valued and attract viewers.

Keywords: AI-Generated Art, Aesthetic Preferences, Human vs. AI Attribution, Expressive Artworks

---

[*] corresponding author e-mail: *istojilovic@gmail.com*

THE DIFFERENCES IN THE OBSERVERS' BODILY SENSATIONS WHEN WATCHING CONTEMPORARY AND HIP-HOP DANCE CHOREOGRAPHIES

Maja S. Vukadinović[*]
Novi Sad School of Business

This research aims at investigating the differences in the observers' bodily sensations when watching hip-hop and contemporary dance choreographies. There were 122 students, non-expert in dance, aged between 18 and 27 years ($M = 19.35$, $SD = 1.45$, 72.1% woman) from Novi Sad School of Business participating in the study. Stimuli consisted of six video recordings – (three of contemporary and three of hip hop dance choreographies). Participants were observing choreographies in the group and afterwards they rated their bodily sensations on 11 dichotomous (yes/no) scales measuring three dimensions *Focus* (I hold my breath, I get goosebumps, I can't look away, and I can't blink), *Excitement* (My heart beats faster, I have butterflies in my stomach, I feel vibrations in my body, I mimic the movements while I sit) and *Embodied Anticipation* (My knees buckle, I get teary-eyed, I shake). For each stimulus presented to the participants, the scores on the scales comprising each dimension were cumulatively summed, since dichotomous (yes - 1/ no - 0) measures were used. The total score for Focus may vary from 0 (minimum) – 4 (maximum), for Excitement from 0 to 4, and for Embodied Anticipation from 0-3. The independent variable was the type of dance (contemporary/hip hop). Dependent variables were the participants' assessments on the scales measuring the dimensions of bodily sensations. The results of multivariate analyses of variance (*GLM – Repeated measures*) have shown that there is a significant main effect of Type of dance ($F(3, 119) = 24.92$; $p < .001$, $\eta_p^2 = .386$). Univariate tests have shown that there are significant differences regarding dimensions of Excitement ($F(1, 121) = 32.14$; $p < .001$, $\eta_p^2 = .386$) between students' ratings when watching contemporary and hip hop dance choreographies. Participants rated choreographies of hip hop ($M = 1.17$, $SD = .07$) with significantly higher values in comparison with choreographies of contemporary dance ($M = 0.67$, $SD = .09$). The results were discussed in relation to the concept of kinesthetic empathy. It was concluded that non-expert observers respond with higher bodily excitement when watching type of dance which is characterized with high rhythmicity of the dance movement.

Keywords: non-expert observers, bodily sensations, choreographies, contemporary dance, hip-hop

---

[*] corresponding author e-mail: *vukadinovicmaja.vps@gmail.com*

THE DIFFERENCES IN THE OBSERVERS' AESTHETIC EXPERIENCE WHEN WATCHING CONTEMPORARY AND HIP-HOP DANCE CHOREOGRAPHIES

Maja S. Vukadinović[*]
Novi Sad School of Business

This research aims at investigating the differences in the observers' aesthetic experience when watching hip-hop and contemporary dance choreographies. There were 122 students aged between 18 and 27 years ($M = 19.35$, $SD = 1.45$, 72.1% woman) from Novi Sad School of Business participating in the study. Stimuli consisted of six video recordings – (three of contemporary and three of hip hop dance choreographies). Participants were observing choreographies in the group and afterwards they rated their aesthetic experience on 12 seven-point scales maesuring three dimensions *Dynamism* (expressive, powerful, strong, and exciting), *Affective evaluation* (delicate, elegant, seductive, and emotional) and *Exceptionality* (eternal, unspeakable, unique, and exceptional). Regarding the dimensions of aesthetic experience, arithmetic means for each stimulus presented (6 video recordings) were calculated and entered into the analyses. The independent variable was the type of dance (contemporary/hip hop), while dependent variables were the participants' assessments on the scales measuring the dimensions of aesthetic experience. The results of multivariate analyses of variance (*GLM – Repeated measures*) have shown that there is a significant main effect of Type of dance ($F(3, 119) = 57.19$; $p < .001$, $\eta_p^2 = .590$). Univariate tests have shown that there are significant differences regarding dimensions of Dynamism ($F(1, 121) = 3.96$; $p = .049$, $\eta_p^2 = .032$) and Affective evaluation ($F(1, 121) = 61.33$; $p < .001$, $\eta_p^2 = .336$) between students' ratings when watching contemporary and hip hop dance choreographies. Participants rated with significantly higher values choreographies of hip hop ($M = 3.84$, $SD = 1.59$) regarding dimensions of Dynamism ($M = 3.84$, $SD = .14$) in comparison with choreographies of contemporary dance ($M = 3.59$, $SD = .15$). Concerning dimension of Affective evaluation contemporary dance choreographies ($M = 3.40$, $SD = .13$) are rated with higher values in comparison with hip hop choreographies ($M = 2.47$, $SD = .11$). The differences in observers' aesthetic experience were discussed in the context of formal characteristics (dance technique, dynamic, elegance and complexity of dance movement) of each investigated type of dance. It was concluded that for participants choreographies of hip hop are more dynamic so they assess them as more powerful, strong, expressive and exciting in comparison with the choreographies of contemporary dance. On the other hand choreographies of contemporary dance are more elegant and participants assess them as more delicate, seductive and emotional in contrast to the choreographies of hip hop.

---

[*] corresponding author e-mail: *vukadinovicmaja.vps@gmail.com*

DEVELOPING A NEW MEASURE OF INDIVIDUAL DIFFERENCES IN VIDEO GAMES MOTIVES AND PREFERENCES: A PRELIMINARY REPORT

Helena Vinčić[1,*], Jovana Aleksić[2], Ana Sajdel[1], Jelena Zelić[1], & Siniša Subotić[3]
[1]University of Banja Luka, Faculty of Philosophy, Psychology MSc Program
[2]University of Montenegro, Faculty of Philosophy, Psychology MSc Program
[3]University of Banja Luka, Department of Psychology & Faculty of Natural Sciences and Mathematics

Playing video games is a popular leisure activity, with both positive and negative potential consequences – potentially up to an addiction level. Thus, when trying to understand the negative sides of gaming, studying habits, preferences, motives, etc. for playing video games has become an important part of the process, for which several scales exist, e.g., GAMES and DGMS. At face value, a criticism can be made that such scales have many redundant and overlapping items, resulting in arguably "artificial" dimensions. Therefore, the purpose of this study was to do a contend validity and item rewriting pass of said scales in order to make less redundant instrument for measuring video games motives & preferences (abbrev. GMP). Using GAMES and DGMS scales as a basis, we conceived 12 conceptual GMP domains, for which a 100+ item pool was created (making sure to maximize content relevance, and minimize phrasing overlap & redundancy). The items were administered to a sample of 212 (58% men; $M = 26.17$, $SD = 7.77$ years old) self-identified gamers (of occasional or higher level). "Gaming addiction disorder", depression, satisfaction with life, and coping were also measured. By iterative EFA analyses, we identified three main latent GMP factors (which were trimmed down to 17 most informative items with the help of IRT analyses), labeled as: Violent Catharsis (6 items; $M_\Lambda = .82$; $\omega = .89$; $M = 0.84$, $SD = 0.91$), Socialization in Video Games (6 items; $M_\Lambda = .84$; $\omega = .92$; $M = 1.71$, $SD = 1.09$), and Narrative and Freedom (5 items; $M_\Lambda = .85$; $\omega = .91$; $M = 2.13$, $SD = 1.15$). Factors explained 77% of common variance, with intercorrelations: .49, .48. and .63, respectively. We also identified several potential / conditional factors (Toxic Gaming, Boredom, Skill), which did not show a stable latent structure concurrently with the main three GMP factors, but did form when analyzed separately – requiring further investigation about potential context- and genre-specific relevance. All three GMP factors were somewhat correlated with the gaming disorder scores (r_s: .36, .25, .28, respectively, $p_s < .001$). Violent Catharsis had a low correlation with depression ($r = .14$, $p = .035$). Narrative and Freedom modestly correlated with higher active coping ($r = .15$, $p = .030$), but also with lower satisfaction with life ($r = -.16$, $p = .023$). We conclude that our revised GMP scale offers a conceptual improvement over other current scales and represents a good framework for further construct improvements and research utilization.

Keywords: non-expert observers, aesthetic experience, choreographies, contemporary dance, hip-hop

---
[*] corresponding author e-mail: *helena.vincic@student.ff.unibl.org*

KATARINA MARIĆ FOUNDATION

ISKUSTVO STARIJIH OSOBA SA SAVREMENIM INFORMACIONO-KOMUNIKACIONIM TEHNOLOGIJAMA

Milica Kovač[*]
Univerzitet u Beogradu, Filozofski fakultet
Mentor:
dr ZORAN PAVLOVIĆ

Populacija starijih ljudi u Srbiji dvostruko je zanemarena: pored toga što su retko subjekti psiholoških istraţivanja, oni se gotovo nikada ne zamišljaju kao budući korisnici prilikom razvoja novih tehnologija za komunikaciju i informisanje. S obzirom na to, formulisali smo dva osnovna zadatka našeg istraţivanja: razumevanje socio-psiholoških aspekata iskustva starijih osoba u Srbiji sa savremenim IK tehnologijama i razumevanje fenomenoloških aspekata njihovog iskustva, odnosno ličnih doživljaja koji stoje iza aktuelnog iskustva korišćenja savremenih IK tehnologija. Sprovedeno istraživanje je eksplorativno prema svom cilju, a osnovni metodološki okvir predstavlja utemeljena teorija: proces istraživanja vođen je iskustvima starijih osoba sa savremenim IK tehnologijama, i to kroz dvofazni ciklus prikupljanja i analize materijala. Za prikupljanje podataka koristili smo triangulaciju kvalitativnih tehnika – tri fokus grupe i pet polustrukturisanih intervjua. U istraživanju je učestvovalo dvadeset starijih osoba, od kojih je petnaest uzelo učešće u fokus grupama, a pet u intervjuima. Ponuđeni eksplanatorni okvir fenomena odnosa starijih ljudi sa savremenim IK tehnologijama temelji se najpre na konceptu mudrosti, kojim nastojimo da objasnimo uočene obrasce u ponašanju, stavovima i ličnim doživljajima starijih ljudi u interakciji sa savremenim IK tehnologijama. Stariji ljudi su pretežno tehno-optimistični, ali istovremeno doživljavaju, ispoljavaju i eksplicitno izražavaju otpore prema određenim karakteristikama savremenih IK tehnologija, pri čemu predlažemo da se ti otpori tumače u kontekstu tehno-društvenog karaktera savremenog života. Doprinos istraživanja vidimo najpre u nuđenju pomenute perspektive razumevanja iskustva starijih ljudi sa savremenim IK tehnologijama. U skladu sa principima utemeljene teorije, nalaze istraživanja tumačimo kao zavisne od karakteristika konteksta u kom je istraživanje sprovedeno, te navodimo i nedostatke aktuelnog istraživanja i nudimo predloge za sprovođenje budućih istraživanja u ovoj oblasti.

Ključne reči: stariji ljudi, savremene IK tehnologije, mudrost, tehno-društveni život

---

[*] corresponding author e-mail: *milicakovach@gmail.com*

KONFLIKT LOGIČKIH I HEURISTIČKIH INTUICIJA U HIBRIDNOM MODELU DUALNE OBRADE

Milica Damnjanović[*]
Univerzitet u Beogradu, Filozofski fakultet
Mentorka:
dr KAJA DAMNJANOVIĆ

Hibridni modeli dualnih procesa pretpostavljaju da se tokom inicijalnih faza rasuđivanja aktiviraju višestruke intuicije – sistematski pogrešne tj. heurističke, kao i ispravne tj. logičke intuicije koje su posledica automatizovanih znanja o normativnim, logičkim i probabilističkim principima. Poslednja iteracija modela hibridnog pristupa nalaže da će se u zadacima rasuđivanja registrovati ona intuicija koja ima veću snagu, koja zavisi od stepena automatizacije principa ispravnog rasuđivanja. Novi model takođe predlaže da je aktivacija intuicija praćena parametrom neizvesnosti – što su dve intuicije ujednačenijih snaga, to bi neizvesnost trebalo da bude veća. Ovaj rad je za cilj imao da empirijski testira pretpostavke najaktuelnijeg hibridnog modela dualnih procesa i da istraži individualne razlike u snazi logičkih intuicija. Za te potrebe je najpre sprovedena studija gde su korišćeni zadaci za merenje pristrasnosti zanemarivanja osnovne stope sa ciljem da se utvrdi da li se sa smanjivanjem ekstremnosti stopa u zadacima smanjuje tačnost ispitanika. Rezultati su saglasni sa ranijim nalazima koji ukazuju da je smanjivanje ekstremnosti stopa praćeno padom tačnih odgovora, iz čega je zaključeno da se ovom manipulacijom može smanjiti snaga logičkih intuicija onda kada se zadaci rade u uslovima nametnute intuitivne obrade. Isti zadaci su korišćeni i u drugoj studiji gde su se ispitanicima prikazivali po dva puta – jednom pod vremenskim ograničenjem i kognitivnim opterećenjem u cilju nametanja intuitivne obrade, a drugi put bez ikakvog ograničenja. Kad god bi ispitanici dali odgovor, procenjivali bi koliko su u njega sigurni. Na ovaj način, parametar neizvesnosti je operacionalizovan kroz procenu osećaja sigurnosti u inicijalni tj. intuitivni odgovor. Na kraju, u ovoj studiji su prikupljene i različite mere kognitivnih sposobnosti i stilova mišljenja koje se tradicionalno smatraju korelatima racionalnog mišljenja. Rezultati su u saglasju sa rezultatima prve studije i sugerišu da snaga logičkih intuicija opada kako stope u zadacima postaju sve manje ekstremne. Dodatno, rezultati pokazuju da osećaj sigurnosti u pružene odgovore sistematski odražava relativnu razliku u snazi konkurentskih intuicija, ali jedino onda kada je ishod rasuđivanja normativno tačan. Naposletku, jedino se radna memorija pokazala značajnim korelatom logičkih intuicija. Uzeti zajedno, rezultati ovog istraživanja sugerišu da novi model predstavlja relativno prihvatljiv teorijski okvir dualne kognitivne obrade, ali usled drugačijeg efekta tačnosti na osećaj sigurnosti pozivaju na ponovno testiranje modela i na podrobnije istraživanje individualnih razlika u snazi logičkih intuicija.

Ključne reči: dualni procesi, hibridni model, logičke intuicije, neizvesnost, pristrasnost zanemarivanja osnovne stope

---

[*] corresponding author e-mail: *milicadamnjanovic74@gmail.com*

OPAŽANJE PROSEČNE SVETLINE — EFEKTI VREMENA EKSPOZICIJE, VELIČINE I VARIJABILNOSTI SKUPA NA EFIKASNOST INTEGRACIJE STIMULUSA

Konstantin Tomić[*]
Univerzitet u Novom Sadu, Filozofski fakultet
Mentorka:
dr SUNČICA ZDRAVKOVIĆ

U ovom radu se istražuje ljudska sposobnost brzog i preciznog procenjivanja prosečne svetline skupa. Samo dva prethodna istraživanja su se bavila ovom tematikom (Bauer, 2009; Takano & Kimura, 2020), mada je veliki broj studija ispitivao druge odlike, poput prosečnog tonaliteta (Maule & Franklin, 2016). U seriji od četiri eksperimenta merena je preciznost procene prosečne svetline i modelom je procenjen broj stimulusa koje su ispitanici uprosečili (Solomon et al., 2011). U svakom eksperimentu ispitanici su prosečnu svetlinu prethodno prikazanog skupa sivih kružića trebali da reprodukuju pomoću slajdera, a sistematski su varirani parametri eksperimenta: dužina prikazivanja skupa, veličina skupa i varijabilnost u svetlini. U skladu sa prethodnim istraživanjima prosečne boje, rezultati ukazuju da je opažanje prosečne svetline precizno čak i pri kratkoj ekspoziciji, da produžavanje ekspozicije i smanjivanje skupa ne utiču na tu preciznost, ali da varijabilnost svetline utiče. Dalje, pri uprosečavanju, ispitanici su se koristili manjim brojem stimulusa od empirijskog pravila koje pokazuje da se integriše kvadratni koren od ukupnog broja prikazanih stimulusa (Whitney & Yamanashi Leib, 2018). U našoj studiji broj integrisanih stimulusa bio je konzistentno nizak, a pri kratkoj ekspozicij, manjem i homogenijem skupu veliki udeo ispitanika je integrisao manje od 2 stimulusa, dovodeći time u pitanje teorijski status opažanja prosečne svetline. Ipak, dužim prikazivanjem skupa sa više članova i većim opsegom svetlina osigurano je da svaki ispitanik integriše minimum 2 stimulusa, time garantujući da je mereno svojstvo opažanje prosečne svetline.

Ključne reči: opažanje skupova, svetlina, model idealnog posmatrača

---

[*] corresponding author e-mail: *konstantin.tomic@gmail.com*

REGULACIJA RASPOLOŽENJA SLUŠANJEM MUZIKE KAO MEDIJATOR POVEZANOSTI IZMEĐU AFEKTIVNE VEZANOSTI I MENTALNOG ZDRAVLJA ADOLESCENATA

Anđela Milošević[*]
Univerzitet u Beogradu, Filozofski fakultet
Mentorka:
dr IVANA STEPANOVIĆ ILIĆ

Afektivna vezanost, definisana kao sistem znanja, uverenja, emocija i ponašanja prema sebi, drugima i svetu, povezana je sa mentalnim zdravljem ljudi direktno, ali i indirektno, putem strategija emocionalne regulacije (Kerns & Brumariu, 2014; Parrigon et al., 2015). Muzika ima veliki značaj i uticaj na adolescente, posebno u funkciji regulacije raspoloženja (Saarikallio, 2011; Van Goethem & Sloboda, 2011; Wells & Hakanen, 1991). Stoga, sagledavanje korišćenja muzike kao sredstva emocionalne regulacije u kontekstu afektivne vezanosti je potencijalno veoma važna, ali neistražena tema, značajna za mentalno zdravlje adolescenata. Glavni cilj istraživanja je ispitati da li su strategije regulacija raspo loženja slušanjem muzike medijator povezanosti između afektivne vezanosti sa jedne strane i različitih indikatora mentalnog zdravlja, sa druge strane. U istraživanju je učestvovalo 524 srednjoškolca uzrasta 16 do 18 godina, od čega 2/3 devojaka. Ispitanici su regrutovani u saradnji sa 15 srednjih škola iz Srbije, kao i putem metoda snežne grudve. Onlajn Google Forms upitnik sadržao je demografska pitanja kao i četiri instrumenta koji redom mere afektivnu vezanost, strategije regulacije raspoloženja slušanje m muzike, načine zdravog i nezdravog korišćenja muzike i stepene depresivnosti i anksioznosti. Putem analize medijacije (makro PROCESS v4.2 za SPSS) pokazano je da postoji jedan statistički značajan model medijacije, u kome strategije emocionalne regulacije slušanjem muzike Pražnjenje i Mentalni rad objašnjavaju deo povezanosti između dimenzije anksiozne afektivne vezanosti i Nezdravog korišćenja muzike. Diskutovan je značaj svih dobijenih nalaza i potencijalne teorijske implikacije, sa kratkim osvrtom na ograničenja i predloge za buduća istraživanja.

Ključne reči: emocije, muzika, afektivna vezanost, mentalno zdravlje, adolescencija

---

[*] corresponding author e-mail: *milosevicka012@gmail.com*

TESTIRANJE DIFERENCIJALNIH EFEKATA OSCILATORNE TRANSKRANIJALNE STIMULACIJE ELEKTRIČNOM STRUJOM VISOKE GUSTINE NA PROCESE UČENJA I IZVLAČENJA ASOCIJATIVNIH SEĆANJA

Milica Manojlović[*]
Univerzitet u Beogradu, Filozofski fakultet
Mentorka:
dr DANKA PURIĆ

Asocijativna memorija (AM) predstavlja sposobnost uvezivanja novih informacija u kompleksna epizodička sećanja. Transkranijalna električna stimulacija (tES), na čelu sa standardnim pristupom transkranijalne stimulacije jednosmernom strujom (tDCS), pokazala se u prethodnoj deceniji kao obećavajuće sredstvo za facilitiranje i izučavanje asocijativnog pamćenja. Međutim, sve češće se postavlja pitanje specifičnih uslova pod kojima ove tehnike ostvaruju svoje efekte. Paralelno sa time nejasno je i tokom kojih memorijskih procesa posteriorni parijetalni korteks (PPC), jedna od moždanih regija od krucijalnog značaja za uspešno asociranje informacija, ostvaruje svoju ulogu u ovom procesu. Osnovni cilj ovog istraživanja bio je da uporedi efikasnost električne stimulacije nad levim parijetalnim režnjem tokom procesa učenja i izvlačenja. U ove svrhe korišćen je novi tip stimulacije - teta oscilatorna transkranijalna stimulacija jednosmernom strujom visoke gustine (hd otDCS) koja ima potencijal da prevaziđe delotvornost ranije predloženih protokola budući da omogućava preciznije stimulisanje željene regije i usaglašavanje iste sa, za AM relevantnim, teta ritmom. Dizajniran je eksperiment potpuno ponovljenog, ali nepotpuno ukrštenog dvofaktorskog multivarijatnog tipa sa sham kontrolom. 22 osobe koje su učestvovale u ovom istraživanju su, kontrabalansiranim redosledom i u razmaku od minimum sedam dana, prošle kroz tri eksperimentalne situacije i primile - 1) aktivnu hd otDCS stimulaciju tokom faze učenja, a sham tokom izvlačenja; 2) sham stimulaciju tokom učenja, a aktivnu stimulaciju tokom izvlačenja; i 3) sham stimulaciju i tokom učenja i tokom izvlačenja. Faze učenja i izvlačenja bile su odvojene strukturisanom pauzom u trajanju od 30min. Efekti stimulacije praćeni su na skorovima reprodukcije zabeleženim na dva zadatka AM – Lice reč i Objekat lokacija, ali i na subjektivnim procenama sigurnosti u zapamćeno. Dok je na zadatku Objekat lokacija zabeležen efekat plafona, u slučaju optimalno teškog Lice reč zadatka pronađen je efekat stimulacije ($F(2, 42) = 4.458$, $p = .018$, $\eta^2 = .175$). Planirani kontrasti pokazali su da je postignuće na ovom zadatku značajno bolje u odnosu na sham kontrolu i u slučaju stimulacije tokom učenja ($M_{\text{učenje – sham}} = 0.098$, $p = .024$, $\eta^2 = .220$) i tokom izvlačenja ($M_{\text{izvlačenje – sham}} = 0.095$, $p = .005$, $\eta^2 = .314$). Razlika u efikasnosti stimulacije tokom učenja i izvlačenja nije pronađena ($p = .941$). Nisu zabeleženi efekti stimulacije na subjektivne mere pamćenja ni u jednom od zadataka. Ova konstelacija nalaza govori u prilog tome da je hd otDCS efikasno sredstvo za facilitaciju AM i da, u slučaju parijetalnog režnja, ne postoji razlika između stimulacije tokom procesa učenja i izvlačenja, što implicira da su oba memorijska procesa dobri kandidati za trenutak stimulacije u budućim studijama. Stimulacija se pokazala kao efikasna na nivou učinka u zadacima asocijativnog pamćenja, ali bez indukovanja promena na metamemorijskom planu.

Ključne reči: asocijativna memorija (AM), učenje, izvlačenje, teta oscilatorna transkranijalna stimulacija jednosmernom strujom visoke gustine (hd otDCS), posteriorni parijetalni korteks (PPC), teta ritam

---

[*] corresponding author e-mail: *milicamanojlovic84@gmail.com*

POVEĆANJE UVIDA U VLASTITA PSIHOLOŠKA STANJA I SMANJENJE RUMINATIVNOG MIŠLJENJA KAO MEHANIZMI DELOVANJA PUNE SVESNOSTI NA EMOCIONALNA STANJA

Matija Gvozden[*]
Univerzitet u Beogradu, Filozofski fakultet
Mentorka:
dr IVANA PERUNIČIĆ-MLADENOVIĆ

Pojam pune svesnosti dobija na značaju poslednjih decenija u oblasti mentalnog zdravlja. Najveći deo istraživanja pune svesnosti u oblasti psihoterapije fokusirao se na utvrđivanje efikasnosti intervencija zasnovanih na punoj svesnosti, u širokom spektru kliničkih i nekliničkih slučajeva, što je od suštinskog značaja za njihovu upotrebu. Međutim, od velikog značaja bi bilo istražiti kako intervencije zasnovane na punoj svesnosti zapravo ostvaruju svoj efekat i utvrditi mehanizme koji leže u osnovi njihove efikasnosti. Bolje razumevanje psiholoških mehanizama pune svesnosti omogućilo bi izdvajanje najznačajnijih „sastojaka" ovih intervencija i, posledično, njihovo unapređenje. Program čija se efikasnost proveravala u ovom radu jeste Program redukcije stresa zasnovan na punoj svesnosti Džona Kabat-Zina. Program je višestruko validiran i ima snažnu empirijsku podršku kada je reč o radu sa širokim spektrom poremećaja i teškoća, npr. stresom, anksioznošću i depresijom. Mimo provere efektivnost samog programa na srpskom uzorku, što do sada još nije učinjeno, glavni cilj ovog rada bio je ispitati medijatorsku ulogu smanjenja ruminativnog mišljenja i povećanja uvida u sopstvena psihološka stanja u odnosu između pune svesnosti i pozitivnih i negativnih emocionalnih stanja. Ovo istraživanje unosi značajne novine u načinu na koji pristupa datoj tematici. Na prvom mestu, ono posmatra redukciju ruminacije i povećanje uvida kao dva paralelna medijatora unutar istog modela, za razliku od prethodnih istraživanja koja su se po pravilu oslanjala na jednostavne modele sa po jednim medijatorom. Model takođe razmatra dejstvo pune svesnosti, direktno i preko medijatora, na tri kategorije kako negativnih tako i pozitivnih emocionalnih stanja, što nije rađeno u dosadašnjim istraživanjima. Na kraju, ovo istraživanje unapređuje naš ograničen korpus znanja kada je reč o razvoju pune svesnosti kod budućih psihoterapeuta. Istraživanje je kvazieksperimentalnog tipa i sprovedeno je na uzorku od 276 edukanata racionalno-emotivne i kognitivno-bihejvioralne terapije od kojih je 180 bilo u eksperimentalnoj a 96 u kontrolnoj grupi (87% uzorka su činile žene i prosečan uzrast je bio 32 godine). Program je trajao 8 nedelja i mere su uzete u dve vremenske tačke – neposredno pre početka programa i nedelju dana nakon završetka programa. Za merenje pune svesnosti, ruminativnog stila mišljenja, uvida u psihološka stanja, disfunkcionalnih osećanja depresije, anksioznosti i stresa, kao i tri grupe pozitivnih osećanja (opuštenosti, aktiviranja i zadovoljstva) koristili su se upitnici koji su višestruko validirani i koji su se pokazali kao pouzdano sredstvo merenja. Program ostvaruje efekte srednje do velike veličine kada je reč o unapređenju pune svesnosti i redukciji ruminativnog mišljenja, kao i u redukciji negativnih osećanja (posebno depresije i stresa) i povećanju pozitivnih osećanja (posebno osećanja opuštenosti i zadovoljstva), dok je efekat na povećanje uvida u psihološka stanja mali. Redukcija ruminacije i povećanje uvida pokazali su se kao medijatori u odnosu između pune svesnosti i negativnih emocionalnih stanja, ali ne i pozitivnih. Povećanje pune svesnosti direktno je povezano sa redukcijom negativnih i povećanjem pozitivnih emocionalnih stanja. Značajan nalaz jeste da je povećanje pune svesnosti snažnije povezano sa smanjenjem tendencije ka ruminaciji, nego što je povezano sa povećanjem uvida u vlastita psihološka stanja, što bi trebalo proveriti

---

[*] corresponding author e-mail: *matija.gvozden@gmail.com*

budućim istraživanjima. U skladu sa tim, redukcija tendencije ka ruminaciji pokazala se kao značajniji medijator u odnosu na povećanje stepena uvida. Interesantan nalaz jeste to da je povećanje pune svesnosti snažnije povezano sa povećanjem pozitivnih osećanja opuštenosti i zadovoljstva, nego sa povećanjem aktivirajućih pozitivnih osećanja. Sprovedeno istraživanje potvrđuje efektivnost MBSR programa kada je reč o redukciji disfunkcionalnih obrazaca mišljenja i negativnih emocionalnih stanja (najviše depresije i stresa), kao i povećanju intenziteta pozitivnih emocionalnih stanja koja se odnose na opuštenost i zadovoljstvo. Redukcija ruminacije i povećanje uvida pokazali su se kao važni medijatori u odnosu između pune svesnosti i negativnih emocionalnih stanja, s tim da drugi psihološki procesi koji nisu bili obuhvaćeni modelom (npr. saosećanje) verovatno posreduju u odnosu između pune svesnosti i pozitivnih emocionalnih stanja. Na kraju, sprovedeno istraživanje podcrtava značaj povećanja pune svesnosti psihoterapeuta u edukaciji kao važnog činioca mentalnog zdravlja, jer je dobro mentalno zdravlje terapeuta preduslov pružanja efektivne pomoći terapijskim klijentima. Istraživanja ovog tipa imaju vrlo važnu ulogu kada je reč o unapređivanju fundamentalnog teorijskog znanja o raznolikim procesima koji su obuhvaćeni konceptom pune svesnosti, kao i za ohrabrivanje korišćenja pune svesnosti kao vida poboljšanja psihološke dobrobiti kod širokog spektra korisnika. Metodološka ograničenja kao i sugestije za buduća istraživanja prodiskutovani su na kraju rada.

Ključne reči: puna svesnost, ruminacija, uvid, negativna osećanja, pozitivna osećanja

CONFERENCE SPONSORS: