



# 13th Alps Adria Psychology Conference

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## Book of abstracts

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### Edited by

Anja Podlesek

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## Keynote lectures

### Which data to analyze, and how: New approaches to a general problem of empirical research

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During the 2010s, various fields of empirical research, including psychological science, have experienced a crisis of confidence regarding the trustworthiness of published research findings. Inter alia, these replication (or reproducibility) debates have led to a method-reform movement (the “new statistics”), large-scale replication initiatives, and changes in journal policies and scientific publishing (Open Science). One argument central to the broader context of these debates is the fact that there always are numerous flexibilities in data-analytic decisions (interchangeably termed as: researcher degrees of freedom, *p*-hacking, or the garden of forking paths). More specifically, researchers often seem to disagree which data to analyze, and how to analyze them. I present, compare, and discuss a variety of novel, not yet widely known, approaches to this general problem of empirical research, such as combinatorial meta-analysis, crowdsourcing data analysis, multiverse analysis, and specification-curve analysis. I illustrate the rationale, applicability, and potential of these approaches with real examples from current social, personality, and biological psychology, and by drawing upon both primary analysis and meta-analysis of research data.

### The influence of cognitive and emotional factors on mathematics learning

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The origins of the difficulties in mathematics has high relevance not only for the theoretical significance but also for the social and educational impacts. In the last years, studies on the foundations of mathematical abilities and disabilities have been receiving growing attention. Therefore, it is not surprising that intensive research has been devoted to the detection of the cognitive factors that prompt math proficiency or predict math learning disabilities. Similarly, a growing amount of studies has also highlighted the importance of the affective factors as determinants of math achievement, with a prevailing focus on the role of anxiety. However, only a few studies to date have jointly investigated the role of both cognitive and affective factors associated with math ability, and even fewer have focused on young children. A clear understanding of cognitive and emotional processes at the basis of math learning can provide valuable information about the causes of math difficulties at early age. Furthermore, this knowledge can be applied to the development of appropriate compensatory programs. We know from a wealth of literature that in-

dividual differences in working memory and executive functions are related to mathematical performance and academic success above and beyond socio-economic status and general intelligence. We will discuss about this large body of knowledge as well as about the possible malleability of working memory and the efficacy of numeracy and working memory training on math proficiency. Moreover, we will discuss the importance of developing a comprehensive theoretical model, which includes cognitive and emotional factors, such as general and math specific anxiety, as relevant factors that should be taken into consideration in math learning. The scientific and educational relevance will be discussed.

### Neurobiological underpinnings of intelligence: From correlation to causation

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Research into the neural underpinning of intelligence has mainly adopted a construct perspective: trying to find structural and functional brain characteristics that would accommodate the psychological construct of *g*. Few attempts have been made to develop an ability construct exclusively based on brain characteristics. The best neuro-anatomical predictor of intelligence is brain volume as it shows a modest positive correlation with *g* and explains between 9 and 16% of variance. Larger brains contain more neurons thus they have greater computational power that presumably allows for more complex cognitive processing. Correlations with brain surface, thickness, convolution and callosal shape show less consistent patterns. The development of diffusion tensor imaging has allowed researchers to examine the microstructure of brain tissue. Positive correlations between white matter integrity and intelligence have been consistently observed, supporting the idea that efficient information transfer between hemispheres and brain areas is crucial for higher intellectual competence. Based on functional studies of the brain-intelligence relationship, three theories have been put forward: the neural efficiency hypothesis, the P-FIT and the multi demand (MD) system theory. The best consensus based on the diversity of results reported is that *g* is predominantly determined by lateral prefrontal attentional control of structured sensory episodes in posterior brain areas, a model that is also in line with contemporary cognitive neuroscience of working memory. Discussed will be also some recent attempts to use of rTMS or tACS and fMRI to determine the causality between brain function and intelligence: (1) In the first step connections essential for intelligence (fMRI) are identified, next (2) the identified areas are targeted in rTMS/tACS stimulation. (3) Possible changes in behavioral measures as well as changes in brain networks are established.

## **Plastic fantastic: What can cognitive training tell us about cognitive plasticity?**

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Throughout their lives people are adapting to the demands of their changing and dynamic environment. The potential modifiability of one's cognitive and neural system, which stems from these adaptations, is referred to as cognitive or neural plasticity. Plasticity thus represents the ability to change, remodel and create neural pathways, and to adjust activity in response to new situations and changes in the environment. It mediates the acquisition of knowledge and skill, and understanding of neural plasticity could help in promoting it when it is needed and useful. Applying training interventions and measuring their scope and effects in order to identify the mechanisms underlying the plasticity of mind and brain is the soundest psychological pathway to understanding plasticity. The literature on cognitive training interventions has been growing rapidly, and demonstrates extreme boost of publication in the past decade. Several issues characterise the current state in the field: 1) heterogeneity of interventions in terms of research designs, methods, and training protocols, 2) relative lack of theoretical models describing the mechanisms underlying training and its effects, 3) the question of transferability of training-related gains to untrained tasks and abilities. The usual finding in early studies was that, given adequate training, individuals can significantly improve on a specific task, yet weak or no gains were found on new tasks. Still, recent studies suggest that cognitive training can actually produce broader, more generalizable effects. This holds particularly true if cognitive training is directed at basic processing capacities, such as working memory or executive functioning.

## **Unintentional manipulators? – The developmental psychopathology of Machiavellianism**

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The presentation deals with Machiavellianism, a dark personality characteristic defined by interpersonal manipulative strategies, cynical world view, and moral disengagement. Traditional approaches treat Machiavellianism as an evolutionary strategy or as a pseudopathology – a trait beneficial for the individual but harmful for the society. According to this view, Machiavellian individuals are considered to be masters of the puppets, i. e. proficient manipulators. Contrasted to the above described strength-based approaches, research of the relationship between Machiavellianism, developmental issues, and psychopathology gives a completely different picture of Machiavellian individuals. According to this line of research, Machiavellian people are immature in their personality organization, show a considerable amount of psychological symptoms, and their developmental history is full of adversities. In my lecture I will present some research evidence for the second line of reasoning, namely a deficit-approach to Machiavellianism. In presenting this evidence I will argue that Machiavellian behaviour is not manipulative only as far as we attribute manipulative intentions to Machiavellian individuals.

## Symposia

### Work, stress and health

Chair:

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Occupational stress is a salient individual and societal concern. Almost 30% of employees who work as professionals (e. g., medical doctors, teacher, lawyers) regularly worry about work when they are not working [*Working anytime, anywhere: The effects on the world of work*, Eurofound, 2017]. Additionally, at least 40% of workers reported that stress was not handled or managed well in their workplace in a recent survey of 31 European countries [*European Opinion Poll on Occupational Safety and Health*, European Agency for Safety and Health at Work (EU-OSHA), 2013]. According to conservative estimates the total annual costs of stress at work and productivity losses associated with it range from US\$221.13 million to \$187 billion [Hassard et al., *Journal of Occupational Health Psychology*, **23**, 1 (2018)]. Previous research approached occupational stress from different perspectives. Recently, it mostly focused on new work demands (e. g., cognitive demands and permeable boundaries between work and home) and potential stress-related outcomes (e. g., burnout, depression, physical health). Although predictors and outcomes of stress are well documented, underlying mechanisms and contingencies are not fully clear. Additionally, research mostly relied on cross-sectional research designs as well as self-reported negative outcomes. The present symposium bridges these shortcomings and provides new insights on how the work context contributes to stress and related condition as well as how it shapes health. It will include presentations focusing on advanced methodology and objectively measured outcomes (e. g., cardiac health outcomes, objective tests of cognitive functioning). As such it will turn attention to what is fundamentally important for a sustainable workforce – i. e., healthy employees.

### The double-edged sword of flexibility? A longitudinal investigation of strain reactions and learning processes linked to cognitive demands of flexible work

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With the rising flexibility in work organization employees are facing new demands to plan, structure and coordinate their work themselves. These cognitive demands of flexible work could be ambivalent in their nature: On the one hand the psychophysiological activation due to coping with cognitive demands of flexible work might hamper the detachment of

employees and in consequence increase strain. On the other hand, cognitive demands of flexible work might trigger learning processes and increase cognitive flexibility which in turn could benefit the performance of employees. To examine these effects we are currently conducting a three-wave longitudinal study in a big Austrian company. We used a newly developed scale measuring cognitive demands of flexible work that comprises four facets: structuring, coordinating, and planning of working time and work place. The first two waves have been completed in October 2017 (T1) and March 2018 (T2). Results from these two waves (matched  $N = 330$ ) confirmed our hypotheses partly: High demands of coordinating and planning of work place showed a positive lagged effect on cognitive flexibility. However, no effect of cognitive demands of flexible work at T1 on detachment at T2 was found. Data collection of the third wave will be finished by July 2018 and further results will be presented at the conference. It has often been proposed that higher flexibility of work organization could be linked to both positive and negative consequences in employees. Using a longitudinal design we found positive effects of cognitive demands of flexible work on cognitive flexibility but no strain-related effects. Therefore, our results suggests that positive consequences of flexible work might prevail negative consequences over time.

### Prevalence of engagement and burnout among Slovene students

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Engagement and burnout are currently highly relevant topics in Slovenian environment. Although there have already been studies to determine the burnout among Slovenian students, little is known about the engagement among students in Slovenia and its relation to their psychophysical well-being and academic attainment. For this study the measures such as Maslach Burnout Inventory – Student Survey (MBI-SS), Utrecht Work Engagement Scale Student (UWES-S) and Psychophysical Health Scale (SPFZ-2) will be used in order to investigate the relationship. The sample will include approximately 600 students from four different universities. Based on research we propose that: (1) academic success will be positively related to engagement and negatively correlated with burnout; (2) all burnout and engagement scales will be at least moderately negatively correlated; (3) there will be positive correlations between engagement and physical health and negative with burnout. We expect that latent class analysis will show different profiles of students in their student engagement and burnout, which may furthermore relate differently to academic success and psychophysical health. The research will provide an insight into engagement of students across Slovenia and provide us with an understanding of how burnout and engagement may relate and affect their academic attainment.

## Self-reported cognitive difficulties and performance-based cognitive performance in relation to burnout symptoms: Evidence from two studies

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Individuals with burnout often report having difficulties with concentration and memory in everyday life. Many studies showed that burnout symptoms are related to cognitive difficulties. Additionally, newer burnout questionnaires started considering cognitive symptoms as one of its core components. However, the empirical evidence of cognitive decline using performance-based measures is rather scarce and inconsistent. The aim of the present studies was to examine how self-reported and performance-based cognitive performance is related to burnout symptoms. Over 200 students took part in study 1 and 200 employees in study 2. Both samples were tested with several tests of executive functioning (e. g., d2, flanker task, go/no-go task, n-back task), whereas self-reports reflected mistakes and errors related to memory, attention and behavior in everyday life and work. Results from both studies indicated that burnout symptoms are strongly related to self-reported cognitive difficulties, whereas no such relationship was found for performance-based cognitive measures neither in terms of accuracy nor in reaction times. Surprisingly, the correlation between self-reported and performance-based cognitive measures was low, questioning the validity of self-reported cognitive difficulties and the nature of the cognitive decline in burnout. The results from both studies broaden the understanding of burnout symptoms and offer additional evidence for burnout operationalization and diagnosis.

## Two sides of the same coin? The role of cognitive performance in burnout and depression

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Since the term “burnout” was first introduced in the 1970s, there has been a discussion about the overlap of the burnout syndrome with depression. The debate gained even more momentum during the last decade, with several studies providing evidence of a substantial overlap and a lack of clear understanding of whether (and how) burnout and depression differ from one another. Issues that further complicate investigations on this topic are also a lack of diagnostic criteria for burnout and high comorbidity between depression and burnout. To address this issue, the current study focused on examining individuals who scored high on either burnout or depression and examined whether the two groups differed on measures of cognitive performance (i. e., working memory,

attention, and executive functioning). A total of 54 individuals with high scores on either burnout ( $n = 17$ ) or depression ( $n = 10$ ) and a matched group of controls ( $n = 27$ ) were tested with a battery of cognitive tests. Some differences emerged when examining attention, but not other measures of cognitive performance. We also examined differences between those participants who were in treatment at the time of the study ( $n = 10$ ) and those who were not ( $n = 17$ ). The results are discussed in the light of the burnout-depression differentiation debate. We also discuss the limitations of the current approaches when studying the overlap between the two constructs and provide directions for further research.

## Is your job killing you? The role of rumination in the relationship between work intensification and health

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In recent years, work has intensified in many European countries, bringing changes to how work is done. Work must be carried out faster and employees are often pressed for time. Recent studies have shown that work intensification and other acceleration-related work demands relate to decreased well-being [Kubicek et al., *European Journal of Work and Organizational Psychology*, **6**, 24 (2015)]. However, not many studies have addressed the question of possible negative physical health outcomes. We explore this issue and propose that perseverative cognition is a potential mechanism that links intensified job demands to negative health outcomes, as it prolongs stress response and activation [Brosschot et al., *Journal of Psychosomatic Research*, **2**, 60 (2006)]. We assume that work intensification is associated with poor psychological and physical health and that this relationship is mediated through work related rumination, for both physical and psychological health. Data was collected on a diverse, cross-sectional sample of 289 employees, coming for a routine health check-up. Self-report data on job demands and psychological health was collected (using the Intensification of Job Demands Scale, the Center for Epidemiologic Studies Depression Revised Scale, and the Positive and Negative Work Rumination Scale to measure work intensification, depression, and rumination, respectively), as well as objective health data (e.g. biometric measurements, blood samples). Our analyses revealed that the indirect effects via work-related rumination were statistically significant for both depression and the Framingham risk score, confirming our assumptions. Our findings enable us to conclude that work-related rumination is an important pathway when studying work intensification and related negative health outcomes. Building on the perseverative cognition hypothesis and on our findings, we conclude that work-related rumination promotes perseverative cognition in off-job time and thus prolonged stress response, enabling negative health outcomes.

## Challenges in the workplace 4.0: Resources support employees in workplaces with high digitalization

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In this age of globalization and rising work intensity, the work environment is faced with new challenges. On the one hand, the individual's cognitive and social-emotional demands are increasing; on the other hand, in line with growing internationalization, organizations must find new ways to work efficiently across different locations. Working across different locations raises the need to be mobile and flexible all the time, as well as cooperating via electronic means of communication. New work forms should be developed in a way that they support employees in their daily tasks. This study examines the relationships between new work forms (especially considering increasing flexibility and digitalization of the workplace), resources at work and impairing short- and long-term effects (stress, burnout). All-in-all, 209 German workers took part in an online-study in spring 2018. To measure psychosocial risks of new work forms, an adapted version of the instrument for the assessment of workload, the OrgFit 4.0, was used. Strain and resources were assessed with the Recovery-Stress-Questionnaire (RESTQ-Work). The results indicated that a high digitalization of the workplace is not directly related to a higher experience of strain (.02 to -.08). However, digitalization seems to be related to higher strain if there are not enough resources for the employees concerning the handling of digital tools (for example receiving support or trainings when working with technical devices; values between .25 and .36). Organizations should offer possibilities to support employees working with new digital tools to avoid impairing effects on employee well-being.

## Aspects of personality predicting digital media use and well-being in emerging adulthood

Chair:  
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The symposium presents four recent studies on personality traits and processes in a relatively new developmental period of emerging adulthood, bridging adolescence and adulthood in a wide range of postmodern societies. The contributions adopt both a variable-centered and a person-centered approach to study important outcomes of individual differences in personality. The presentations consider personality within the framework of the trait approach, precisely the Big Five model covering the OCEAN of human personality (the first three presentations), as well as from the point of view of second separation-individuation, primarily explained by the individuation theory (Blos, *Psychoanalytic Study of the Child*, **22**, 162 (1967)), and later on embraced by the autonomy-relatedness perspective (Youniss & Smollar, *Adolescent Relations with Mothers, Fathers and Friends*, University of Chicago Press, Chicago, 1985). With regard to the outcomes shaped by personality, the authors account for two important developmental tasks of emerging adulthood, i.e. separation-individuation in relation to parents and (un)healthy coping with temptations/traps of the digital world, as well as for subjective well-being captured by the Keyes's [Robitschek & Keyes, *Journal of Counseling Psychology*, **56**(2), 321 (2009)] model of emotional, psychological, and social well-being. The presenters focus on samples of Austrian and Slovene emerging adults and assess separation-individuation by the Individuation Test for Emerging Adults - Short [Komidar et al., *Journal of Personality Assessment*, **96**(5), 503 (2016)], which captures connectedness to parents, seeking parental support, perceived parental intrusiveness, self-reliance, and fear of disappointing parents. Additionally, the dimensions and/or styles of separation-individuation are treated either as predictors or outcomes. Thus, the last presentation considers the dimensions of separation-individuation to exert both direct and indirect effects (of the big five personality traits and background characteristics) on emerging adults' subjective well-being.

## Negative aspects of social media and cell phone use in emerging adults: The role of personality

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Social media and cell phones are almost universally used by young people in modern societies, but their use can be problematic. The present study investigated the role of the Big Five personality traits in the occurrence of selected negative aspects of social media and cell phone use in emerging adults. The participants were 459 Slovene emerging adults, aged from 18 to 29 years (68% female). They provided self-reports on their personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience), social media addiction, cell phone addiction, phubbing (snubbing others because of phone use), creeping (lurking, snooping or passive social media use) and catfishing (adaptation of one's identity on social media). Problem behaviors associated with social media and cell phone use were relatively common among Slovene young people, except catfishing. The behaviors under study were negatively related to age, while social media addiction, cell phone addiction and creeping were more prevalent in females than males. The Big Five personality traits uniquely contributed to the negative aspects of social media and cell phone use, over and beyond age and gender. The role of high neuroticism and low conscientiousness seems especially noteworthy. Cell phone addiction and phubbing were also predicted by high extraversion and low openness, while low agreeableness contributed to creeping and catfishing.

## Navigating the waters of individuation in emerging adulthood: A contribution to subjective well-being

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Individuation represents an intra-psychic process of establishing a healthy balance between autonomy and relatedness, which associates with a wide range of positive developmental outcomes. Although the process is multi-dimensional and extends beyond adolescence, it was studied predominantly from a dimension-centered approach and by using adolescent measures with emerging adults. We present a person-centred study on emerging adults' ( $N = 305$ ; 56% females,  $M_{\text{age}} = 22.4$  years) individuation in relation to each parent separately, based on a measure tapping specific issues in the respective period, the Test of Individuation for Emerging Adults – Short. Clustering procedures identified four internally replicable and structurally consistent types across parents, representing current relationship dynamics within parent-child relation-

ships: the individuated-related (32%), the individuated-independent type (21%), the anxious (27% in relation to mother; 17% in relation to father) and the dependent type (20% and 30% in relation to mother and father, respectively). Consistency analysis of cross-parent type membership revealed that about half of the participants currently navigate individuation in relation to their mother and father in a different way. Type membership further contributed to the emerging adults' emotional and psychological well-being measured by Mental Health Continuum – Short Form, suggesting that the individuated-related group feels the happiest and appears to live the most meaningfully, whereas the anxious group fares least well among the four groups. The findings are discussed within the framework of emotionally and economically secure developmental context of Slovene youth.

## Does "OCEAN" make a difference? Separation-individuation in relation to mother and personality traits among Austrian emerging adults

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Separation-Individuation (S-I) in regard to parents is a key developmental task of becoming adult, which has been prolonged into the emerging adulthood period in Western-type societies. Previous research, using a dimension-centred perspective, portrays aspects of personality, represented by the Big Five dimensions, as predictors of several aspects of separation-individuation (S-I) in relation to parents [Zupančič & Kavčič, *Journal of Adolescence*, **37**, 721 (2014)]. In contrast, this contribution presents Austrian results on emerging adults maternal S-I and personality using a person-centred approach. Participants ( $N = 440$ , 63.5% female), aged from 18 to 29 years ( $M = 23.8$ ;  $SD = 3$  years), provided self-reports using an online-survey on the Individuation Test for Emerging Adults (ITEA-S) [Komidar et al., *Journal of Personality Assessment*, **98**, 503 (2016)] in its German version, NEO Five-Factor Inventory (NEO-FFI, short German version) [Körner et al., *Psychotherapie, Psychosomatik, Medizinische Psychologie*, **8**, 238 (2008)] and socioeconomic background variables. Using clustering procedure based on aspects of S-I in relation to mother we found four qualitatively different types: "dependent" (29%), "anxious" (21%), "individuated-related" (29%), and "individuated-independent" (22%). Types turned out to be similar to findings of previous research with Slovene emerging adults [Kavčič & Zupančič, *Journal of Youth Studies*, published online (2018)]. Furthermore, these types differ in perceived personality traits regarding the Big Five: we found a tendency in extraversion and significant differences regarding the remaining dimensions (detailed findings will be presented). Although partial eta squares are relatively low to moderate, findings suggest that personality has an important role regarding S-I in relation to the mother.

## Personality and individuation in relation to mother shaping emerging adults' subjective well-being in Slovenia and Austria

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Previous studies showed that personality traits and individuation in relation to parents independently contribute to emerging adults' subjective well-being, and so do the traits predict individuation. We thus tested path models proposing both direct and indirect effects (through dimensions of individuation in relation to mother) of the big five personality traits (and background characteristics) on young people's emotional, psychological, and social well-being. We considered samples from Austria ( $N = 401$ ; 64.3% female;  $M_{\text{age}} = 23.87$  years,  $SD = 3.04$ ) and Slovenia ( $N = 494$ ; 57.3% female;  $M_{\text{age}} = 22.30$ ,  $SD = 2.49$ ), the geographically close EU countries sharing some common cultural backgrounds. Participants offered self-reports on their background characteristics, personality questionnaire (the NEO-FFI-30), the Individuation Test for Emerging Adults – Short and the Mental Health Continuum – Short. Data in both countries suggested a good fit to the adjusted mediation models. Personality and background characteristics shaped subjective well-being directly and/or indirectly through dimensions of individuation, which also showed direct relations to well-being. Seeking maternal support and self-reliance mediated the effect of several background characteristics and personality traits on psychological well-being. In Slovenes, support seeking also mediated those influences on social well-being, whereas perceived maternal intrusiveness mediated the effects on emotional well-being. Our findings emphasize a complex role of emerging adults' individuation in shaping their subjective well-being, which tends to be sculpted by culture.

## New developments in wisdom research at the University of Klagenfurt

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This symposium gives an overview of wisdom research that is currently taking place at the department of Developmental Psychology at University of Klagenfurt. In several different research projects, we are investigating various aspects of the development of wisdom, how wisdom can best be measured, and how wisdom manifests itself in real-life contexts. In this symposium, four researchers are going to present their current research projects. Judith Glück investigates professional wisdom as defined by teachers and managers. Dominik Holzner studies what makes a decision wise. Eva Beichler investigates how wise individuals navigate and appraise positive and negative everyday situations. Irina Auer-Spath looks at what wise and less wise people consider as most important for a good relationship. Wisdom research is a fast-growing field in psychology, and we hope to get some audience members interested in joining us in this exciting research endeavour.

### Professional wisdom: Wisdom and non-wisdom memories of teachers and managers

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Most wisdom research has focused on wisdom with respect to personal life problems, while relatively little work has looked at wisdom in professional contexts. We believe that organizational and situational constraints can limit individuals' ability to act wisely. For a first test of this hypothesis, we investigated autobiographical memories of teachers and managers, two groups that are often viewed as in need of wisdom but differ markedly in control over their work. A sample of 24 teachers and 15 high-ranking managers were interviewed about professional situations in which they did and did not act wisely. Responses were content-coded for wise and unwise behaviors and situational and personal factors contributing to the wise or unwise behavior. Results showed that unwise behaviors often involved ignoring divergent perspectives, overconfidence, and lack of empathy. Situational factors predicting these differences including role pressures, limited time, and competition; personal factors included overambition and lack of experience. The implications of the results for ways to foster wisdom in professional contexts are discussed.

## How wise people make difficult decisions

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Up to now, wisdom has mostly been conceptualized as a more or less stable trait. Recent research, however, suggests that wisdom is context-dependent – most of us have done a few wise things in their lives, and even highly wise individuals may sometimes act unwisely. My research focuses on characteristics of wise decisions. In a first study, 64 participants were interviewed about decisions from their own life that they considered as wise. Content analyses showed that participants generally talked about decisions that had led to a positive outcome, but they also considered aspects of the process of decision-making as relevant for a wise decision. In a second study, 188 participants judged vignettes about a politician's decision, in which three aspects were varied: whether the politician's main goal was his reelection or the well-being of his community, whether he based his decision on in-depth thinking or a gut feeling, and whether he chose adequate or inadequate means to realize his decision. Results showed that only the first factor – reelection vs. common good – influenced participants' wisdom judgments. In sum, these results yield interesting insights about laypeople's beliefs about wise decisions. Consistent with wisdom theories, wise decisions are assumed to aim for a common good. Inconsistent with some theories, wise decisions are not necessarily based on in-depth conscious reflection. These findings are discussed with respect to theories of cognitive life-span development.

## Wisdom in real life: How wise individuals experience daily uplifts and daily hassles

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There is an ongoing discussion in psychological wisdom research about the question whether wiser individuals are happier than others, due to their superior emotion-regulation skills, or less happy because of their higher degree of awareness of the negative sides of life. Recent research on resilience suggests that the ability to appreciate and savour the good things in life may be as important to living a good life as the ability to manage the difficult things. This study investigates how wise and less wise individuals experience and deal with daily hassles and uplifts. Using a daily-diary method, 52 participants recorded positive and negative experiences and their emotional reactions to them twice a day for one week. The same participants had completed several self-report and performance measures of wisdom in an earlier study. Wiser participants reported the same number of daily uplifts but fewer daily hassles than less wise participants. Consistent with research on psychological resilience, wiser participants more often reported low-arousal positive emotions. Thus, wiser individuals seem to be better able than others to savor daily uplifts and deal constructively with daily hassles.

## "There is no perfect": Wise people's beliefs about good relationships

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Human beings are social entities – our development occurs within and through interactions with other people. Thus, it seems likely that relationships influence the development of wisdom, especially long-term romantic relationships in which couples share many important life experiences. The extent to which romantic partners influence each other's wisdom development has received little attention in the research literature. To take a first step towards addressing this deficiency, this study analyzed associations between participants' levels of wisdom and their views of a good relationship. A sample of 155 individuals aged 23–90 years participated in two sessions including semi-structured qualitative interviews and questionnaires. They were interviewed about their views of a good relationship. Wisdom was measured using a self-report scale and two open-ended performance measures. The results showed significant relationships between wisdom and participants' views about a good relationship. Wise people were more likely to see their relationship and their partners as a source of development and to emphasize the relevance of mutual respect and conscious attention in relationships. Furthermore, wiser people were more likely to show dynamic views of relationships and to accept negative aspects and occasional imbalances. These results support our view that wisdom is related to how participants regulate long-term relationships. We consider them as a first step in a research program investigating the dynamic interrelation between wisdom and relationships.

## Bullying and cyberbullying – antecedents, consequences, and solutions

Chair:

András Láng

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Bullying and cyberbullying are among the most important mental health issues for school aged children and adolescents. The relationship of bullying and psychological competencies and characteristics are interrelated. Deficits in social and emotional competencies can lead to becoming a perpetrator or a victim of bullying, while being a bully or a victim can hinder the development of age-relevant psychological domains. However, from a broader perspective not only individual differences but systemic variables also play a role in bullying. School environment and especially teachers are extensively formative for bullying incidents. The four studies presented in this symposium address different levels of bullying. In the first presentation, the main developmental task – identity formation – and its association with peer victimization will be investigated. The second study will focus on the differences between bully-victims, victims, and outsiders in their social and emotional competencies. The third presentation will address the narrative characteristics of stories about physical and non-psychical bullying incidents, while the fourth study will investigate the relationship between bullying history and attitudes towards bullying in trainee teachers. Results of the studies showed that peer victimization was associated with a more diffuse identity, and cyberbullying and cybervictimisation were both associated with deficits in social and emotional skills. Further, students used more mental state attribution in reporting verbal bullying (vs. physical abuse), and retrospective reports of being a bully were related to less favourable attitudes towards victims. All studies being cross-sectional, one question remains open – what is the direction of causation?

### Identity formation and peer victimization in adolescence

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The victimization by peers has consequences for adolescent's psychological health and development. The aim of this study was to investigate the relationship between identity formation and traditional bullying. One hundred twenty-nine adolescents (64 male, 65 female) participated in our study. Participants were 14 to 19 years old ( $M = 16.48$ ,  $SD = 1.07$ ). Identity development was measured with Assessment of Identity Development in Adolescence scale (AIDA), alexithymia was measured with Toronto Alexithymia Scale (TAS-20). To measure adolescent's empathy we used the Empathy Questionnaire for Children and Adolescents (EmQue-CA). To measure ten-

dencies to bully others and to be victimized by others, we used The Bullying Prevalence Questionnaire (BPQ). Results showed a relationship between identity diffusion including all of its subscales and victimization. There was a link between the lack of autonomy and self-worth and tendency for bullying others. Results showed also a significant relationship between victimization and difficulty in identifying emotions and affective empathy. For examining which of the above variables have an impact on victimization, regression analysis was used. The linear combination of two subscales of identity diffusion, the Relationships and roles and Consistent self image have a significant impact on peer victimization ( $R^2 = .28$ ,  $F(1, 126) = 24.69$ ,  $p < .05$ ). Our results reflect on the impact of adolescent identity formation on victimization in peer relationships. The relative lack of consistent self image and the lack of identity-stabilizing feeling of social affiliation were the most prevalent features of the victims.

### Cybervictimization and cyberbullying: The role of social and emotional competencies

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Social and emotional competencies are considered to have a crucial role in cyberbullying. The aim of our study was to examine the relationship between socio-emotional skills (empathy, emotion regulation, moral disengagement) and cybervictimization/cyberbullying. Five hundred twenty-nine students (216 male, mean age = 15.72 years,  $SD = 1.24$ ) participated in our research. The study consisted of the following questionnaires: the short version of the Cyber Victim and Bullying Scale was used to determine students' role in cyberbullying, the Cognitive Emotion Regulation Questionnaire to measure explicit emotion regulation strategies, the Cyber Bullying Moral Disengagement Scale and the Empathy Questionnaire for Children and Adolescents. ANOVA was conducted to determine whether victims, bully-victims and students not involved in cyberbullying differ in socio-emotional skills. The results demonstrate that bully-victims are characterized by moral disengagement while they scored very low on affective, cognitive and prosocial empathy. Victims scored the highest on every aspect of empathy compared to bully-victims and outsiders. Furthermore the results show that both adaptive and maladaptive emotion regulation strategies (self-blame, rumination, acceptance, positive refocusing and planning) characterize the victims. According to linear regression models, cyberbullying perpetration is determined by moral disengagement, additionally cybervictimization is predicted by self-blame. A pattern of socio-emotional skills underlying cybervictimization and cyberbullying is demonstrated by our study. Furthermore, based on our results a prevention program can be developed targeting empathy and emotion regulation.

## Understanding the difference between physical and non-physical peer bullying: Mixed Methods Research

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The systemic approaches of bullying investigation put the whole school community in the focus of attention and propose that the solution should emerge from the culture of the school. For combating exclusion, it is important that the bystanders realize they have the power to take action. Students must believe that their environment is able to provide safety and non-physical violence is just as harmful as physical bullying. This study investigates the difference between the narratives of physical and non-physical bullying by examining the content and the mental state attribution. Data collection contained responses of 138 students from three different areas of the country (Budapest, Martfű and Barcs), where the mean age was 15 years ( $SD = 0.61$ ). The test battery included Bullying Prevalence Questionnaire, Interpersonal Reactivity Index, and an instruction whose effectiveness was tested during a pilot test. The results obtained with IBM SPSS, Atlas.ti and Iramuteq are in line with the findings of previous research: the narratives of the pupils represent their schemas about bullying and how these group dynamics can be solved or escalated. Students use more mental state attribution when they report verbal bullying than in case of physical abuse. This is in consonance with the findings of elaboration studies: those who witness physical harassment also witness concrete answers to the problem from teachers, in contrast non-physical abuse often stays without consequences and normative explanations.

## Trainee teachers' attitudes towards bullying: the role of recalled parental bonding and history of bullying

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Bullying is a major mental health issue in schools. Because this form of peer aggression is highly prevalent in schools, teachers are key persons in handling bullying incidents. Until now, relatively little research has addressed this problem from a developmental perspective. The aim of this study was to reveal the relationship between recollections of bullying and victimization and current attitudes towards bullying. Two hundred nineteen students of University of Pécs (60 males and 159 females) with an average age of 20.53 years ( $SD = 1.98$ ) completed three self-report measures: (1) the retrospective form of Bullying Prevalence Questionnaire that measured the recalled frequency of bullying, victimization, and prosocial behaviour in school; (2) s-EMBU that measured memories of paternal and maternal emotional warmth, rejection, and over-protection; and (3) the Pro-Victim Scale that measured positive (unjudging) attitudes towards the victims of bullying. All participants were in the teacher training program. Correlations and regression analysis showed that those who reported higher frequency of being a bullying perpetrator had a more judging (negative) attitude towards victims. Parental bonding was not associated with pro-victim attitudes. In the light of current study's results, teacher training curricula should address students' history of bullying to form their attitudes towards peer aggression in schools.

## Aspects of financial socialization and financial behavior

Chair:

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Many young people in Western-type societies postpone overtaking adult roles in their third decade of life. Although perceived self-reliant independent living is highly important among emerging adults, longer educational pathways make it harder to reach this key developmental task early in life. Additionally, results of international surveys [*OECD/INFE International Survey of Adult Financial Literacy Competencies*, 2016] show a low level of financial literacy in terms of financial knowledge, attitudes and behavior, among many Europeans. The symposium deals with financial socialization focusing on parents' role shaping their children's financial knowledge, skills and attitudes through modeling, reinforcement, and teaching. The contributions present findings from three European countries using different methodology: The Austrian mixed method study (focus groups, quantitative survey) deals with financial socialization of parents within adolescents from secondary schools (10 to 14 years). The second paper uses conceptual framework by Shim et al. [*Journal of Youth and Adolescence*, **39**, 1457 (2010)] to test associations between different aspects of financial socialization and important outcomes among fresh(wo)men in Austria and Slovenia. The third study investigated qualitative data on saving money habits and reasons for saving money among Slovene fresh(wo)men and their parents. The fourth presentation provides three different perspectives regarding financial socialization in Italian families (mother, father, emerging adult), family financial enmeshment and financial well-being (mediated by parents as a role model). In sum, the symposium offers the possibility to discuss the influence of different macro-systems on financial socialization.

## Pocket money and financial socialization in 10- to 14-year-old students

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Parents, educators and peers play a significant role in children's financial socialization. A way to teach children how to deal with money is to give them pocket money, and there is evidence that pocket money practices play an important role in the development of financial literacy. Most studies examine financial socialization retrospectively in high school or college students but little is known about the financial socialization of younger students. Against this backdrop, we carried out a mixed-methods study to explore the social pro-

cesses that contribute to developing financial literacy in Austrian students attending secondary level 1. In the first step, we conducted four focus groups ( $N = 30$ ) with students aged 10–14 from different types of secondary schools. The results indicate that neither parents nor teachers talk to the students about finances frequently. Moreover, there seem to be differences in pocket money practices and financial socialization depending on age, gender and socioeconomic background. Building on the focus groups, we developed an online survey dealing with pocket money practices, savings behaviors, and financial socialization by parents, teachers and peers. At the time of the conference, we will have collected data from more than 2000 Austrian students attending secondary level 1 in different types of schools. We will analyze differences in pocket money practices and financial socialization depending on age, gender, socioeconomic background and school types. Based on our findings, we will discuss how schools can help their students become competent participants in the economy.

## Pathways towards healthy financial functioning: Slovene and Austrian fresh(wo)men's financial socialization

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Financial independence is an important developmental task of emerging adulthood. Its successful resolution is also perceived as key to achieving adult status in Slovenia and Austria. Along with adequate opportunities within a given macro-system, gaining financial independence requires financial knowledge, skills and healthy financial behavior. Shim, Barber, Card, Xiao, and Serido [*Journal of Youth and Adolescence*, **39**, 1464 [2010]] provided a conceptual framework to explain the relationships among financial socialization, literacy, behavior, relationship with parents, and satisfaction with money management, which they supported in the US fresh(wo)men. As research in the financial domain of emerging adults' functioning has been predominantly conducted in the US, studies with European emerging adults are warranted not to overstate the findings across different macro-systems. Therefore, we tested a part of Shim's et al. Model of Financial Socialization Processes in Slovenia and Austria. We focused on factors of financial socialization within the family in predicting fresh(wo)men's (SLO:  $N = 500$ , 55% females; AUT:  $N = 409$ , 71% females) financial behavior, relationship with parents due to financial matters, and satisfaction with personal money management. The participants responded to an online self-report survey. The results of the model testing indicated a few modifications of Shim et al.'s conceptual Model of Financial Socialization Processes, suggesting country specific influences on fresh(wo)men's financial functioning.

## Reasons for saving money in Slovene fresh(wo)men and their parents

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Saving money represents an important aspect of positive financial behavior. Along with spending money within the budget and financial planning, saving money influences financial satisfaction, which in turn predicts satisfaction with life. Financial socialization towards saving money mostly takes part within families through learning based on parental financial behavior and teaching. Since financial independence is an important criteria of adulthood and one of the key markers of successful transition to adulthood, we were interested in emerging adults' and their parents' saving behavior. We collected data among Slovene fresh(wo)men ( $N = 515$ ) and their parents ( $N = 500$ ). They were asked whether they save money and about their reasons for saving money. First, we formed a category system, separately for parents (10 categories) and students (8 categories), and reached a high inter-rater reliability; 63.7% of fresh(wo)men and 62.2% of parents saved money for specific purpose. Associations between students' and their parents' saving behaviors were moderate, and relationships between parents' and students' reasons for saving money were modest, though statistically significant. Both parents (26.0%) and students (26.8%) reported on long-term financial goals, and financial security in the future (21.3% students; 27.0% parents) as an important reason for saving. The third reason in both groups were short-term financial goals (20.7% students; 15.8% parents). Student-specific category was financial independence (10.0%), whereas saving for other family members (13.3%) and retirement (4.8%) were parent-specific categories.

## Investigating the emerging adults' family financial socialization using the multiple informant methodology

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The family financial socialization is the process by which parents teach to the child values, attitudes, standards, norms, knowledge, and behaviors that contribute to the financial viability and well-being. According to Gudmunson and Danes [*Journal of Family and Economic Issues*, **32**, 644 (2011)], this socialization process can happen on two levels of intention: implicit (e.g., quality of parent-child relation) and purposive (e.g., family discussion about financial healthy behavior). This study aims to test how two implicit socialization factors (i.e., parent-child communication and family financial enmeshment) affect the child's financial well-being (measured as subjective financial well-being, personal income, and economic dependence from parents). Furthermore, the mediational role of the degree to which child decides to consider his/her parents as financial model was tested. Data has been collected from 160 Italian families with an emerging adult child (19–29 years old;  $M = 22.82$  years,  $SD = 2.39$ ). In order to take into account the perspective of each family member, data related to the family financial socialization process were collected from mother, father, and the child and analyzed using according to the multiple informant methodology. An SEM model was run with Mplus software,  $\chi^2(335) = 453.66$ ,  $p < .001$ , SCF = 0.94, RMSEA = .047 (.035–.058),  $p = .66$ , CFI = 0.92, SRMR = 0.10. Findings showed that a positive parent-child communication increases the degree to which the child imitates his/her parents from a financial point of view. This, in turn, increases the child's subjective financial well-being and the economic dependence from parents. The family financial enmeshment has instead a negative and direct impact on the personal income.

## Understanding driving – Looking back, looking around, looking forward

Chairs:

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Driving is a complex everyday activity influenced by many factors such as gender, age, personality, fatigue, secondary tasks (e.g., mobile phone use) and stress. Although research in the past decade has built a foundation for understanding driving performance and safety, the literature remains largely fragmented with no clear indication of what characterizes a “good” driver. Especially, methodological advances are needed to understand what factors are most salient. As most studies are still focused on self-reported driving performance, simulator-based and real driving observations are a necessary future step. The present symposium will strive to disseminate knowledge on advances in driving research. It will look back at previous research on all major factors of driving safety. Additionally, driving research will be presented by “looking around” at approaches from fields other than psychology. Empirical research based on simulator-based or real driving studies will be included as well. As technological advancements and the emergence of automated driving have turned the attention away from the person operating the car to the car itself, this symposium will conclude with a discussion about the role of psychology in driving research and will provide an agenda for future studies in traffic psychology.

## Detection-response task – assessing the attentional effects of driver’s cognitive load

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The Detection-response task (DRT) is an ISO standardised method for assessment of driver’s cognitive load and its effect on driver’s attention, due to use of different in-vehicle information systems (IVIS). It is based on driver’s response times and stimuli detection. With this method, the driver is presented with either visual, tactile or auditory 1-second-long stimuli in random time intervals ranging between 3–5 seconds. The driver’s task is to respond to the presented stimuli by pressing a button attached to his/her finger. Response times and hit rates are considered as indicators of increased cognitive load and its effect on attention. Response times are defined as the time from stimulus onset until the driver’s response (button press). Hit rates are defined as the ratio of correctly answered stimuli (response times from 100 ms to 2500 ms) out of all presented stimuli. Due to its simple and relatively low cost implementation, this method has gained a rise in popularity in recent years among the automotive research community. The methods usability has increased also with the introduction of different stimuli modalities, which allow

use in different testing environments and evaluation of different IVIS (input and output information modalities). With correct implementation, appropriate stimuli modality selection and taking into consideration the method’s limitations, DRT can be used for simple and reliable detection of the attentional effects of driver’s cognitive load.

## How does a telephone call affect driving and the driver? A user study

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When operating a vehicle, the driver’s primary task is safe driving. Nevertheless, drivers often engage also in different secondary tasks while driving, such as interaction with an in-vehicle information and infotainment system or use of a mobile device. Although humans are capable of performing two or more tasks at a time, when these tasks rely on the same attentional resources and cognitive resources, the performance of one (or all) of the tasks can be degraded. To explore the effects of performing a phone call (using hands free or holding a phone), as a common secondary in-vehicle secondary task during driving, the Slovenian Traffic Safety Agency in collaboration with University of Ljubljana and NERVtech, performed a user study in a driving simulator with 36 participants, where it was observed how a telephone call affects driving performance and the driver. Driving performance was observed through changes in speed, acceleration, lane deviation, reaction times, safety distance, following traffic rules and collisions involvement. To observe the effects of a phone call on the driver, changes in galvanic skin response (GSR), skin temperature, response times, eye gaze and other pupillometry was measured. The results were very similar for talking on a classic mobile phone and using a hands free device for all of the measured parameters. The results for driving performance did not show any statistically significant changes in keeping safety distance, and the average and standard deviation of speed. Significant changes were found in the mean acceleration, lane deviations, and response times in trials with a phone call compared to only driving. Also, the driver’s mean skin temperature and galvanic skin response (skin conductance) increased, response times decreased statistically significantly, and there were signs of present visual tunnelling for trials with the phone call. Based on these results, we can speculate that although the overall driving performance can remain the same, the drive has more sudden accelerations and breaks. Additionally, based on the biometric data, it can be concluded that talking on the phone while driving can negatively affect the driver’s state and visual attention. The fact that there were no significant differences in the effects on the driving performance and the driver between trials with hand-held mobile phone and using a hands free device can indicate that the negative effects of phone calling

are a result of increased mental load and not due to manual distraction caused by holding the phone. To make more detailed and reliable conclusion, the study should be repeated with a bigger number of test participants.

### **Reaction times and cognitive load in drivers: The lifespan perspective**

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The main aim of the study was to inspect the impact of cognitive load on reaction times in drivers throughout the lifespan. The study was carried out in a real driver condition on a practice track rather than on a simulator. The drivers' ( $N = 351$ , age 20–80 years) task was to drive between the road cones and, when signaled to, carry out a full stopping manoeuvre. The participants performed one practice and two experimental trials; the cognitive load was manipulated. The results showed that both mean reaction times and variability increased progressively with age, with the increase being greater in the high cognitive load condition. The results also showed that the drivers age 65+ are heterogeneous group in terms of driver performance. Practical and theoretical implications are discussed.

### **Predictors of driving performance and driving behavior: Towards a synthesis**

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Globally, there are approximately 1.25 million driving-related deaths every year, making road traffic injuries the ninth leading cause of death across all age groups and the main cause of death among young people. While years of research have certainly resulted in many findings which could help us mitigate the problem, they are often fragmented, lacking a clear synthesis. As a result, it is first difficult to outline the main predictors of risky driving in the general population and correspondingly find high-risk groups. Second, it is even more troublesome to develop appropriate interventions. As such, the present study aims to investigate the role of diverse psychophysiological variables in the prediction of different driving-related outcomes in the general population. Specifically, in an attempt to create a comprehensive review of the existing literature, we focus on five groups of predictors: demographic variables, cognitive abilities, personality, sociopsychological variables and physiological variables. We then pair these predictors with two relatively independent outcomes – driving performance/skills and driving behavior/style. Overall, the combination of 104 distinct keywords and two citation databases (Web of Science and Scopus) resulted

in 13,488 hits which are currently being screened to eliminate duplicates, non-English articles as well as non-original articles, and will be screened for relevance in the next step. Our work contributes to the existing body of literature in many ways, mainly by organizing the existing literature and systematically reviewing the methods and findings related to a wide array of different psychophysiological predictors as well as driving-related outcomes.

### **Attentional network functioning and simulator driving performance**

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Driving is a demanding multi-factorial task influenced by many psychological factors, especially by cognition and attention. Previous research has shown that driving outcomes are associated with performance on executive functioning tasks and measures of attention. In the recent years, the human attention network model has gained attention in driving research. The model postulates three attentional networks; alertness (achieving and maintaining high sensitivity to upcoming stimulus), orienting (selection of potentially relevant information from sensory input) and executive control network (mechanisms for resolving the cognitive conflict). To date, however, the role of each specific network in driving performance is not clear. The aim of this study was to investigate how these functions of attention are related to driving outcomes in driving simulator. A newer version of ANT task, the ANTI-Vigilance task (ANTI-V), which additionally provides a direct measure of vigilance, was applied prior to driving in a simulator. A total of 48 participants with a driving license participated in the present study and were exposed to four driving scenarios of different complexity. The preliminary analysis indicates that performance on ANTI-V task can be used for predicting several driving outcomes (e.g. speed and winding), but only in certain driving scenarios. Future studies are needed to determine the role of cognitive functioning in more and less demanding driving situations.

## Social (networks): virtual and/or real?

Chair:

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Since the beginning of involvement of psychology in the research of computer-mediated communication (CMC) there is a continuous debate about specific psychological characteristics of CMC and consequent conclusions about the authenticity in a virtual environment(s) comparable to real-life settings. Is our virtual self the same as our real one? Can the conclusions from the virtual be adequate to the real-life situations? Do activities and dynamics in virtual have considerable impact to our everyday lives? With the emergence of online social networks (OSN) and enormous popularity of its use in everyday lives these questions have gained new considerations and accelerations. The present symposium will highlight these questions from the diversity of perspectives and contexts – from the perspective of selfies as distinctive characteristics of CMC in OSN, especially in relation to the process of impression formation; from the perspective of OSN in relation to self and personal relations in the specific context of educational settings; and from the perspective of psychological targeting and personalized advertising.

### How are we motivated to take selfies

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Pervasive nature of mobile appliances with integrated camera and simplicity of online photo sharing made a camera as one of the top ten features of mobile phones. Users of photo sharing platforms like Instagram and Facebook share enormous amounts of photos. Recently, specific type of photograph gained high popularity, which is self-photograph or selfie. In a field of psychology, popularity of selfies initiated different research paths concerning this behaviour. The topic proved to be complex and not related only to narcissism as a source of the phenomenon. People make selfies as a self-reflection activity and to rise their body awareness, to present themselves and to communicate with others. Additionally, archiving, entertainment and attention seeking are the main aims of selfie taking and posting behaviour. In our research, referring to the Self-Determination Theory (SDT), we disentangled study of selfie motivation from antecedents or consequences of the selfie taking/posting. Therefore, our main research question was how people are motivated to take and post selfies. Participants were Slovene speaking persons recruited in public spaces by trained interviewers, when the interviewer spotted a person taking a selfie. We looked for all types of motivations from intrinsic to all categories of extrinsic motivation. According to different theorised levels of motivation in SDT, we were focused on situational motivation in situations which are part of leisure activities. Additionally, matching a mediating role of basic psychological needs for motivation, such as autonomy, competency and relatedness, we explored correlations between perceived need satisfaction and motivation.

## Selfie and impression formation: Picture or textual context?

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Selfies are quite a common element of online communication, but despite their popularity, they are the ambiguous tool of social interaction. From one perspective, they illustrate motives and intentions of selfie makers, but from the perspective of the receiver(s), attributions of the motives and intentions of the selfie author can be quite different. Research on selfie motivation yield three major reasons why people make and post selfies. First, people share selfies to communicate with others about their activity and whereabouts; second, people use selfies to present the best version of themselves; and last, selfie makers have a need to capture and store experiences. From the receiver's perspective, research on selfie impressions found that authors of selfies are perceived as narcissistic, extraverted and open for new experiences. Research also found that perceived author's intention for posting a selfie, in most cases, is some kind of self-promotion. In our research, we combined both perspectives and were interested in how different contexts affect impression formation of a selfie. We used Holiday et al. [*Visual Communication Quarterly*, **23**, 175 (2016)] classification of selfie archetypes and motivations to write three different contexts, which were presented randomly with the male or female selfie. Participants were then asked to complete survey battery comprised of scales from the domains of interpersonal attraction, Big Five personality structure and narcissism. In the analysis, we answered the main research question, whether selfie as an auto-portrait picture is dominant in the process of impression formation or (textual) contextual cues have a significant impact on this process.

### Can I not be on Facebook and still be accepted in the classroom? The relationships between early adolescents' Facebook usage, classroom peer acceptance and self-concept

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In recent years, a part of adolescents' peer interactions has gone online; especially social network sites (SNS) provide a platform for adolescents to develop personal and social identities. Since studies have shown that adolescents use Internet communication and networking tools predominately for communication with existing friends, it is reasonable to assume that students' participation in social networking sites has an impact on establishing their classroom peer relations and – in interaction with their offline peer interactions in the classroom – co-creates their self-perceptions of their social standing within their peer group. The present study was designed to explore the relationships between classroom peer relations, self-concept, and the use of social networking sites

in early adolescents. The differences between Facebook users and non-users in their (teacher-assessed and sociometric) classroom peer acceptance and the peer relations, academic and global self-concept were investigated. In addition, the incremental predictive power of students' Facebook usage indicators for their peer relations self-concept beyond their actual classroom acceptance was tested, as well as the moderating role of early adolescents' gender classroom peer acceptance in the relation between Facebook usage and peer relations self-concept. Early adolescents ( $N = 404$ , 47.3% males, 82.9% Facebook users) participated in the study. No differences were found between users and non-users in their social preference, teacher-assessed peer acceptance, and academic and general self-concept. However, Facebook users reported significantly higher peer relations self-concept. No significant differences were found between Facebook users classified in different sociometric groups. Measures of Facebook usage explained incremental variance in peer-relation self-concept beyond classroom peer acceptance measures. In addition, a significant interaction effect between emotional connectedness to Facebook and gender was found; being highly emotionally connected to Facebook was beneficial only for girls' peer relations self-concept. These results contributed to the understanding of the commonalities and differences in Facebook and classroom connectedness.

### **Social acceptance of high school students in classroom and on Facebook**

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Peer relations contribute to emotional and social development and are therefore of great importance for students. In those relations, students satisfy the need to belong. With the growth of popularity of social media, students are satisfying this need not only in classrooms but online as well. The aim of the present study was to examine the relationship between social acceptance in classroom and social acceptance on Facebook. We operationalized social acceptance as social preference and as sociometric status. First, it was examined whether intensity of Facebook usage, time spent on Facebook, and social preference in classroom predict social preference on Facebook. Second, we examined the relationship between sociometric status in classroom and sociometric status on Facebook. Facebook intensity scale (FBI) and two versions of sociometric test (with regard to peer relations in the classroom and on Facebook) were used. The participants were 188 high school students, 117 females (62.2%) and 71 males (37.8%), between 16 and 19 years of age. The results have shown that social preference in classroom significantly predicts social preference on Facebook and that there is a positive moderate correlation between sociometric status in classroom and sociometric status on Facebook. These results have shown that it is important to implement preventive strategies in classrooms and online, especially for students, who are rejected and/or are victims of bullying.

### **Is psychological targeting a useful approach to social marketing? The effects on cognitive outcomes as well as attitudes, perceived behavioral control, and behavioral intention**

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Social media such as Facebook offer many opportunities for effective mass communication. Many such opportunities are being successfully used by marketing companies, while scientists and policymakers – who could use these same principles to educate the public and encourage them to act in their best interest – are lagging behind. A recent approach that has emerged in the literature and has been shown as beneficial in the context of commercial marketing is psychologically tailored advertising, whereby a communicator matches the content of the message to individuals' characteristics. In the present study, we extend the study of psychological targeting to the context of social marketing and evidence-based policy communication. Specifically, we focus on three diverse topics (flu vaccination, dementia prevention, and carbon footprint reduction), and match the content of Facebook posts to fit individuals' extraversion, openness to experience or both – individuals' extraversion and openness to experience. In a laboratory experiment, we test the cognitive mechanisms by which psychological targeting could lead to positive outcomes such as attitude change, namely: attention (captured by the eye-tracker), memory (a computerized recognition task), and general liking of presented materials (self-reported). An online experiment then shifts the focus to the main outcomes that will further illuminate the effectiveness of psychologically targeted social marketing efforts: change in attitudes, perceived behavioral control, and behavioral intention. This study contributes to the scarce body of literature on psychological targeting in several ways, particularly by testing it outside of the realm of commercial marketing, manipulating the degree of personality-message congruency, and exploring the cognitive mechanisms behind the phenomenon.

## Individual oral presentations

### Clinical and health psychology

#### The effects of family support and offspring quality on mothers' mood after delivery

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According to evolutionary theory, a mother constantly evaluates the costs and benefits of investing in her offspring. The circumstances affecting mother's investment in a child are, among others, insufficient investment from important others, problems with pregnancy, birth, or low infant's viability, that are reflected in their moods after birth. Accordingly, the aim of this study was to examine the effects of perceived family support, infants' Apgar scores at one and five minutes following birth (Apgar 1 and Apgar 5), and interactions between family support and Apgar scores on various negative and positive moods measured before and after infants' birth ( $N = 150$  women). The results showed that after controlling for mothers' moods before the birth, both Apgar scores negatively predicted only mothers' depressive mood, but not overall negative mood, some specific negative moods (rejection, anger and fear) or any positive moods (overall positive mood, joy, acceptance and activation). Family support negatively predicted all negative moods even after controlling for the same moods before birth, but it did not predict any positive moods. Additionally, an interaction between family support and Apgar 1 on mothers' depressive mood was found, showing the highest depressive mood in mothers who had lower family support and infants with lower Apgar 1. Despite several main and interaction effects of independent variables on other moods, our results corroborated the hypotheses that the perception of inadequate social support and lower offspring fitness, as well as their interactions, longitudinally predict only higher mothers' depressive mood.

#### Psychological factors underlying vaccine hesitancy

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One of the greatest public challenges today is suboptimal vaccination uptake, largely due to vaccine hesitancy (VH). VH is related to a range of psychological and demographic determinants, and we focus on parents, due to their role as proxy decision makers, in aim to understand those determinants. A number of studies were conducted as part of a bigger international project in 9 countries. In the first, correlational, study we explored demographic and psychological factors related to VH via an online battery. Pilot results in a sample of UK parents show strong correlations between VH and both the intent to vaccinate ( $r = -.88, p < .001$ ) and the vaccination status of their children ( $r = -.76, p < .001$ ), with moderate to strong correlations with a number of related constructs (parents' vaccination status, trust in authorities, experience of freedom ...). In the second, experimental, study we investigated the moderating role of parents' high involvement in vaccination decision making. We expected to find a specific pattern of outcome bias (systematic tendency to evaluate the quality of a decision based on the outcome) in parents (compared to non-parents) and in high- (compared to low-) involvement situations. Outcome bias was registered in a total sample of 49 participants (73% female, mean age 34.88 years), showing participants' tendency to change their rating based on the outcome,  $F(1, 48) = 283.24, p < .001$ , with Cohen's  $d$  effect size coefficients ranging from 0.22 to 1.60 ( $M = .96$ ). With these findings, we hope to create opportunities for parents' concerns to be heard when designing healthcare interventions.

#### The role of protective and risk factors in the coping of amputee patients

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We examined lower limb amputee patients ( $N = 28$ ) with repeated observations in the first (measurement A1) and sixth month (measurement A2) after amputation. We analyzed the degree of anxiety and depression and also those protective and risk factors which may influence the patients' psychological resilient ability, resilience. The batch of questionnaires included the following ones: REM-71, Beck, HADS, Positive and Negative Affect Schedule (PANAS), Connor-Davidson Resilience Scale, SOC-13, Social Support Survey (MOS), Ways of Coping Inventory (WCI-22), and Tennessee Self-Concept Scale. Regarding resilience both anxiety and depression (Beck and HADS) proved to be risk factors with a significant negative correlation between them. This correlation was even more apparent at A2. The Positive and Negative Affect Schedule had a positive relationship with the resilience of all three sub-scales of the PANAS Positive Sub-Scale and the MOS questionnaire, while the Negative Sub-Scale of the PANAS was inversely related. The results obtained confirm the previous literature data that individuals with high resilience tend to report positively on stress, the positive emotions

like enthusiastic, energetic, alert contribute to reducing the negative effects of stress. Anxiety and depression have a negative effect on resilience, but the revealed protective factors may be key to coping with the trauma and to the success of rehabilitation.

### **The Arabic Impact of Event Scale-Revised: Psychometric properties in a sample of Syrian refugees**

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Middle East conflicts have produced a large number of people who suffer from post traumatic stress disorder symptoms. Despite that, there are no short, easily administered self-report validated questionnaire to assess war exposure to post-traumatic stress disorder (PTSD) in Arabic. Only recently has IES-R been translated into “Classical Arabic”, the language used by highly educated populations, which is too difficult for participants grounded in their particular “dialect”. The aim of this work was to validate the Arabic version of IES-R, developed specifically for use in a refugee camp during the Syrian conflict. IES-R is a self-report questionnaire for adults measuring the subjective response to a specific traumatic event. It has 22 items; 7 were added to the original Horowitz IES to better assess the DSM criteria for PTSD: intrusion, avoidance, hyperarousal. The original English version has been translated in Arabic and then back-translated to English. Two hundred eighty-eight Syrian refugees were tested. The results of the confirmatory factor analysis supported a four-factor solution (intrusion, avoidance-numbing, hyperarousal, and sleep disturbance). Bootstrap resampling were applied to assess the overall fit of the competing models. Total IES-R scores of our war-exposed civilians was reliable and symmetrically distributed around the average score of 44.72 ( $\pm 11.87$ ) largely above the best cut-off for a probable diagnosis of PTSD. The average items score of 2.06 ( $\pm 0.54$ ) was similar to values observed in other seriously traumatized groups. In conclusion, the Arabic version of IES-R seems to be a good measure of post-trauma for both research and intervention studies.

### **Content analysis of the national high-school Matura essays with the title “Suicide as an exit from the wheels of the system”**

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School environment represents a good setting for prevention and raising awareness on suicide among adolescents. The latter can be achieved through the literature, with special attention being paid to potential pitfalls (e.g. to cases where suicide

is presented as a possible solution to one’s problems). The aim of the present study was to investigate high-school students’ attitudes toward suicide, mirrored in their national Matura essays on novels *Brave New World* and *Alamut*. In spring term 2017, students had to write essays entitled “Suicide as an exit from the wheels of the system”, in which they were instructed to elaborate why the protagonists committed suicide and to take a stand on their act. In a content analysis of 142 essays, we categorized students’ statements in two groups (attitudes towards protagonists’ suicide and attitudes toward suicide in general) and analysed each statement according to the three-component ABC theory of attitudes (cognitive, affective, behavioural component). The majority of students expressed positive attitudes towards protagonist’s suicide, justifying it with several different reasons. Some of them acknowledged they would act the same way if found in a novel-like situation. Independently of the novel, most students expressed negative attitudes towards suicide. However, a couple of students disclosed their own experience of feelings of hopelessness, suicide ideations and intentions. This indicates that literature can be an effective tool for teachers to discuss suicide issues with students, however, the topic must be approached sensitively. In order to act preventively and intervene appropriately in case of self-disclosure, it is necessary that teachers have specific competencies. It is also important to follow media guidelines for responsible reporting on suicide.

### **Introduction of the Rebuild (Relationship Building Dance) method**

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Dance makes a scenic effect on relationships, but this theme has not known scientific literature yet. Dance is empirically a new way in a couples life to know each other better, to bring the values and strengths of their relationships out and to develop the dyadic communication in a novel, unused language. In the last eight years we have been working with more than 300 couples that were engaged or married, in private classes, from which we developed a unique teaching method. It combines techniques from competitive ballroom dancing and psychological methods as well as exercises, which proved to have a great impact on development and conformation of relationships. During the personal work with the couples (which lasts 6–8 weeks) we use relationship building tasks alongside the dancing instruments which are serving the progress of communication, conflict resolution and intimacy. The assessment of our method’s impact is now work in progress – we compiled a test kit (questionnaires of intimacy, personality, relationship satisfaction and investment) and gathered quantitative data for statistical analysis beside the anecdotal, qualitative evidences and feedbacks we got so far. Our method is preventive-educative: its goal is enriching, building and preserving relationships and marriages, but later on, working together with family- and couple therapists, it could be applied in therapeutic field for saving relationships in crisis and helping couples to solve problems.

## Cognitive psychology 1

### Grapheme-color association in Serbian: case of bi-orthographic language system

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The case of Serbian language is unique: it is a spoken language with two discrete, but partially overlapping scripts – Cyrillic and Latin. Some letters only occur in one script, others appear in both where they always represent a single sound, and a small handful of letters represent different sounds when they appear in each of the scripts. Using the color array from the World Color Survey, each letter from a single script was presented on the screen, and participants were asked to select the color that ‘goes best’ with the letter. Thus, the aim of this study was, firstly, to compare the frequencies of colour-letter preferences in Serbian to the one from World Colour Survey, and secondly, to test the colour letter preference in the context of a unique bi-orthographical system. In total, 74 participants (undergraduate students of psychology) participated in 4 sessions (with two independent conditions: CCLL, LLCC) a week apart, in which they were asked to perform the same procedure. Order of script showed same pattern of results in two conditions,  $r(328) = .91$ . The results demonstrated that the non-synaesthetes preferentially selected focal colors: red, black, yellow, green, and to a lesser extent, blue. Moreover, comparing Cyrillic vs. Latin script, we found that the similar colors were selected across all letters,  $r(328) = .96$ . In accordance with previous research, grapheme-color associations were found – ‘A’ and ‘M’ were red, ‘O’ was white and ‘C’ was yellow; this was true in both scripts. However, grapheme ‘И’ in Cyrillic (whose phoneme corresponds to grapheme ‘C’ in Latin) was dominantly red in Cyrillic. Overall, our results support influence of color’s first letter (e.g. B for blue), colored letter magnets and better illuminate grapheme-color associations.

### The relationships between the formal structure and technical demands of a contemporary piano piece of music with various aspects of practicing

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In the Western classical tradition pianists memorize music scores for musical performances. Studies using a longitudinal case study method have shown that professional pianists rely on the formal structure of the piece of music when preparing for performance from memory. In this study, we examined the dimensions on which the practicing of the contemporary

piece of music, the Fourth Study for Piano (Allegro Vivace) by Boris Papandopulo, relied. More precisely, we examined the relationships between the number of starts, repetitions, and stops during practice and the formal structure and technical demands of the piece. The pianist, a second year student at the music high school, had recorded her practice. The recorded practice sessions were transcribed and analyzed with regards to three learning periods: section-by-section, practicing the whole, polishing. The results showed that the pianist used structural bars as starting places more often while practicing section-by-section and practicing the whole. The correlation decreased through the learning periods as the practice progressed and playing became more fluent. Furthermore, the results showed that the pianist repeated the difficult bars more often in all three learning periods, and that the correlation decreased as the practice progressed. Starting with structural bars showed that the pianist relied on the hierarchical organization of the piece of music while practicing.

### Contraries in insight problem solving: their role in Type 1 and Type 2 processes relating to representational change

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Our research focuses on the hypothesis that thinking in terms of contraries may facilitate the process of representational change involved in visuo-spatial insight problem solving. In particular, we present a series of studies which investigated whether explicit or implicit hints about using contraries during the solution process (i.e. from horizontal to vertical, from up to down) improved performance. Italian undergraduate students ( $M_{\text{age}} = 21.83$  years) took part in the studies in small groups of three. In all of the conditions considered, the problem solvers were requested to analyze the spatial features of the problems and transform them into their corresponding contraries before embarking on their search for the solution. The success rate increased and various different behaviors emerged when participants were explicitly prompted to use contraries, as manifested both by the dialogues within the groups and the drawings done in the search phase. In particular, they made fewer attempts in a shorter time and they used the contraries which they had identified and the strategy which had been suggested more frequently. In conclusion, the prompt “to use contraries” in insight problems worked better when it was explicit, i.e. part of a systematic and analytical solution approach. With regard to the current debate on the role of implicit (Type 1) processes versus explicit (Type 2) processes which facilitate the representational change needed to overcome the impasse, these findings provide evidence of the positive effects of this strategy when used in terms of Type 2 processes.

## The effects of difficulty and validity of syllogisms on confidence and response times

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In the domain of reasoning, confidence judgments made after evaluating a conclusion or after producing a conclusion indicate the level of certainty with which the conclusion was endorsed. Previous studies found that reasoning accuracy and confidence were generally not correlated, and that confidence and accuracy were mediated by different variables. Based on the assumptions of the Self-Consistency Model of subjective confidence, it is proposed that confidence judgments should reflect the commonalities of the processes and contents of reasoning shared among individuals. Therefore, when the incorrect responses are given by the majority of participants, those responses should be associated with high confidence. The aim of the study was to examine the effects of difficulty of syllogisms (easy, intermediate, and difficult) on confidence judgments and response times. We hypothesized that both easy and difficult syllogisms should be evaluated faster and with higher confidence than syllogisms of the intermediate level of difficulty. Forty-seven undergraduate psychology students evaluated 24 syllogistic problems, which varied in difficulty (easy, intermediate, and difficulty) and validity (valid and non-valid). Confidence judgments were higher for the easy and difficult syllogisms than for the syllogism of intermediate level of difficulty. Response times were faster for the easy and difficult syllogisms than for the syllogisms of intermediate level of difficulty. Confidence and response times did not differ between valid and invalid syllogisms. Therefore, confidence judgments and response times are not monotonically related to the difficulty of syllogisms, and they are not sensitive to the validity of syllogisms.

## Representational potential and active maintenance limit visual working memory capacity

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The capacity of visual working memory (VWM) is highly limited and varies significantly both across individuals and age. We propose that VWM capacity is limited by two systems: a representational system enabling formation of independent visual representations, and an active maintenance system enabling active maintenance of the established representations. To test this hypothesis, participants performed a VWM span task in which they maintained the orientation of items presented to the left, right or both visual hemifields. The results revealed that participants' span was larger when items were distributed across both vs. one visual hemifield, indicating that bilateral display enables employment of representational capacities of both hemispheres. Bilateral capacity, however, did not reach the combined representational potential, suggesting that the capacity is further limited by a second, unitary active maintenance system that can sustain only a limited number of representations of items in any or both of the hemispheres.

## Cognitive psychology 2

### Association between latency in anti-saccade task and the age of the second language acquisition

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In spite of considerable research, there is no consensus concerning the advantage of bilingual speakers: in the present study, we examined the relationship between executive functions and multilingualism. Inhibitory control, as a component of executive functions, was assessed with anti-saccade task, whilst language experience and proficiency were measured with LEAP-Q. In total, 74 participants (undergraduate students of psychology) completed both anti-saccade task and LEAP-Q. In the anti-saccade task, the participants were instructed to make a saccade in the direction towards stimuli in the first and the fifth block and away from the stimulus in three mid-blocks (altogether 120 saccades and 120 anti-saccades). Using SMI RED-m eye-tracker, saccadic latency and proportion of correct answers were taken as measures of inhibitory control. The results showed expected negative correlation between these two measures,  $r(72) = -.30$ ,  $p < .01$ , and a positive one between latency for anti-saccade and pro-saccade task,  $r(72) = .52$ ,  $p < .01$ . Due to the significant relationship between latencies, partial correlation was used for assessing the association between the age of acquisition of the second language and the latency for anti-saccade, with latency for pro-saccade as the control variable. The analysis showed significant correlation,  $r(70) = -.25$ ,  $p < .05$ , suggesting that those who acquire second language earlier tend to have longer latency in inhibition tasks. Furthermore, it should be noted that this relationship might not be linear, as the dispersion of data suggests that the exponential function is a more proper solution,  $F(1, 71) = 3.74$ ,  $p = .057$ , meaning that there is an especially sensitive period in childhood during which language acquisition is relevant for the inhibitory control.

### Efficiency of cognitive training of attention in high school students

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Recently there has been an increased interest in studying the effects of training various cognitive domains. Some studies have shown promising results of cognitive trainings, but research findings are not consistent. Also, it is not completely clear to what extent transfer to other cognitive domains occurs. The current study examined the efficiency of own-developed cognitive training of attention in adolescents. Improvement

of various aspects of attention (selective attention, switching of attention) and transfer to other cognitive domains has been studied. The experimental group ( $n = 11$ ) received a cognitive training that lasted 6 weeks in total, with 3 training sessions per week, each lasting approximately 20 minutes, whereas the control group ( $n = 10$ ) did not receive any training. During the training, the experimental group was solving various attentional tasks. Their reaction times and response accuracy were monitored, and regular feedback about their performance was provided. A steady decrease in reaction times across the training sessions was observed. Cognitive functions were measured in the experimental and control group both prior to the training and six weeks later. The analysis of the change in cognitive tests' scores showed that there was a larger improvement of selective attention and attentional switching in the experimental group compared to the control group, but mostly in the context of tasks that resembled those used in the training, whereas there was no indication of transfer to other cognitive domains. Further investigations with larger samples are needed to study transfer of our own-developed attention training to other cognitive domains.

### Describing sensory experiences of wine tasting based on opposites: naïve versus expert dimensions

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Opposites play a significant role in human perception, thinking and language. Our research focuses on the sensory experience of wine tasting. Expert sommeliers use a set of conventionalized scales to evaluate wine with most of the descriptors being properties organized along scales of opposition, e.g. Veiled/Cloudy-Brilliant (Visual Limpidity). In the initial phase, we analysed the sensory terms used in seven well-known Italian wine guidebooks, the terms used in the production specifications of 12 types of wine and those used in the official AIS scales. We thus established a list of 63 sensory properties. We then carried out two studies involving five hundred Italian standard consumers (18–60 years old) in order to identify the naïve dimensions elicited by the 63 properties in relation to red and white wines, respectively. A comparison between the results of the two studies and the AIS scales revealed: (i) correspondence, i.e. the two naïve poles are the same on the AIS scale, e.g. Heavy-Light; (ii) a mismatch between the sensory dimensions which were being focused on, e.g. Rich/Full-Lacking (in structure/in body) on the naïve complexity dimension, but Lacking-Very Intense is the AIS olfactory analysis of intensity; (iii) a descriptor occupying an intermediate position on the expert scale became a pole on the naïve scale and the two extremes were not the same, e.g. on the AIS scale, Limpid is the intermediate term on the Veiled-Brilliant dimension, but in terms of naïve dimensions, Limpid is opposed to Veiled while Brilliant is the opposite pole to Opaque.

## In a rose tattoo – subjective experience of tattoos

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It is previously shown by Marković et al. that subjective experience of artistic paintings can be described through four factors: attractiveness, arousal, calmness, regularity. Since tattoos can be considered as specific form of artistic expression it was interesting to investigate whether their subjective experience follows the same structure, and do various groups of tattoos differ on extracted factors. As stimuli we used 15 pictures of tattoos, chosen as typical representatives of five clusters defined in tattoo manuals: religious, ethnic, love, nature, and geometric. Thirty participants had a task to evaluate all 15 tattoos (3 from each cluster) on 12 bipolar adjectives from SDS instrument created by Marković et al. Results show that subjective experience structure of tattoos is less differentiated than for artistic paintings, since factor analysis extracted only two factors. Those factors were interpreted as general evaluation (including three previously mentioned factors: attractiveness, arousal and regularity) and calmness. So, only calmness was recognized as a separate part of subjective experience of tattoos, while other factors saturate one dimension. Further on, we tested differences between five tattoo clusters on general evaluation and calmness. On general evaluation, highest scores were gained for ethnic and love tattoos, lowest for religious and geometric, while nature tattoos were in the middle. On calmness, geometric tattoos had highest scores, ethnic, love and religious had lowest, while nature tattoos were in the middle. Results show that subjective experience of tattoos has its own specific structure and that they can be grouped based on that experience.

## Limits of Bayesian modelization in perception

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From Alhazen to Helmholtz and till today, many authors tried to explain perception in terms of some sort of unconscious reasoning. In the last 20 years these ratiomorphic models have taken on a new role with the use of the Bayesian modeling (BM), and the literature is ever growing. The Bayes rule says – It is assumed that, given a certain state of world  $S$ , the a posteriori probability that the event  $E_1$  (among  $n$  events  $E_s$ ) occurs is a function of the likelihood that  $S$  is true given occurrence of  $E_1$ , and of the a priori (unconditioned) probability that  $E_1$  occurs. A simple application of the probability calculus gives us the formula (or rule) of Bayes. (If the  $E_s$  are distributed along a continuum, in the denominator we have an integral instead of a sum.) Now, BM appears to be an excellent predictor of experimental results in all cases where we speak of perception of events with imperfect discriminability, and therefore in the paradigms of simple or forced choice, in visual research, and so on. But these are events that, following the classic distinction of Kanizsa [*Organization in Vision: Essays on Gestalt Perception* (1979)], fall into the general category of secondary processes. The case of primary processes is different, when there is a unique outcome of the perceptual process, with a univocal result. Various perceptual examples are then presented, and it is shown how the application of the BM to these cases leads (also on mathematical level) to paradoxical results.

## Developmental psychology

### Memory suggestibility in the presence of developmental mentalizing and control functions

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Memory suggestibility is a phenomenon, which presents the retrieval processes to be seriously fragile. In previous studies several markers had been identified, whose maturity level directly affect memory recollection in preschool age. The main aim of our study was to identify the connection between suggestibility and several of these functions. Forty-seven subjects (mean age = 5.8,  $SD = 0.63$ ) took part in our study. The tests that were used are as follows: a suggestibility test, in which a short video was shown to the participants, after which they were asked about the story's details. The level of control processes – DCCS and Day-Night Stroop – and mentalizing functions – Moore's paradox test and Smarties test – were also measured, as well as source monitoring performance by a visual source memory task. As it was predicted there was a strong connection between control processes and memory suggestibility and even a slight relation to mentalizing functions. The pattern of these results shows that executive functions and deliberate memory processes relate to each other and mature parallelly.

### Social effects of rubber hand illusion in children

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The aim of the current research using the "rubber hand illusion" (RHI) demonstrates the social effect of multisensory processes underlying body representations in children of 4 to 12 years and adults. In representing the position of their own hand in external space, children of this age rely more on the sight of the hand, and less on its proprioceptively felt position, than adults do [Cowie et al., *Journal of Experimental Child Psychology*, **142**, 230 (2016)]. This study examined the balance between visual and proprioceptive inputs with dark and white hand as well as the social attitude towards in-group and out-group members before and after the RHI. We found that proprioceptive drift and subjective feeling of body ownership reached adult levels at 10 to 12 years for both hand color (dark and white hand). Moreover the dark hand had a slight effect of racial bias, following a dark hand stimulation children accepted the out-group members more than they did before the RHI stimulation. The findings demonstrate the development of multisensory integration process and its social effect for social inclusion.

### Associations between preschoolers' nighttime behavior, nighttime fears, and storytelling characteristics

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Nighttime fears are commonly reported by preschoolers. In previous studies, significant nighttime fears were related to internalizing and externalizing problems among children, especially to sleep problems. The aim of the present study was to investigate how preschoolers' nighttime fears are associated to their nighttime behavior, sleep problems, internalizing problems and storytelling characteristics. Sixty-seven children (27 males) participated in our study with an average age of 68 months ( $SD = 9.91$ ). Each child performed a story completion task, and their parents completed the Child Behavior Checklist (CBCL 1.5–5), the What My Child Can Do At Night – Parent Form (WICDAN) and a Childhood Fear of the Dark Scale, developed based on the DSM-V criteria of specific phobia. The occurrence of children's nighttime fear related symptoms were correlated to their maladaptive nighttime behavior ( $r = .60, p < .001$ ), sleep problems ( $r = .49, p < .001$ ) and general anxiety ( $r = .52, p < .001$ ). In addition, both maladaptive nighttime behavior and sleep problems were significantly predicted by the frequency of sad contents in the stories. However, there were no associations between nighttime fears or behavior and the stories' coherence or emotional resolution. The results of the present study suggest that preschoolers' nighttime fears contribute to their sleep problems, along with their anxiety. Furthermore, childhood maladaptive nighttime behavior and sleep problems may be associated to sadness.

### Assessment of the quality of parent-child shared reading and its relation to child's storytelling

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The aim of our study was to assess the quality of parent-child shared reading and to analyse the relation between parent-child shared reading and child's storytelling ability. Shared book reading provides a powerful context for child's language development, both for the acquisition of vocabulary, grammar and pragmatics. However, although the frequency of shared reading is important, the quality of shared reading experiences may be of an even greater importance for child's development and learning. The sample included 20 mother-child dyads, with 5-year-old children, who engaged in shared reading of a selected book. We assessed the qual-

ity of shared reading with the Scale for Observing Shared Reading, which was developed for the purpose of this study. It contains 18 items referring to parental and child behaviour and verbal interaction during shared reading. Children's storytelling was assessed using the textless book *Frog Goes to Dinner*. We found that the quality of mother-child shared reading was positively related to the coherence of the child's story. Additionally, we analysed the quality of interactions between mothers and children during shared reading. The mothers most often maintained child's interest in the story by pointing to illustrations, directing child's attention verbally and by using animating voice and vocalization. On the other hand, mothers the least frequently used metaphors, words to describe feelings and wishes or asked questions about cause and effect relationships. The findings give an insight into the quality of the parent-child shared reading and emphasise the importance of shared reading for child's storytelling.

### **The relationship between the parental behaviour of fathers and mothers and open and relational aggression among adolescents**

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Within the context of the unfavourable effect of parental behaviour on the development outcomes of children, the aggressive behaviour of children is often mentioned as an externalised problem. The link between parental behaviour and children's open and relational aggression may differ depending on the parent's gender and the child's gender. This study attempts to determine the contribution of parental behaviour in explaining the aggressive behaviour of adolescents, and to test whether open and relational aggression among adolescents can be predicted on the basis of the mother's and father's parental support, restrictive control, and leniency. A total of 605 third-grade students (41.1% girls and 54.9% boys) from eight secondary schools in the City of Zagreb participated in the survey. Data were collected on the basis of a self-completion questionnaire. Analyses to obtain descriptive statistics indicators were used in processing the data, as well as tests of the significance of differences, correlations, and standard multiple regression analyses. The results show that the open aggression of boys can be significantly predicted by the restrictive control of mothers, while the girls' open aggression can be significantly predicted by the mother's restrictive control and leniency and weak support from the father. In terms of relational aggression among adolescents, significant predictors were the restrictive control by mothers and fathers, weak support by the father and the leniency of the mother. The obtained results are explained as part of the attachment theory and social learning theory.

## **Educational psychology 1**

### **Primary school teachers' self-perceptions of teamwork skills and teamwork practice in Slovenia**

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The most important teamwork skills include communication skills, compromising skills, constructive criticism skills and the skill of motivation and giving support. Teamwork in the field of education happens when two or more teachers focus their educational goals at the same group of students in the framework of a specific pedagogical activity. Teamwork of teachers comprises three interrelated stages: team planning, team teaching and team evaluation. Within teamwork approach, we can provide more differentiated teaching and schoolwork for students, faster feedback information, didactically diverse lessons and an example of interpersonal acceptance and resolution of intellectual conflicts, which allow for higher motivation and better knowledge of the students. At the same time, the teachers develop their interpersonal communication skills and increase the ability of perceiving information from different points of view, which they can then critically evaluate and include into their own mind system. The empirical survey, based on quantitative researching approach and the questionnaire, include 167 primary teachers, all females from different Slovenian primary schools. The main goal of the survey was to find out how often the professionals in the primary school in Slovenia perform the teamwork, how they perceive their teamwork skills and which benefits of team work they perceive. In the focus will be also the correlations between the recognized teamwork skills and benefits of teamwork in relation to the perception of team efficacy. Research findings lead to some psychological aspects of teamwork skills and some conclusions regarding the teamwork as a part of educational psychology in teacher education.

### **Teachers' attitudes towards evidence-based teaching: A comparison between attitudes of pre-service and in-service primary education teachers**

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Evidence-based teaching, which outgrows intuitive practices, enables teachers to broaden the field of professional reflection and decision making, improve their teaching methods and approaches and provide effective support to students in specific learning contexts. Research on teachers and teaching has shown that teachers' attitudes have a vital impact on their teaching practices, classroom management, and everyday be-

haviour in the classroom. Nevertheless, little is still known about teachers' attitudes towards using research findings in the teaching context. The aim of the study is therefore to determine the attitudes of pre-service and in-service primary education teachers towards evidence-based teaching regarding the level of their professional expertise (i.e. pre-service teachers vs. experts). Using the mix-method research design students ( $N = 181$ ) and their mentors from teaching practice ( $N = 181$ ) filled-out the self-report questionnaire. The results showed that all participants hold positive attitudes towards evidence-based teaching, furthermore differential analysis showed that pre-service teachers hold statistically higher positive attitudes than their mentors from teaching practice do.

### Teachers' character strengths in a classroom

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Character strengths are positive individual traits that are morally valued. Research has shown numerous beneficial outcomes of recognizing one's own character strengths and using them in personal and professional life. The nature of a teaching profession underlines the importance of teacher's personality; and character strengths represent its interesting aspect. The aim of the present study was to investigate the relationship between teachers' character strengths, effective classroom management and satisfaction of students. The sample consisted of middle school and high school teachers of Slovenian language ( $n = 68$ ) and their students ( $n = 1151$ ,  $M_{\text{age}} = 16.2$  years). Teachers filled in the VIA-IS questionnaire on self-reported character strengths. Students reported how they perceived their teachers' character strengths and classroom management and how satisfied they were with their teachers. Results have shown that teachers with higher endorsement of self-reported character strengths of zest, love, kindness, gratitude, hope, and humour were perceived as better classroom managers by their students. Students were more satisfied with teachers in which they recognized more of transcendence, humanity and knowledge strengths; students also assessed classroom management of teachers with these strengths as more positive. Hierarchical linear modelling was used to examine the relationship between teachers' character strengths, classroom management, and students' satisfaction. Students' perception of their teachers' character strengths and classroom management were found to be important predictors of student satisfaction. Hence, teachers' character strengths contribute to effective classroom management and students' satisfaction; they also contribute to student achievement, what was found in another model. Teachers should be encouraged to recognize and develop their character strengths and use them in interactions with their students.

### Attitudes towards evaluation: development of a multifactor questionnaire

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This study aimed to explore students' attitudes toward evaluation during the examination and assessment process in universities. A questionnaire was created and validated to evaluate perceptions of the importance of university evaluations from an individual perspective as mediated by the external environment. The questionnaire also intended to assess emotional experiences related to the evaluation phase and the influence of external elements, such as expectations, self-efficacy and internal or external locus of control on the final results. The answers of a sample of over 700 students from several universities in Milan were subjected to factor analysis. Eight factors were thus individualized and interpreted. Reliability analysis helped to discard inefficient items. The questionnaire presented satisfactory reliability and can be used with undergraduate students.

### Symbolic and non-symbolic number representations and cognitive control

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There are a lot of situations in everyday life where one needs to estimate quantities and relations between them. Mathematics is one of the basic subjects in school curriculum and at the same time a cause of a lot of troubles for several pupils. Therefore, it is very important to understand factors that can impact the representation of numerosity at the beginning of schooling in order to help students to overcome their problems with mathematics as soon as possible. The research in numerical development emphasizes the importance of non-symbolic and symbolic number representations, as well as the importance of cognitive control, for success in basic arithmetic operations. The aim of our study was to find out the relationships between non-symbolic and symbolic magnitude estimation and some dimensions of cognitive control in pupils. Approximately 300 pupils from 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grade from five Slovenian primary schools participated in the study. Non-symbolic and symbolic magnitude estimation was measured with four tests: Number line estimation test (symbolic to non-symbolic representation and non-symbolic to symbolic representation of magnitudes), Area estimation test (non-symbolic representation) and Number comparison test (symbolic representation). Cognitive control measures included: WM tests (digit span forward and backward), Trail making test for measuring visual attention and task switching, and Conjunctive visual search test for measuring speed and efficiency of top-down processing in visual attention. We will present the first results of the study and discuss possible implications for educational practice.

## Differences in the effects of summarizing skills training by 4th grade students

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Summarizing strategy is one of the basic strategies of reading comprehension for younger students in primary school. It is a very demanding strategy, therefore large (inter)individual differences exist among students in their ability to summarize. The study presents the effects of a 2-month programme for training 4th grade students in using summarizing skills by informational texts, which students start to encounter in their textbooks and are expected to learn from in this period. A total of 114 4<sup>th</sup> grade students and 5 of their teachers, who implemented the programme, participated. We examined the students' skill of summarizing with a pre-, post- and a follow-up test. Students were divided into four groups according to their general reading competency (GRC), which comprised students' reading fluency, vocabulary and reading comprehension at pre-test: struggling, at-risk, average and good readers. We found: (i) important progress in summarizing achievement in all groups; (ii) stable proficiency differences between groups in summarizing in general and in elements of the summary (main ideas and coherence of the text). Some pedagogical implications are also discussed.

## Educational psychology 2

### Psychosocial characteristics of bullying participants according to the degree of victimization and bullying behavior

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Being involved in bullying represents one of crucial problems in early adolescence. Bullying participants can be divided into groups according to their degree of victimization or bullying behavior: bully, victim, bully-victim and uninvolved. Previous studies suggested that all participants involved in bullying and/or victimization show some psychosocial difficulties. Bullies mostly express externalizing problems and victims mostly express internalizing problems, however, bully-victims were found to express both internalizing and externalizing problems. The present study examined differences between these groups of bullying participants in psychosocial characteristics. Two subsamples of total 1905 students were defined according to the degree of bullying and victimization. Each of subsamples was based either on self-reported and/or peer-reported measures and further divided into four groups: bullies, victims, bully-victims and uninvolved students. Victims had the lowest general and social self-esteem, the smallest percentage of friends and lowest levels of perceived peer support. Compared to victims and uninvolved students, bully-victims reported the lowest perceived teacher support and the highest levels of anger internalization and externalization. Peer-reported bullies reported better adjustment than self-reported bullies, however, both bully groups were the most popular among all students and reported high levels of social self-esteem and anger externalization. Uninvolved students were the most well-adjusted group and reported the highest levels of anger control. However, compared to bullies, they were perceived as less popular among their peers.

### The efficacy of the bullying prevention serious digital game constructed within eConfidence project (H2020)

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Serious games refer to game-based activities designed for purposes beyond pure entertainment providing learning experience and/or attitudes change. Within the eConfidence project, funded by EU's Horizon 2020, a serious digital game focused on bullying prevention named School of Empathy has been developed. In creating the game ABA (Applied Behaviour Analysis) principles have been applied to prompt and retain player engagement. The efficacy of designed game was

tested on a sample of 330 students (12 to 14 years old) from 10 schools from Spain, Malta, UK, and Ireland. Students were assigned to an experimental group that played a game during approximately 6 hours and two control groups, one that played other game constructed within the project, and the other control group without any intervention. All students were assessed by on-line survey before and after gaming sessions. The survey consisted of scales that assessed the knowledge about bullying and behaviour in bullying situations, as well as attitudes, perceived behaviour control, self-efficacy, subjective norms, and behaviour intention regarding protecting the victim. Personal variables, i.e. social skills, assertiveness, empathy, and friendship, were also assessed in the survey. The differences between experimental and control groups in all assessed variables have been analysed in order to evaluate the efficacy of the game.

### Positive Youth Development (PYD) in Slovenia: Educational Perspective

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The Positive Youth Development (PYD) framework focuses on the importance of the interplay between individual characteristics and contexts [Lerner & Lerner, *Approaches to positive youth development*, Sage, London (2007)]. The presentation will focus on the school as a context. The basic idea is that youth will develop positively when their strengths are aligned with the resources in their contexts. Thus, positive outcomes (e.g., academic achievement) will be more probable and risky behaviors (e.g., early school leaving) less frequent. The PYD framework proposes a model in which positive outcomes are operationalized through different domains, the 5Cs: Competence, Confidence, Character, Connection and Caring and a result of interplay between individual characteristics and resources in youth contexts. Using a cross sectional study design, we investigated Slovenian adolescents ( $N = 2,802$ ; 1,460 girls) who recently transitioned to upper-secondary level who had participated in PISA 2015 and who had completed a PYD Short Form questionnaire. Academic underachievement has been identified as an important determinant for various negative outcomes, such as early school drop-out, unemployment, substance use, and delinquency. Thus, investigating the potential factors that may prevent academic underachievement is essential. We will investigate the relationships of the Cs and academic achievement and how these relationships tend to vary across school type and gender in Slovenia. The PYD framework is used for the first time as a framework to study educational achievement in Slovenia. The implications for designing promotive and protective PYD informed strategies to educational contexts that lead to school success in adolescence will be discussed.

### The School Stress Questionnaire: Development and validity of a multilevel-multifactor scale for high school students

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The presentation will describe the development of a multifactor scale, aimed at measuring stress in high school students. Starting with a preliminary study which relied on a written sentence-completing interview, 42 items were written (30 from the original British study and 12 in Italy), which tap different forms of uneasiness, stress and discomfort in adolescents. A sample of 1035 students, attending two different schools in northern Italy, has provided the answers on which a factor analysis was performed. Reliability analysis helped to discard 15 unreliable items or items with cross-loadings. Seven factor scales were thus formed by the 27 items, which focus on different stress origin: (1) Overload (4 items,  $\alpha = .75$ ); (2) Teachers' inadequacy 4 items,  $\alpha = .79$ ); (3) Lack of motivation (4 items,  $\alpha = .70$ ); (4) Peers relations (4 items,  $\alpha = .64$ ); (5) Parents (4 items,  $\alpha = .77$ ); (6) Uncertainty for future choices (3 items,  $\alpha = .68$ ), Cognitive overload (4 items,  $\alpha = .77$ ). A multilevel exploratory analysis yielded two class-level stress scales (corresponding to the first two within scales). Thus, the class-level scales measure class-related stress, i.e. stress which hinges upon whole classroom study overload or teachers' inappropriate behavior. Correlations with locus of control, school achievement, expectations and satisfaction have partially confirmed the nomological validity of the multifactor scale.

### Developing a questionnaire for assessing teachers motivational strategies

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In accordance with the vision of visible learning, there is no single way that teaching has the maximum effect on student learning or a set of principles that are applicable to all learners of all students. Research on the use of motivational strategies, according to the assumptions of some motivational theories suitable for teaching work, such as attribution theory, self-efficacy and self-determination, as well as need used by teachers in the design of teaching has in the result achieved a better focus on dimensions corresponding to some principles of teaching practice of visible learning. The aim of this study was to construct and validate a questionnaire for assessing teachers' motivational strategies. There were 823 students who participated in this study. All students attended 3<sup>rd</sup> grade of high school. All participants had to complete the Motivation Questionnaire for Students. The Motivation Questionnaire

naire for Students has been developed to measure which methods teachers use to motivate their students. The questionnaire is composed of 37 items on a 5-point Likert scale. In order to determine the dimensionality and constructive validity of the motivational questionnaire, we used exploratory factor analysis. After the first order factor analysis was performed, we used the obtained factor scores for the second factor analysis (hierarchical factor analysis). The second factor analysis yielded two factors explaining 52% variance. The results show that this factor solution can support the theory of visible learning.

## Neuroscience

### Short-term memory mechanisms of habituation in the domestic chick (*Gallus gallus domesticus*)

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Habituation and dishabituation reflect two forms of experience-dependent plasticity. Habituation consists of a response decrement to a reiterated irrelevant stimulus, whereas dishabituation consists in the recovery of the response to the habituated stimulus when a new one is presented. Dishabituation would arise because the model of the habituated stimulus stored in short-term memory (STM) is perturbed by the novel sensory input. Studying the ontogeny of these processes can shed light on the development of the underlying memory mechanisms. We investigated habituation and dishabituation of the freezing response to a sudden acoustic stimulation in newly hatched chicks ( $N = 36$ ) by comparing two early developmental ages (1 day vs. 3 days after hatching). The results showed that dishabituation was fully present a few hours after hatching, indicating that in this precocial avian species habituation and dishabituation share the same developmental trajectory, and that the underlying STM mechanisms are fully and simultaneously operative soon after birth. Moreover, the amount of habituation, after dishabituation, was larger in 1-day-old than in 3-day-old chicks, in agreement with previous findings showing a rapid attenuation of plasticity soon after birth in this avian species. Our results support the hypothesis that dishabituation represents a disruption of the habituation model stored in STM, but also indicate that dishabituation does not necessarily appear at later stages of development compared to habituation as previously postulated in other species.

### Exploring the structural neural background of body ownership

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Body ownership refers to complex multidimensional phenomenon, including the tendency of focusing our attention to bodily senses and also to be conscious of them. There are many studies investigating the functional correlates of body ownership, but they have not discovered the structural correlates yet, which should be responsible for the long term effects in the brain. In our study with 60 participants, we applied the rubber hand illusion (RHI) as an experimental method to objectively and subjectively measure body ownership. The RHI is an ex-

perimental paradigm where synchronously stimulating both the rubber hand and one's own unseen hand causes a feeling that the rubber hand is attributed to one's own body. Apart from RHI, we used questionnaires targeting body awareness and eating disorders to discover the different aspects of body ownership. We also used magnetic resonance imaging (MRI) to identify the brain structures related to body ownership. Knowing the neural correlates of body ownership would take us a step closer to answer the question of consciousness, or more precisely, its potential neural background.

### Use of contextual priors during action prediction in children: The role of the cerebellum

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Influential models on action comprehension postulate that optimal intention inference involves matching the expectations about how others are likely to behave in a given context and the sensory evidence conveyed by perceptual movement kinematics. Here, we investigated the role of the cerebellum in action prediction by comparing the action-prediction performance of infant and adolescent patients ( $N = 17$ ) with congenital cerebellar malformations to that of a sample of age- and IQ-matched patients ( $N = 17$ ) with congenital neurodevelopmental disorders not involving cerebellar alterations as well as with children with typical development ( $N = 17$ ). We used a behavioral paradigm consisting of a probabilistic learning task (familiarization phase) followed by an action prediction task (testing phase). In the familiarization phases, patients were exposed to videos showing a child actor who performed two different actions associated with specific contextual cues. Crucially, in this phase, the association between contextual cues and actions was implicitly biased with pre-established probability of co-occurrence. In the testing phase, presentation of the same videos was interrupted before the hand-object contact and patients were asked to predict the final outcome of the action. Since movement kinematics was ambiguous, we expected responses to be biased toward the contextual priors acquired during the familiarization phase. Results showed that cerebellar patients were more impaired than the control patients in predicting actions embedded in contexts with high probability. These results suggest that cerebellar alterations may cause specific impairments in the probabilistic learning of contextual predictive priors, with consequence on motor, cognitive and socio-emotional development.

### Relative contribution of mirror-neuron and mentalizing system areas to motor mapping of deceptive actions

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Recent studies demonstrated that observing deceptive actions increases corticospinal excitability (CSE) more than genuine actions. The relative role of the mirror neuron system (MNS) versus the mentalizing system (MS) in intention comprehension is still debated. Using a perturb-and-measure Transcranial Magnetic Stimulation (TMS) approach, we assessed how disrupting the activity of regions within the MNS (i.e., the ventral premotor cortex, vPMc) or the MS (i.e., the temporo-parietal junction, TPJ) affects motor facilitation to deceptive intention during action observation (AO). Sixteen participants received continuous theta burst stimulation (cTBS) over the left vPMc, left TPJ and vertex (as control site), and soon after we used single-pulse TMS to record motor evoked potentials (MEPs) from hand and forearm muscles as measure of CSE during AO. Participants were asked to predict the weight of cubes lifted by actors who were asked to provide truthful (truthful actions) or deceptive cues to the observers after receiving truthful (deceptive actions) or fooling information (deceived actions) about the object weight. Results showed that, after vertex-cTBS, CSE increased during the observation of deceptive as compared to genuine actions. Importantly, as compared with the vertex-cTBS, vPMc-cTBS disrupted the facilitation to deceptive intentions, while TPJ-cTBS led to a general CSE decrease in all AO conditions. Furthermore, after vPMc-cTBS, participants were less susceptible to deceptive intention. These results suggest that the MNS has a causal role in mediating the modulation of motor resonance for deceptive intentions and point to a complementary role of MS and MNS for motor resonance during action observation.

## Generalizability of cognitive control for language and action selection in bilinguals: behavioral and brain stimulation evidence

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Globalization leads people to speak more languages. The experience of biligualism, involving switching between languages, may produce cognitive control advantages. It is still debated, however, whether language switching ability relies on domain-specific or domain-general cognitive control system. Here we investigated bilinguals' and monolinguals' switching abilities in two functionally connected cognitive domains: Language and Action. In the first behavioral study, participants were asked to perform a picture naming task by switching between languages, and a non-verbal action recognition task by switching between different intention descriptors (i.e., kinematics vs. context). In the second study, continuous theta burst stimulation (cTBS) was used to interfere, before task execution, with neural activity of the i) left dlPFC, involved in cognitive control; ii) left pMTG, involved in action recognition. Vertex cTBS served as control site. Results of the first study showed a general positive correlation between the switching cost of the language and action tasks. Importantly, bilinguals exhibited less difficulties at switching between intention descriptors as compared to monolinguals. Preliminary results of the cTBS study have shown that alteration of left pMTG influenced the ability to recognize actions, while alteration of the left dlPFC seems to affect bilinguals' abilities to switch between languages. These results suggest that switching abilities for Language and Action may rely, at least partially, on the same cognitive control systems. Bilingualism leads to a general advantage in similar cognitive domains, which causally involves the dlPFC.

## Revisiting aspect: evidence from Greek-speaking Mild Cognitive Impairment and Alzheimer's disease individuals

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We investigated the ability of Alzheimer's disease (AD) and Mild Cognitive Impairment (MCI) individuals to produce and comprehend verbs varying with respect to their lexical (activity 'run', state 'know', achievement 'break', semelfactive 'hit', accomplishment 'build') and grammatical (perfective 'I untied' vs. imperfective 'I was untying') aspect. Fyndanis et al. [*Aphasiology*, 27(2), 178 (2013)] report impaired grammatical aspect in AD patients and preponderance of perfective over imperfective aspect due to difficulties in processing duration. Contrary, Roumpea et al. [under review, Selected papers, 23rd International Symposium on Theoretical and Applied Linguistics, (2017)] found AD and MCI patients equally impaired in perfective and imperfective aspect. We further investigate the role of duration by manipulating both grammatical and lexical aspect. Eleven MCI, eleven mild-AD and nine controls participated in a picture-naming and sentence-completion task. One hundred verbs, 100 images and 100 source-sentence/target-sentence pairs were used. In the naming-task, both MCI and AD performed lower than controls with the AD being worse than MCI ( $p < .001$ ). Activities and accomplishments were found better preserved than states and achievements ( $p < .001$ ). In the sentence-completion task, no effect of aspect was found. The AD group was significantly more impaired than MCI and controls ( $p < .001$ ). MCI individuals performed equally well as controls ( $p = .108$ ). Results reveal a dissociation regarding the feature of duration. As a lexical variable, duration affects verb naming and production, while, as a grammatical feature, it does not. Finally, the lack of interaction between lexical and grammatical aspect also indicates that these variables can be affected differentially.

## Personality and individual differences 1

### The predictive role of preschool children's temperament in their resilience, strength and difficulties

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Analysing contemporary findings within personality psychology, the lack of systematic studies about the role of preschool children's temperament in their resilience and strength and difficulties could be determined. Therefore, this study was focused to analyse the predictive power of children's temperament regarding their resilience, strength and difficulties. With that aim, 17 preschool teachers have rated children's temperament (EAS temperament questionnaire), resilience (CYRM), strength and difficulties (SDQ) on 269 preschool children, from seven kindergartens in Primorje-Gorje county, Croatia. Within children's temperament, three dimensions were explored (emotionality, activity and sociability). Resilience was operationalized as one dimension; prosocial behaviour was defined as a strength; and hyperactivity, emotional problems, behaviour problems and peer problems were defined as children's difficulties. In this study, it was determined that children's emotionality and activity negatively correlated with prosocial behaviour and resilience; and positively correlated with children's difficulties (hyperactivity, emotional, behaviour and peer problems). On the other side, sociability showed significant positive correlations with prosocial behaviour and resilience; and negative correlations with all children's difficulties. Hierarchical regression analyses showed as hypothesized, that these three temperament dimensions, especially activity and sociability, are significant predictors of children's resilience, strength and difficulties. As it was expected, children's temperament proved to have the significant role within understanding children's resilience, strength and difficulties.

### Humour style and humour perception in music, in classical music university students compared to psychology students

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Music is an ubiquitous, universal language, some sort of a special way of communicating feelings. It is able to change emotions in others and ourselves, let people feel the same thing at the same time and help to facilitate cooperation among individuals. Being a natural part of our lives it can also express humour which classical music composers used quite frequently. Our opinion is that among the many theories of humour, incongruity is the most versatile and flexible explanation for the mechanics of this phenomenon. In our pilot study we compared psychology and classical music university students ( $N = 70$ , 38 psychology students, average age: 24.56 years,

44 females). First, we used a Hungarian adaptation of Humour Style Questionnaire (HSQ) to measure each participants general humour style. For the stimulus of our experiment, we used Vittorio Monti's Czardas in an only piano version which we recomposed and recorded in a way that it contained supposedly humorous elements. The changes, among many others, included rhythmic, harmonic and stylistic incongruencies. On the recorded video only the pianist's hands and the keyboard was visible and no audible background noise or laughter influenced the listeners perception. While listening to the stimulus, participants had to assess the encountered humorous events (on a 5-level scale) and optionally named the source of humour. Our findings showed that humour style is unrelated to musical humour perception and proved that the familiarity with music in general facilitates interpreting the subtle incongruent changes to be humorous.

### What predicts consideration of cosmetic surgery? Psychometric properties of the Hungarian version of Acceptance of Cosmetic Surgery Scale (ACSS)

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Cosmetic surgery procedures have been performed at dramatically improved amounts in recent years in the Western World. The Acceptance of Cosmetic Surgery Scale (ACSS) is an instrument for measuring the psychological levels of openness to acceptance of cosmetic surgery. The original instrument (ACSS) contains three subscales (Interpersonal, Social, and Consider). Since it has been published, ACSS has been translated to and validated in many languages. The main purpose of our investigation was to prepare the Hungarian version of ACSS. Therefore, we used the same scales for psychometric analysis as in the original procedure when ACSS was developed, and later when the international versions of ACSS were prepared. We were curious if, despite the cultural differences we can expect, we get the original factor structure with Hungarian subjects. We made the Hungarian version of ACSS with 482 female participants (mean age = 29.02 ± 10.71 years, min = 18 years, max = 68 years) who filled in our questionnaire package. We used the following instrument for the validation: the Rosenberg Self-esteem Scale (RSES), the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3), the Satisfaction with Life Scale (SWLS), the Body Appreciation Scale (BAS), the female Photographic Figure Rating Scale (PFRS). Our results show that a reliable measuring instrument is available for researchers with Hungarian subjects in the studies. The Hungarian version of ACSS has the same factor structure as the original indicators. The availability of the Hungarian ACSS is expected to stimulate more in-depth, quantitative research on attitudes toward cosmetic surgery within the Hungarian context. Our research will contribute towards better understanding of the acceptance of cosmetic surgery from a cross-cultural perspective.

## Developing a questionnaire on subjective adequacy of residential environment

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With the continuous increase of the percentage of world population living in urban environments, and increasing awareness of the importance of residential environment quality, the topic of adequate residential environment is gaining in its importance. Although adequacy of dwellings has been measured previously and its subjective aspects have been captured in the concept of residential satisfaction, these means do not provide enough insight into the subjective adequacy of residential environment. Following this gap, the process of developing a questionnaire on subjective adequacy of residential environment has up till now been actualized in two studies. First, following architectural theory and semi-structured interviews, we developed a questionnaire with three scales (Demandingness, Flexibility, and Satisfaction), based on the same item cores representing aspects of dwellings. The analysis confirmed the assumed structure and high internal consistency reliability of the subscales. In the second study, the scope of the questionnaire was expanded to include building and neighbourhood aspects of residential environment, while still consisting of three scales corresponding to previously demonstrated components. Three-way component analysis supported the distinction between three major traits and suggested the most important aspects of dwellings to be used as indicators in the revised and shortened version of the questionnaire. The next steps in the development will include administering the new version to participants from selected neighbourhoods with the intention to validate its internal structure, and to validate scores with objective measures of the corresponding neighbourhoods and subjective well-being of residents.

## Emotion regulation of the search and rescue workers related to disaster crisis-intervention

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Before the Millenium, the emotion-regulation of the search and rescue worker's behavior was not accepted in disaster-management, it was considered mainly as an irrational behaviour, which does not help rescue work. This point of view has been changing. A controlled emotional output is an important personal competence and ability to a rescue focused behaviour of the emergency response personell. Emotion regulation has its impact on both mental and physical health. Our research is based on questionnaires and narrative based content analysis which includes 73 persons as a primary sample, composed of professional rescue workers of the National Directorate General for Disaster Management (firemen) and EU regulations trained aid workers and volunteers organised by the same organisation. The Cognitive Emotion Regulation Questionnaire (CERQ) was used to measure their competence to regulate the emotional tension during and after critical events. A significant result is that professionals are able to cope with rumination in a pragmatcal way and more successfully then volunteers. Results of narrative based content analysis give support in details to the above fact. Asking them to mention three ideas, abstractions related to their work, almost 50% of disaster rescue workers mentioned calling for to do the duties, helping attitude and perseverance, persistance. In this work we present as well the correlations between the 9 subscales of CERQ and 3 subscales of Coping Inventory for Stressfull Situations (CISS-48) related to the sample of relief workers.

## Personality and individual differences 2

### Do birds of a feather flock together?

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There are several studies testing the connection of various (e.g. personality) characteristics prominent in the face with the assessment of its attractiveness. According to the theory of assortative mating, similarity/attractiveness hypothesis, and the theory of cognitive averaging, the preferences of certain facial features in the attractiveness assessment are based on the similarity with the personality features of the beholder. The primary objective of this study was to test whether subjects differing in the preference of extraverted/intelligence facial features in the attractiveness assessment differ in their scores of extraversion/intelligence. The *t*-test revealed there is no difference between the two groups of subjects (considering as attractive a face low or a face high in extraversion) in the levels of self-reported extraversion neither in case of a female nor a male facial composite. Similarly, no difference has been found between the two groups (evaluating as attractive low or highly intelligent female and male face) in measured intelligence score. These results were confirmed also on the split sample, where computations separate for males and females were executed. The results are discussed within the context of theories of assortative mating and similarity hypothesis with an emphasize on biological and evolutionary tendencies influencing the attractiveness assessment of human faces. This work was supported by the Slovak Research and Development Agency under the contract No. APVV-15-0294.

### Actor-partner interdependence modelling of the effects of sociosexuality on relationship satisfaction

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By using round-robin design, we tested the hypotheses about the negative effects of sociosexual behaviors and attitudes on the relationship satisfaction on a sample of 190 romantic couples, by using actor-partner interdependence model (APIM). Regarding self-reported sociosexual behaviors (SB), we observed significant negative actor and partner effects on both women and men. In other words, both women and men, who perceive themselves higher on SB, were less satisfied with their relationships, and their partners were also less satisfied. In case of partner-reports, only significant negative partner effect was obtained in women. Thus, if men were perceived

as being higher in SB by their partners, then these men were less satisfied, without such a link in women. Regarding sociosexual attitudes (SA), significant negative actor effect was found on men's self-report and both actor and partner effects on their partners' reports, while on women only partner effect was obtained, and only on their partner's report. Thus, men but not women who self-reported higher SA were themselves less satisfied with relationships. The same variable did not predict the other partners' satisfaction in either case. Also, men and women who were perceived by their partners as being higher on SA, were less satisfied with their relationships. Finally, men, but not women who perceived their partners as being higher on SA, reported lower satisfaction. Generally, as predicted, SB and SA attitudes exerted negative effects on women's and men's relationship satisfaction. Notwithstanding data source, we obtained stronger actor effects on men, and partner effects on women.

### Dark triad traits and mate retention behaviors in romantic couples: Actor-partner interdependence model

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Mate retention (MR) strategies are an important tool in keeping a partner. In the present study, we examined how Dark Triad (DT) traits predict the frequency of MR in the sample of 100 heterosexual dating couples. We used actor-partner interdependence model (APIM), which accounts for non-idependence that is inherent in couple data. Twelve APIMs were tested, one for each possible combination of predictors (psychopathy, narcissism, Machiavellianism and overall DT) and outcomes (overall MR score, cost-inflicting and benefit-provisioning behaviors). The results showed that men's DT traits were stronger predictors of men's as well as women's MR than women's DT traits. The strongest effects of men's DT traits were found for psychopathy, and both actor and partner effects were the highest for cost-inflicting behaviors. The strongest effects of women's DT traits was also found for psychopathy, while narcissism exerted neither actor nor partner effects on MR. Men's DT traits have similar actor and partner effects, while women's DT traits exerted mainly actor effects, especially on benefit-provisioning behaviors. For most APIMs, couple and actor-only dyadic pattern were plausible for both women and men. Actor-only dyadic pattern was found as plausible only for Machiavellianism. To conclude, this research once again showed that especially men's psychopathy may be detrimental for romantic relationship outcomes by influencing their own, as well as their partners' cost-inflicting MR behaviors.

## The relationship of Big Five personality traits, Dark Triad personality traits and aggressiveness with recognition of emotions in facial expressions

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Facial expressions of emotions guide social interactions, thus enhancing adaptation and functioning of an individual, and the ability to recognize them could be related to stable personality traits. This research aimed to examine the relationship of Big Five personality traits, Dark Triad personality traits and aggressiveness with the accuracy of recognizing unambiguous and the categorization of ambiguous and neutral facial expressions. The sample comprised 207 university students who completed the emotion recognition test (which, besides the standard “prototypical” unambiguous expressions of six basic emotions, also contained ambiguous and neutral facial expressions) as well as the series of personality questionnaires. Before examining the relationship of personality traits with emotion recognition, general recognition of emotions and patterns of errors were inspected. Results confirmed earlier findings, with the level of accuracy being highest for happy and lowest for fearful faces. Regarding the relationship with the personality traits, results showed that openness to experience was related to more accurate recognition of fearful faces. This finding is discussed by account of aesthetic sensitivity and within the frequency-of-occurrence hypothesis. Also, psychopathy was related to more frequent categorization of neutral expressions as disgusted faces, which is discussed within the framework of evolutionary psychology. The relationships of other considered variables did not prove to be significant.

## The maladaptive reflections of narcissus: The clinical validation of the Orthogonal Narcissism Concept

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Orthogonal Narcissism Concept (ONC) is an emerging personality model of the complex and dynamic understanding of clinical- and sub-clinical narcissism. ONC was developed in the University of Pécs, and its aim is to unify in a single approach the vulnerable-grandiose and cover-overt narcissistic tendencies. Although the previous validation studies with non-clinical samples were promising, our explicit aim is to test its applicability in the clinical field, therefore this research is the first provisional step towards to this intention. One hundred and forty-six people participated in our study ( $N = 146$ ), in which 54 people belonged to the clinical- and 92 to the nomative sample. The distribution of the males and females was 44.8% vs. 55.2% while their age ranged between 22–66 years ( $M = 43.95$ ,  $SD = 8.20$ ). The participants filled out the (1) ONC tests (Narcissistic Personality Inventory, Maladaptive Covert Narcissism Scale, BIS-BAS Scales), (2) the narcissism subscales of MMPI and CPI, and (3) the PID-5-BF, which measures the maladaptive alternatives of the Big Five. The participation was anonymous and voluntary. Personal evaluation was not carried out, only intergroup differences were analysed. According to our results, two factors of the ONC showed differences between the groups: vulnerable- and covert tendencies were higher in the clinical sample. The MMPI- and CPI scales could differentiate between the four ONC subtypes, while the PID-5-BF factors also showed distinct patterns in their case. Summarizing our results, the clinical validity of the ONC was partially confirmed, but also several question arised, which requires further empirical attention.

## Social psychology 1

### Social influence in experiencing music – role of musical preferences and personality

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The goal of this research was to examine the role of social influence in experiencing music as well as the role of musical preferences and personality traits. The research was conducted on 95 participants who filled out the STOMP scale (that measures musical preferences) and BFI-44 personality questionnaire (based on the five-factor model) before individually listening and rating musical excerpts via a computer program. Participants were divided into three groups. One experimental group was treated by positive social influence, the other experimental group by negative social influence, while in the control group the manipulation with social influence was omitted. Social influence was operationalized as alleged information about average valence of students' emotions, which was displayed during listening to a music excerpt. The obtained results have shown that participants' ratings of music excerpts were susceptible to social influence, meaning that conforming towards experimental manipulation by social influence had occurred. Regarding the role of musical preferences results have shown that in the case of positive social influence the bigger was the preference, the weaker was the social influence, and in the case of negative social influence the bigger was the preference, the stronger was the influence. Regarding the role of personality traits results have shown that participants with higher Openness scale score had a mild tendency of conforming to negative social influence. Additionally, correlation analysis of musical preferences and personality traits largely replicated the results of previous studies.

### From threat to oppress: how threatened group identity defines interpersonal and intergroup

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Considering the complex nature of identity we can state that group identity activation can be manifested both on intergroup and individual levels, defining cognitive and affective functioning. Based on this we are investigating the relation of collective victimhood and national identification patterns with personal psychological constructions and with intergroup dynamics. We assume that collective victimhood and glorification can be considered as threatened position and its activation can be related with individual psychological instances like self-esteem, self-reflection and empathy, and these can be connected with intergroup processes like social

distancing or prejudice. A complex test-battery was filled out online by 604 participants investigating collective identity (Collective Victimhood Scale, National Identification Scale), personal psychological instances (Self-Esteem Scale, Interpersonal Reactivity Index, Self-Reflection Scale), and with social distance scale and open-ending questions on intergroup relations. Results show that threatened group identity constructions are in negative correlations with self-reflection and in positive correlation with the social distance. In contrast, inclusive group identities are in positive correlation with empathy and self-reflection, and in negative correlation with social distance.

### The effects of relevant identity connected threat on psychological processes

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We look at the phenomena of increasing intergroup violence and prejudice over Europe through activated identity threat. Depersonalisation of individuals arouses with the narrowing, norming efforts of the ingroup. Relative deprivation influenced by the economic crisis served the rise of threat politics and propaganda. We assume that individual differences in reaction to threat politics concerns both the quality and quantity of relevant identifications, the personal value-system and the kind of dominant coping strategies activated. However, identification relevant threat in general influences psychological states and processes, like the increase of anxiety, the decrease of self-reflection, empathy, mentalisation. To measure the effect of threat an experiment was conducted with four group of individuals (Gypsies, homosexuals, a community of protestants, teachers,  $N = 25$ ). First, subjects filled out a questionnaire measuring both anxiety, resilience, self-reflection, self-esteem, mentalisation, empathy, and fear about negative judgement. Two weeks later they received a group specific stimulus, a threatening low proposal, worked out with the help of group representatives. Individuals expressed what they think about the proposal and than filled out the same questionnaire for the second time. Results about how perceived identity threat effect psychological processes are under statistical analysis.

### Beyond cultural differences: Identity threat in relation to gender construction. A comparative study between Roma and non-Roma people in Hungary

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How we think about men and women is deeply rooted in the social and ideological context. Roles attributed and identity is a social process and a result of negotiation among the members of a community. The broader ideological context in society influences not only the contents of gender, but

their possible dynamic as well. We investigated the construct of gender and its relation to different identity states threat nowadays in Hungary among Roma and non-Roma people. We also examined how both gender and identity threat are related to socio-economic positions, such as education, context, income, subjective wellbeing and employment. We conducted a comparative study with 288 participants using a mixed method questionnaire. We used associative network for the representations of gender, and measured identity threat and distancing with MTP-Questionnaire. According to our results, we obtained differences on gender representations among the minority and the majority members. It seems Roma participants have a more hegemonic and conservative gender representation, and non-Roma people have a more polemical and diverse conservative gender representation. In addition, we have found that higher education is associated with lower gender identity threat and lower gender distancing, and modern elements appear. So the traditional gender representations are not to be culturally specific.

### Social representation of disability in Hungary

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The social representation of disability was investigated, which is an understudied but very essential issue in Hungary. In this paper, disability covers physical disability, deafness and blindness. Besides these, the distinction and similarity of social representations of disabled and healthy families are also discussed. The research consisted of 239 healthy Hungarian participants (18–71-year-olds). The sample was divided according to having a disabled relative or friend or not. Age groups were also created. Method of association network was used to get a representative view of people with physical or sensory disability and of families concerned with disability. People had to associate to words like “disability”, “deaf person”, “blind person” and to pictures describing families with or without a disabled person. Participants also had to indicate whether their associations are thought to be positive, negative or neutral to them. IRaMuTeQ multidimensional text-analyzing software was used to investigate the central core and peripheral system of social representations. Polarization and neutralization of words were also investigated. Similarity analysis was run to picture which associations were mentioned together regularly. Results show that people having a disabled relative or friend tend to associate more positively for disability-related words. Beyond that, no similar study has been conducted yet in Hungary, further investigation of healthy and disabled family interactions is intended in our research, which requires a representative perspective about how Hungarian people have disability in mind.

## Social psychology 2

### A sense of belonging and social inclusion as important factors for successful integration of migrant children

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Social bonds, social links and social bridges are indicators of migrant integration. A sense of belonging and having positive relationships with others are fundamental human needs. When not met, they can undermine our performance, health, and well-being. Another important indicator of migrant integration is education, but it emerges as the greatest weakness in integration policies in most EU countries [Migrant Integration Policy Index, <http://mipex.eu/> (2015)]. Schools have a key role in the process of migrant children integration into a new society, with a significant impact on their well-being, success in school and further on the labour market, and their lives in general. The project Challenges of Intercultural Co-existence is an important action of the Slovene Ministry for Education, Science and Sports, aiming to foster supportive environments in educational institutions in order to ensure a successful integration of migrant children. The proposal of the comprehensive program has been developed in the framework of this project. It emphasises three key factors of integration: social inclusion, language learning, and supportive networks in schools and local communities. The program was tested and evaluated in the school year 2017/2018. The importance of teachers' and peers' role in the matter of fostering social inclusion of migrant children was rated above the system policies. Three types of research instruments were used: interviews with migrant students and their parents, sociograms, and questionnaires for students and teachers. We will present the activities of the proposed program and preliminary findings of the evaluation, focusing on the aspects of social inclusion.

### Never alone 2.0: The social dimension of the emotional semantic congruency effect

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It is well known that categorization of targets as ingroup or outgroup members affects human behaviours. However, little is known about whether this process affects the perception of emotions via the mood boosted by a minimal sense of belonging vs. loneliness. Here for the first time, we recast this problem by investigating the dependence of the emotional se-

mantic congruency effect (ESC) in the social context. ESC is an effect observed in an Emotional Comparison Task (ECT) with pairs of facial expressions of emotions, in which the speed of response is faster for emotional (positive/negative) rather than neutral faces, regardless of response side, with an overall speed advantage for positive over negative emotions (emotion anisotropy). In four experiments we manipulated the social context in terms of sense of belonging vs. loneliness by combining presence/absence of Social Categorization (minimal group paradigm) and presence/absence of Intragroup/Intergroup Competition (the best individual/cumulative performance). Subjects performed the ECT individually though concurrently in groups of 8 participants. Results showed that Intergroup Competition speeded up overall responses, while Social Categorization per se enhanced the emotion anisotropy in favour of a happiness advantage. In ECT, Competition and Social Categorization independently affect two performance's components both probes of participants' mood state: arousal, relying on response speeds, and valence, relying on emotion anisotropy. In conclusion, belonging to a group, which creates significant social connections and dampens feeling of loneliness, enhances the quality of global experience.

### **Beauty stereotypes affect the perceived severity of a sexual assault: a cross-cultural study**

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Beauty stereotypes affect the process of social perception in nearly all walks of life. In their classic paper Sigall and Ostrove [*Journal of Personality and Social Psychology*, 31(3), 410 (1975)] demonstrated that the physical attractiveness of a criminal defendant influenced the severity of the punishment meted out by the participants. In this study we investigate how the harshness of punishment changes as a function of the perpetrator's and the victim's physical attractiveness in both a Hungarian and an American sample. We are also interested in the extent of victim-blaming, as well as the perceived unfairness of the crime. Participants are asked to evaluate eight scenarios describing a male perpetrator committing sexual assault against a female victim. The level of attractiveness of the stimuli varied across the panels (i.e. attractive / unattractive perpetrator vs. attractive / unattractive victim). Participants use a 7-point Likert-scale to indicate the severity of punishment (1 – The most lenient possible; 7 – The most severe possible), the extent of responsibility of the victim (1 – Not at all; 7 – Absolutely), and their own level of anger (1 – Not at all upset; 7 – Very upset), respectively. This study is being carried out right now; this means that we will have the results by the end of summer 2018. Based on previous research we predict similar results in both samples. In sum, less attractive victims will elicit more anger and thus more severe punishments. On the other hand more attractive victims will be blamed more than less attractive ones.

### **Justifying or challenging society and economy: social representations and identity in play**

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Using the social representation and the social identity theory, this study questions the decontextualized human motivational explanations of system justification, aiming to highlight how attainable, propagated knowledge offered by the system itself might have an important role in evaluating context and political action such as active citizenship or collective action. We developed Socio-Economic Explanations Questionnaire (SEE-Q) which employs 18 items to measure attitudes towards hegemonic social representations of economy and socio-economy. Items are based on argumentations of classical political economy (e.g. Hegelian ideas) and neoliberal additions. To measure willingness towards political action we used additional items about various voting opportunities, participations in actions. The sample was stratified,  $N = 370$ . Data were collected both online and face-to-face in the Hungarian countryside with low-status groups. Results show high perception of the economic system being unjust with complementary stabilization reasoning used which correlate with various political positions. The factor structure of SEE-Q ( $KMO = .85$ ) shows one system justification pattern (Just-Stable,  $\alpha = .76$ ) and two stabilization reasoning pattern, Justified by democracy ( $\alpha = .68$ ) and Justified by nature ( $\alpha = .61$ ) and one dynamic position: Unjust-Unstable ( $\alpha = .78$ ) system perception. Justifying and stabilization reasoning are in relation to economic status, so the use of them seems interest driven. While active citizenship related to voting activity is practiced if system is perceived as just-stable or seen as unjust but democratic or natural, systemic change is supported if the system is seen as unjust and unstable.

### **Investigation of social representations beyond collective actions**

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When individuals start to perceive the social system as illegitimate, or unstable, or both simultaneously, they start to create cognitive alternatives, new representations of the social order and the economic system. Based on Tajfel's concept [*Human groups and social categories: Studies in social psychology*, Cambridge University Press, Cambridge (1981)] we assumed that the perceived instability and illegitimacy of the system will correlate with the willingness to act for social change. This present study employs various assessment items to explore which representations and reasons are interrelated with participation in collective actions for social change. These items were referred by the perceived instability and illegitimacy of the system, the extent of the person's public sphere, past experiences in the field of volunteering and assistance,

imagined future willingness, feeling of being affected by societal issues, awareness of civil activities and personal value system. Participants ( $N = 240$ ) completed a complex online questionnaire which contained multiple choice questions, open questions and Likert scales. Results show that the involvement in social issues, the knowledge about NGOs, the past experiences and the radicality of imagined future activity are also correlate with current activity such as the width of the social network and communication about public issues. We also found that the perceived instability influences the current activity while the perceived illegitimacy of the system is not enough in itself to motivate someone to be active.

## Social media psychology

### Adolescent Instagram use and imaginary audience imagination

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Even though Instagram is the fastest growing social networking service (SNS), there is a relatively small number of research on this platform, especially when it comes to adolescents. We tried to fill this gap with the present study, in which we investigated how different aspects of Instagram use - interaction, browsing and broadcasting, are associated with imaginary audience (IA) ideation - one's belief that others are thinking about him/her all the time. We also proposed that this relationship is mediated by self-monitoring and moderated by social comparison orientation. In a total sample of 180 adolescents (mean age = 13.67 years,  $SD = 0.69$ , 58% female), 86% had an Instagram account and reported using Instagram for a daily average of 94 minutes. Both Instagram interaction and Instagram browsing positively correlated with imaginary audience ideation, and self-monitoring mediated these associations. These two associations only held for those low on social comparison, supporting the hypothesis of the moderation effect of social comparison. No association was found between Instagram broadcasting and IA ideation. These findings suggest that adolescents might see broadcasting content on Instagram as a regular, daily activity, and do not necessarily engage in imagining an audience for that content. On the other hand, interacting with particular people on Instagram, in the form of liking and commenting content, and interestingly, mere viewing of the content of others, is linked to ideation about imaginary audience. Overall, our results suggest that Instagram has a significant role in fulfilling the developmental needs of adolescents.

### Expressions of narcissism and self-esteem among social networking sites users

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Over the past few years, social networking site usage has increased rapidly. Recent research has shown that social networking sites use is associated with low self-esteem, but little research has studied the relation between social networking sites use and various forms of self-esteem as well as forms of narcissism. The aim of the present study was to examine the association between overt and covert narcissism, global and contingent self-esteem, the level of selectivity at social networking sites self-presentation and the level of social networking sites addiction of Facebook and Instagram users. To this end, the data of 314 participants (235 women and 79 men)

between the ages of 18 and 30 were collected by using a web application. With cluster analysis, we identified four clusters based on individual's level of narcissism (overt and covert) and self-esteem (global and contingent). The results showed significant group differences in most of the aspects of social networking sites use. It seems that social networking sites are particularly appealing for individuals with high levels of both the overt and covert narcissism being characterised also with high level of contingent self-esteem. In comparison with other groups, this group of participants reported about the highest level of selectivity for social networking sites self-presentation, social networking sites addiction and also about the biggest desire to have as many virtual friends or followers as possible. Future research should attempt to identify more exact predictions of social networking sites risk use.

### **Relationship between use of social networks, basic psychological needs, and life satisfaction**

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The use of social networking sites has become normal part of our daily lives and more and more researchers are interested how it impacts us. Still, research examining use of social network from Selfdetermination theory perspective is lacking. So in this research, by using the framework of Selfdetermination theory, we try to examine the relationship between some characteristics of use of social networks, students' basic psychological needs satisfaction, and life satisfaction. It has been hypothesized that basic psychological needs satisfaction mediate relationship between some characteristics of use of social networks and life satisfaction. The sample consisted of 294 female students of Early childhood and preschool education from University of Zagreb. Students were asked why they use social networks, amount of time they spend daily on social networks and how many contacts they have on social networks. In addition to that, participants filled two questionnaires: The Satisfaction with Life Scale and Basic Psychological Need Satisfaction Scale. Results showed that basic psychological needs mediate relationship between characteristic of use of social networks and life satisfaction.

### **Development and validation of the new scale for measuring Instagram behaviors**

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Instagram is a social network primarily focused on posting photographs. Due to its raising popularity in the recent years, it became important topic of psychological research, but previous research mainly focused on few objective indicators of Instagram use. The aim of this study was to develop and validate the new scale for measuring behaviors of Instagram users. A total of 342 Instagram users (77% female; average age 23 years, ranging from 14 to 55 years) filled out preliminary version of the General Instagram Use Scale (GIUS) and additional questions regarding Instagram use and socio-demographic variables. Principal axis factor analysis was used to examine the structure of Instagram behaviors measured by GIUS. Six factors were extracted, explaining 45% of variance: involvement in Instagram use, learning how to be accepted, professional use, Instagram as virtual self, seeking publicity, and interests and hobbies. Total number of Instagram posts is positively related to all six factors of Instagram use, number of followers is related to higher involvement, publicity seeking, and Instagram as virtual self, while the number of people the user is following is related to higher involvement, publicity seeking and interests and hobbies. Women, younger and less educated users are characterized by more involvement and more Instagram use for following interests and hobbies, while older users use Instagram for professional purposes and to seek publicity. This study showed that GIUS can be used to measure six aspects of Instagram use which are specific for different user populations.

## Sport psychology

### Validation of CSAI-2R on Serbian sample

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The natural companion of each competition is anxiety which significantly affects the quality of sports performance. Previous researchers have shown that sports competition anxiety represents a significant risk factor for anxiety states before, during and after the competition. We aim to determine psychometric characteristics of a Serbian adaptation of the CSAI-2R scale. The sample consisted of athletes ( $N = 96$ ) from Novi Sad, with an average age of 18 years ( $SD = 4.85$ ). Half of the athletes are professionally engaged in sports. Kaisere-Meyer-Olkin test indicated very good sampling adequacy ( $KMO = .85$ ). The optimal number of factors was determined by the parallel analysis with 95% percentile criterion. This criterion suggested the three-factor solution, which explained 66% of the variance. The results are in line with previous research in which the three-factor model is also obtained, with minor deviations in structure due to translation issues. Overall internal consistency of the scale was found to be satisfactory ( $\alpha = .88$ ) as well as extracted subscales: somatic anxiety ( $\alpha = .92$ ), self-confidence ( $\alpha = .81$ ), and the cognitive anxiety ( $\alpha = .74$ ). Our results showed satisfactory psychometric characteristics and as such this questionnaire can be used for assessing different types of sports anxiety.

### Sport performance and different types of competitive anxiety

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The fact that the competition has one winner is a significant source of stress and anxiety for all participants of the competition. Hence, it can have detrimental effects on the successful sports performance. In the present study, we aimed to examine how different types of anxiety (cognitive, somatic, and self-confidence) influence the subjective feeling of successful sports performance. We assessed the levels of anxiety (CSAI-2R) and subjective feeling of performance (QSSP) from 76 athletes from Novi Sad, Serbia. First, we examined the latent structure of the newly developed 8-item QSSP, and extracted two factors, namely: the dedication to training and sports achievement, explaining a total of 62% of the variance. Secondly, we performed regression analysis, using three dimensions of CSAI-2R as predictors of the dedication and achievement. We found that cognitive anxiety ( $\beta = -.40$ ) and self-confidence ( $\beta = -.29$ ) negatively predicted achievement (accounting for 26% of variance), but none of the predictors

significantly predicted dedication to the sport. Our results show that specific types of competitive anxiety, rather than the overall level of anxiety negatively affect the subjective feeling of achievement. However, regarding the relationship between dedication and different types of anxiety, our results are not in line with previous studies.

### Emotional intelligence and GRIT of young basketball players

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Emotional intelligence can predict success in important domains, among them personal and work relationships and navigation in the social environment. EI showed correlation with several 'positive' personality traits in several fields. In the current study, emotional intelligence and GRIT (perseverance and passion for long-term goals) were studied in young basketball players group and non-athlete controls. The results were based on the Wong and Law Emotional Intelligence Scale and GRIT Scale (Consistency of Interests, Perseverance of Effort). The four factors of emotional intelligence correlated with a high GRIT value. Higher GRIT also correlated with being a national team player.

## Work and organisational psychology

### Dark personality traits in the workplace

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The aim of the current study was to investigate how socially aversive personality traits (subclinical psychopathy, subclinical narcissism and Machiavellianism) are represented in the position and work attitudes of employees. A questionnaire-based study was conducted among full-time employees ( $N = 1320$ ) where dark triad traits (Short Dark Triad, SD3), field and level of position were measured, in order to get a more detailed picture about the connection between organizational success and dark personality traits. For a deeper understanding of the correlates of dark personality traits, the relation of dark triad traits and work-attitudes, like work-satisfaction (Job Satisfaction Survey), intention to leave (Turnover Intention Scale), organizational trust (Organizational Trust Questionnaire), and organizational identification (single-item graphic scale of organizational identification) were analyzed in a second study ( $N = 256$ ). Our results show that individuals in higher positions of workplace hierarchy had higher scores on psychopathy,  $F(2, 1317) = 4.63, p = .01$ , Machiavellianism,  $F(2, 1317) = 3.59, p = .03$ , and narcissism scales,  $F(2, 1315) = 25.48, p < .001$ . Dysfunctional work-attitudes (low levels of organizational identification, organizational trust, work satisfaction and high levels of leaving intentions) were predicted by psychopathy and partly by Machiavellianism, but not by Narcissism. Strong gender differences were found in the organizational correlates of dark personality traits. These results suggest that dark triad traits – and mainly subclinical psychopathy – should be taken into consideration when personality predictors of counterproductive work behavior and attitudes are researched.

### Hotshot or bossy? Differences in the evaluation of male and female leaders with dark personality traits

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Previous organizational researchers recognized that the same traits and behaviors of men and women are evaluated differently, also in workplace-context. While female employees with characteristics like kindness and modesty are preferred, with male employees, self-confidence and a strong-minded attitude are desired. Behaviors contrary to these – role norm-based – expectations may result in negative judgements and feedbacks. The current study has focused on the Dark Triad personality traits (Machiavellianism, subclinical narcissism, and subclinical psychopathy) and the perception of these

traits of male and female leaders. Undergraduate students and employees from different work areas evaluated fictional descriptions of leader “profiles” with dark triad-related characteristics. While one group of participants get the list paired with male leader name, the other group evaluated the same profile of a fictional female leader. Our results show that female leaders with dark personality traits were rated lower on different indicators of leadership efficiency than male leaders. While certain traits were perceived as part of a charismatic male leader’s profile, the same traits came to be associated with negative connotations for female leaders.

### Linguistic aspects of employee turnover intention

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Turnover intention is at the focus of organizational research – more and more workplaces realize the importance of employee retention. Every organization possesses a unique psychological and behavioral field which can influence the individual psychological and cognitive processes of employees (e.g. motivation, citizenship, identification or turnover intention). To investigate this field, we used both questionnaires and structured interviews to understand the linguistic dynamics behind employee turnover intention. Full time Hungarian employees ( $N = 270$ , 152 females and 113 males, average age 37 years, tenure 3.17 years; 28 leaders, 47 middle managers, and 186 employees, from different types of organizations) were taken into our research and presented a series of questionnaires: OCB, Identification, Turnover Intention, Organizational Trust, Organizational Satisfaction, demographic questions, and a structured interview. Interviews were analyzed with thematic analysis (through codes that emerged from the texts) and also with linguistic analysis (frequencies of personal pronouns, positive-negative emotions and constrain). Based on our findings we can present a linguistic profile of employees with high-level turnover intention. Employees with high-level turnover intention used significantly more positive emotions, negative emotions and the personal pronoun „they”. Topics used by such employees (Uncertainty, Feedback, Task Description and History) are also revealed. The importance of this research lies in the fact that most of the previous studies considered employee turnover as a personal choice and a binary issue of stay or leave. Here we put the emphasis on the role of the silver linings between the organization and its employees. We also aim to validate the interview method which can grasp this relationship.

## Expatriate cross-cultural adjustment: Self-enhancement and the overclaiming technique

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Using the overclaiming-questionnaire technique, this study provides a preliminary test of the hypothesis that self-enhancement hinders successful cross-cultural adjustment. Using a newly designed questionnaire measuring international-cultural knowledge, 100 expatriates working in Singapore provided answers on 40 items. Of these, 10 were foil items for measuring overclaiming, indicative of self-enhancement. The expatriates also rated their cross-cultural adjustment to the host country, namely general adjustment (6 items), interaction adjustment (3 items), and work adjustment (3 items). Forty-three matching supervisors agreed to provide ratings on the expatriates' work adjustment. Results from hierarchical regression analyses, controlling in Step 1 for gender, age, prior foreign assignment, and months in host country, showed in Step 2 that self-enhancement was negatively related to supervisor rated work adjustment ( $\beta = -.33, p < .01, \Delta R^2 = .10$ ) and that the bias-corrected knowledge accuracy score was positively related to supervisor rated work adjustment ( $\beta = .42, p < .01, \Delta R^2 = .15$ ). The overclaiming technique is proposed as a promising tool for use in the prediction of cross-cultural adjustment. Practical implications and ideas for future research are critically discussed.

## Talent management: Lack of clear definition

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Human resources management professionals say that talent management is one of the biggest challenges that organizations will face in the 21<sup>st</sup> century. In view of its current popularity and the relatively large amount of past research one might expect the field to be well defined and supported by a wide range of research and praxis. However, numerous writers and researchers believe that the field currently lacks a clear definition and stable theoretical basis. Also, literature is noticeably influenced by researches in private sector and multinationals so concepts could not be wholly transferable to other types of organizations. The purpose of the study was to explore definitions of talent management and talent, see how they are defined by HR practitioners and compare definitions between medium-sized and large companies. We employed an exploratory approach, using semi-structured interviews to gather information from 21 human resources professionals. Results show a disparity among the various definitions of talent management and differences between medium-sized and large organisations. The majority of the participants agree that what is required for a talent is a combination of embodying the values, personal characteristics and above-average

job performance. Research involves a systematic review of the current paths in defining talent management and concept talented employee as well as gives insight in opinion of HR experts who work on talent management in practice. It also stressed that same definitions could not be used for companies of all sized, because talent management process is not perceived nor implemented in the same way.

## Work-home integration, health risk behavior and cardiovascular health: How much work is too much?

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Today's work realities are clearly different from those decades ago. Blurred boundaries between work and private life have become inevitable for many employees. Employees are found to psychologically engage in work during off-job time through behaviors (e.g., responding to work-related emails at home) and cognitions (e.g., worrying about work-related problems at home). Such engagement may also be associated with certain costs for one's family life (i.e., work-to-family conflict). Based on the effort-recovery model and the preservative cognition hypothesis, it may be assumed that psychological engagement in work during off-job time may hamper employees' health. This assumptions, however, were rarely explicitly tested. In the present study ( $N = 289$ ) we investigated whether psychological engagement in work during off-job time is associated with health risk behavior and (cardiovascular) health. As engagement in work may constitute unique profiles varying quantitatively (in level) and qualitatively (in shape), we adopted a person-centered approach using latent profiles analysis to identify the profiles. Moreover, we examined differences between these profiles in health-related outcomes measured using clinical (e.g., blood pressure), anthropometric (e.g., weight, height) and laboratory (e.g., blood samples) measurements. Preliminary results have shown four distinct profiles of boundary management which differ mostly in health risk behaviors and to a smaller extent in (cardiovascular) health. Moreover, several job characteristics (e.g., job demands) differentiated profile membership. In sum, the present research provides some support for poorer health status among employees who exhibit greater engagement in work during off-job time and provides new insights on how boundaryless work context shapes health.

## Posters

### Poster session 1

#### The effects of gender schemas on recall of gender consistent and gender inconsistent activities

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Gender schemas are cognitive structures that divide the world into two parts based on gender which can affect coding and recall of information. We examined whether gender schemas affect the recall of gender consistent and inconsistent activities and whether there are differences among age groups in general recall and in proportion of errors for gender inconsistent activities. We hypothesized that students would recall most of the activities correctly, children would have lower results whereas the elderly would have the lowest. Furthermore, we assumed that all participants would recall gender more correctly in gender consistent activities and that students would make the least errors for gender inconsistent activities whereas the elderly would make the most. Children ( $M = 7.52$  years old,  $SD = 0.51$ ), university students ( $M = 19.65$  years old,  $SD = 0.79$ ) and elderly people ( $M = 86.20$  years old,  $SD = 5.10$ ) participated in the experiment. We displayed pictures of gender consistent and gender inconsistent activities and assessed the correctness of recall after one week. Students and children were significantly better in general recall compared to the elderly. Participants made significantly less errors with gender consistent activities compared to gender inconsistent activities, for which they changed the gender and confirmed the effect of gender schema on recall. Proportion of errors in gender inconsistent activities appeared significantly different when comparing students and the elderly, the elderly made the most errors, children less and students the least. Gender schemas affect the recall of information differently among various age groups.

#### Patterns in noise: identifying Markov generators of events and using them to predict future events

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People look for patterns in sequences of events and model the processes in the environment that generate them. Knowing the generating process can enhance the ability to predict upcoming events and the many reports of sequential effects in cognitive, motor and perceptual tasks are likely a conse-

quence of pattern seeking. In everyday life observed patterns are often corrupted (“noise”) making it difficult to identify patterns. We compare human performance in identifying generators despite “noise” and using them to predict the next outcome to that of an ideal statistical observer. On each of 120 trials, 26 participants (age ranged from 19 to 30) were shown sequences of binary events (blue and yellow squares) first generated by one of two Markov processes. One generator tended to produce repeating sequences (“sticky”), the other (“volatile”), tended to produce sequences that alternate more often than the tosses of a fair coin. Length of the sequence available to the participants was varied from 4 to 19. Proportions of the events were flipped at random (“noise”). Participants were asked (1) to judge the generator type and (2) to predict the next outcome in the sequence. Participants also rated their confidence in both judgments. Human performance was sub-optimal in both identifying generators and predicting the next event. Crucially, human use of information about the likely generator in predicting the next event was also suboptimal.

#### Assimilation and accommodation: A systematic review analyzing the changes of meaning in the last two decades

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Since Piaget introduced the concept of assimilation and accommodation in psychological research, the two terms are used for describing different forms of adaptive processes between individuals and their environment. The present study aims at gaining an overview, which processes the both terms exactly describe in literature and how the scientific insights in the last 20 years changed the meaning of them. Data for the review were collected at the databases SpringerLink, PsychInfo and PsychArticles with the cut-off date being on the 17th of April 2018. The keywords were “assimilation and accommodation”, study inclusion criteria were peer-reviewed journals in English language within the publication time ranged from 1998 until 2018. Altogether we found 507 contributions (SpringerLink: 137, PsychInfo: 127, PsychArticles: 243). First analyses show that beside the classical Piagetian meaning of the terms assimilation and accommodation additional understandings came along. In the latest publications, the terms describe more specific processes within more complex issues. They reflect adaptive processes for example in migration and acculturation contexts, within coping with trauma, coping with aging processes, identity formation and development of the self, development fostered by psychotherapy or in psycholinguistic contexts. Preliminary results will be presented regarding the different contextual meaning, new developments of the use and the changed complexity of the described processes will be discussed.

## The effects of ecological versus artificial sounds of breathing in the modulation of breath duration of healthy participants

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The use of auditory cues for the modulation of movement and physiological parameters has been investigated in different domains. However, most of the previous studies used artificial cues, which did not provide information related to individual's perceptual experience. In this study, we compared the effects of ecological and artificial cues on breathing. Consistently with the Theory of Event Coding, we hypothesized that the ecological cues would affect breathing more than the artificial ones. Indeed, the more the perceptual experience overlaps the action experience, the more the former would influence the latter. We created a database of ecological sounds by manipulating the breathing sounds of a volunteer. We also created a database of artificial sounds which had the same temporal features as the ecological ones. Twenty volunteers were then exposed to three different conditions – ecological sound, artificial sound, and control – while we monitored their breath duration. In each session, participants were first asked to breathe normally, and then to synchronize the beginning of their inspiration with the beginning of the inspiration sound, for each breath. Only in the control condition no cue was provided for this second phase. The statistical analyses then revealed that breath duration variability in the ecological condition was significantly reduced in contrast with the other two conditions. The results confirm our hypothesis that ecological sounds capture the timing of breathing better than artificial sounds, guiding as a consequence participants' breathing.

## Teachers' mental health: Examining the role of emotional processes

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Teaching profession is considered as emotionally demanding and many teachers experience burnout at their workplace, which is the indicator of teachers' mental health. Also, teachers experience a variety of positive and negative emotions of significant intensity at work and frequent experiences of teachers' negative emotions in relation to students as well as feelings of emotional exhaustion (as an important aspect of burnout), can have negative impact on teachers' mental health and increase the occurrence of psychopathological symptoms. The aim of this study was to examine the role of teachers' emotions, both positive and negative in relation to their students, and emotional exhaustion in explaining symptoms of anxiety, depression and somatization among teachers. The study included a sample of 1149 teachers from various state schools in Croatia. A total of 210 male and 939 female teachers, aged between 24 and 65, participated in the study.

Considering the expected gender differences in prevalence of psychopathological symptoms, hierarchical regression analyses were conducted separately on the subsamples of male and female teachers. Results showed that certain emotions (exhaustion, love, anger and hopelessness experienced in relation to students) and emotional exhaustion significantly explain the symptoms of anxiety, depression and somatization among teachers. The obtained results emphasize the importance of emotional processes in understanding teachers' mental health and psychopathological outcomes in teaching profession.

## The development of battery for measuring the understanding of numerical magnitudes in students at the beginning of primary school

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The aim of our contribution is to present a battery of new instruments for measuring the understanding of numerical magnitudes in pupils at the beginning of primary school. The research in numerical development showed the importance of accurately representing numerical magnitudes for mathematical achievement. We developed three instruments for measuring accuracy of non-symbolic and symbolic magnitude estimation. Instruments were designed for group application. Number line estimation test includes 10 tasks in which pupils locate a number on a 0–100 number line (symbolic to non-symbolic representations) and 10 tasks in which pupils estimate the number that corresponds to a marked position on a 0–100 number line (non-symbolic to symbolic representations). Area estimation test includes 72 squares that are divided in two different areas. Pupils estimate which of two areas is larger (non-symbolic representation of magnitudes). Number comparison test consists of 24 tasks in which pupils estimate which of the two differences between numbers is smaller (symbolic representation of magnitudes). Each task is presented as an equilateral triangle with numbers in all three corners. Pupils decide which of the two numbers in bottom corners is closer in magnitude to the number in top corner. A pilot study of instruments was carried out in the sample of approximately 300 pupils, 100 each from the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grade from five Slovenian primary schools. The first results of instruments' metric characteristics will be presented. The possibilities for the improvements of the tests will be discussed.

## Didactic online training for enhancing inclusion and preventing segregation: Conceptualization and Development of the programme

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The importance of early detection of the autism spectrum disorders (ASD), followed by an early intervention is increasingly recognised. Participation in Early Childhood Education

and Care systems (ECEC) is a crucial factor for socialising children into formal education, and the most disadvantaged children demonstrate higher cognitive and socio-emotional benefits when participating in high quality ECEC (compared to other children). However, children with ASD are less represented in ECEC, due to the lack of adapted settings. “ET-TECEC” is an EU K2 project, offering education and training for pre-school teachers, aiming to reduce disparities and foster inclusion in pre-school groups. An online training for enhancing competencies of pre-school teachers, enabling them to provide inclusive environment for all children, is being developed inside the partnership, which involves academics and professionals from various organisations across Europe, and will be implemented and evaluated in next school year. Real life situations were obtained through structured interviews with relevant stakeholders (pre-school teachers, parents, children, experts etc.) and observations in the groups, and will serve as a basis for the development of the training content. They will be presented through introduction videos, followed by an expert instruction and a quiz. The open access training will be of help to pre-school teachers in their working settings, in dealing with difficult situations; it will contribute to their competences and will also indirectly influence the children in their groups.

### Which learning strategies do students of health studies use?

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It is expected that people with good self-regulation skills are more ready for acquiring new knowledge and skills, which can enable them to be more successful in their professional lives. Since, development in medicine and technology bring constant changes in health care system, adaptive learning strategies can prove to be crucial for future health care workers for achieving good results and quickly adapting to changes in their work place. The goal of this study was to examine the use of learning strategies in students and whether there are differences in the use of these strategies with regard to gender and their educational level. The survey was conducted on 348 students of health studies in Zagreb. We used The Learning Strategies Scale (Lončarić, 2014). The results show that students mostly use adaptive strategies in learning like organisation, control flow and learning outcomes and application, which represent metacognitive control of learning, and deep cognitive processing, while focus on minimum requirements and memory were the least present. The female students use more often repetition, organisation and application. Third year students use significantly more often elaboration, application and critical thinking than first and second year students. We can conclude that students of health studies mostly use adaptive strategies in learning. That can be very important in acquiring and retaining knowledge and skills, which they will use in their future professional lives.

### How proficient are we in virtual classroom usage?

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Different forms of online learning, including virtual classrooms, have become an important part of higher education. Development of web made it possible to exchange a lot of information in a very short time. Virtual classrooms offer different opportunities for active usage of knowledge, if they are prepared in a way that supports cognitive functioning. Faculty of Arts, University of Ljubljana, started using virtual classrooms in 2006, but some faculties used virtual classrooms even before 2006. With this research we aimed to evaluate the current status of virtual classrooms usage and develop guidelines for future use. Participants were 246 students (62% females) included in different study programs from three public Slovenian universities. Participants (87.4%) were included in 3.73 virtual classrooms in average. They spent 5.48 hours per week using virtual classrooms, mostly to acquire study materials (90.2%), hand-in assignments (90.2%) or obtain important information about the class (71.2%); 10% or less used virtual classroom for group work, chatting with other students, listening to video lectures or developing a dictionary of professional terms. Even though students perceived study with support of virtual classrooms as easy to interpret and well organized, they did not perceive it as an important contribution to their knowledge or motivation for study. Significant differences between faculties appeared. Suggestions for improvements will be presented.

### The prevalence of adverse experiences of peer bullying and sexual abuse among older primary school students

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In our paper, we present the results of a preliminary study on prevalence of different forms of peer bullying and sexual violence among older primary school students. This pilot study was a part of a project called “Safe without violence: Comprehensive program of primary prevention of peer bullying and sexual violence against children and adolescents” and our first step to conducting a nation-wide research on prevalence of peer bullying and sexual violence among young adolescents. Students attending 7th, 8th and 9th grade participated ( $N = 124$ ). They responded to the School Bullying Scales by Cheng et al. [*Educational and Psychological Measurement*, **71**(1), 200 (2011)], which measure four types of school bullying – verbal, physical, relational and cyberbullying from bystander’s, victim’s and bully’s point of view, and The Sexual Abuse Questionnaire, which was developed for the purposes of the study. According to the results, verbal bullying is the

most frequent among students, followed by relational, cyber and physical bullying. The results are congruent from the observers, victims' and bullies' point of view. With regard to sexual violence, the results are in line with other studies – around one third of students reported to have had an experience of sexual abuse/violence at least once in the past. The consequences of peer bullying and sexual violence can have harmful effects on students' mental and physical health. The main goal of the (on-going) project is to derive from these results and design effective programmes of primary prevention for preschool, primary school and secondary school children, with the main aim to strengthen their protective factors and keep them safe from adverse experiences of violence.

### Moral reasoning of prisoners

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In order to test concurrent validity of Test of Moral Reasoning, which is a relatively new instrument, we applied this test on prison sample of participants and compared their result with results of non-prisoner sample. The sample of prisoners included 98 participants (34 women), an average age of 40 years. Participants were categorized by the criminal act they committed—crime against health/life ( $n = 42$ ) and crime against property ( $n = 56$ ). Control sample included 222 participants equivalent in gender and level of education for which there was no evidence of criminal acts. All participants took Test of Moral Reasoning. We compared parameters of moral reasoning between prisoners and control sample (IMR-index of moral reasoning, rough measures of CO-conservative orientation and HO-humanistic orientation and six Kohlberg's phases of moral reasoning). Results showed that group of prisoners had a lower level of IMR. Beside the second level of pre-conventional phase, which is characterized with a higher result of prisoner's group, in all other phases control sample had higher results, except the first phase on which two samples did not differ. In accordance with changes in phases, the level of CO was lower and the level of HO was higher in the sample of prisoners. This result means that prisoners were more prone to justify the act of steal in moral dilemma based on which these parameters were calculated. Differences in parameters of moral reasoning between two groups of prisoners will be discussed. Obtained results support the validity of the Test of Moral Reasoning.

### Quantile-Quantile-Test: A new method for testing the hypothesis of equal distribution functions

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In this study, we propose the Quantile-Quantile-test (QQ-test), a new method to test the null-hypothesis stating the equality of two normal distributions. By analysing differences of the two distributions' quantiles allocated evenly across the two distribution functions, it thus allows for drawing in-

ferences about differences in location, dispersion, and shape. We present the test's principle and examine the procedure with simulated data covering various distribution parameters and sample sizes. The results indicate that the proposed test holds the nominal alpha niveau. We could further show that the QQ-test is superior to the two-sample Kolmogorov-Smirnov test regarding sensitivity to differences in location, dispersion and shape. A practical example illustrates the usage and shows the applicability of the procedure.

### Detection of deception in a RT-CIT mock crime paradigm with the Drift Diffusion Model

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A valid method to distinguish between „guilty“ and „naive“ participants in a mock crime paradigm is the reaction time-based Concealed Information Test (RT-CIT). By training „guilty“ participants to reduce the difference in mean response time between probe and irrelevant items the prognostic validity of the method to infer guilt status is decreased to chance level (e.g. Suchotzki et al., *Psychological Bulletin*, **143**(4), 428 (2017)). In the present research, we first applied the Drift Diffusion Model (DDM) [Ratcliff, *Psychological Review*, **85**, 59 (1978)], in order to describe RT-CIT task performance of naive and guilty participants and therefore assessed which parameters of the DDM changed after intensive faking training. We reasoned that if training not only affects mean RTS to probe and irrelevant items but also higher moments of the corresponding RT densities, the DDM may allow to distinguish between “faked innocent” and “true innocent” performance. In our research we report results from our mock crime study with guilty participants performing the RT-CIT twice. In the first test participants received no information on how to deceive the RT-CIT while in the second one they were instructed to speed up on probe for successful deception. Results are being discussed in terms of the DDM's propensity to explain the effects of faking training.

### The Subjective Financial Well-being Scale (SFWBS) for emerging adulthood: Development and validation in Italy and Portugal

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The study of emerging adults' financial condition has become a frequent research topic, as the young generation was the mostly hurt by the 2008 crisis. This new trend stressed the need for instrument to measure the emerging adults' financial well-being. The current study aims to develop a new instrument measuring the subjective financial well-being of emerging adults, based on the theorization of Sorgente and Lanz [*Adolescent Research Review*, **2**(4), 255 (2017)] and adopting the methodological and statistical procedures proposed by the contemporary view of validity [see Hubley & Zumbo, *Social Indicators Research*, **103**(2), 219 (2011)]. The instru-

ment was originally developed in Italy, but validity evidence about the “subjective financial well-being” construct was collected both in Italy and Portugal. To develop items situated in the context of application of the scale, eight interviews with experts of Italian emerging adults’ financial condition were performed. Thematic analyses were used to generate the 45 items. These items were tested through eight cognitive interviews with Italian emerging adults, who suggested to remove one item. The 44 items were then tested on 374 Italian emerging adults performing item analysis and CFA. The final structure of the scale (25 items) consists of five factors: general subjective financial well-being, financial future, peer comparison, having money, and money management. We collected score structure, convergent, criterion, generalizability, known group, and reliability evidence performing different SEM models on an Italian sample of 516 emerging adults. Finally, measurement invariance was tested between Italian ( $N = 295$ ) and Portuguese ( $N = 124$ ) versions.

### Gender differences in relations of the Dark Triad and HEXACO traits to psychological distress

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The aim of this study was to explore the relations of the Dark Triad and HEXACO traits on psychological distress, and whether there are gender differences in these relations. On a sample of 404 participants (50.5% females) from the general population in Serbia ( $M_{age} = 34.54$ ,  $SD = 11.98$ ), three measures were administered: CORE-OM, which measures 4 domains of psychological distress: Well-being, Symptoms, Functioning and Risks, Short Dark Triad (SD3), and HEXACO-60. Results of hierarchical regression analysis showed that the basic personality traits explained 20 to 40% of the variance of different forms of psychological distress in males, and 10 to 30% in females. Extraversion showed consistently negative and strong relations with all forms of distress, following by the emotionality (in positive direction) and conscientiousness (in negative direction) in both males and females. However, the Dark Triad traits, more specifically, psychopathy, contributed significantly above the basic personality traits only in males.

### The relationship between triarchic psychopathy and well-being

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According to Triarchic Model of Psychopathy, psychopathy is a complex, dimensional construct which encompasses three distinct, elemental phenotypic constructs: boldness (nexus of high dominance, low anxiousness, and venturesomeness),

meanness (reflecting tendencies toward callousness, cruelty, predatory aggression, and excitement seeking), and disinhibition (reflecting tendencies toward impulsiveness, irresponsibility, oppositionality, and anger/hostility). Subjective well-being (SWB) is an umbrella term for diverse concepts ranging from momentary moods to happiness and life satisfaction. The relationship between psychopathy and SWB is intriguing, but is not well researched. The aim of this study was to investigate the relationship between SWB and psychopathic traits. The sample consisted of 520 students (53% female), from various faculties in Zagreb with a mean age of 21 years ( $SD = 4.30$ ). Psychopathic traits were measured with The Triarchic Psychopathy Measure (TriPM), while SWB was assessed with Personal Wellbeing Index (PWI), Single Item on Overall Life Satisfaction (OLS) and Single Item on Overall Happiness (OH). As predicted, boldness was both bivariate and uniquely associated with all SWB indexes used. Also in line with predictions, Meanness was found to be uniquely associated with lower satisfaction with relationship with people and groups one belong to. As expected, disinhibition was negatively associated with overall life satisfaction, overall happiness, and all nine domains of satisfaction with life. The results are in line with triarchic theory of psychopathy and demonstrate that each psychopathy component has specific relationship with well-being indexes. The study also demonstrates that boldness had adaptive features.

### Facebook-jealousy and adult attachment

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The present study aims to explore the connections between Facebook-jealousy, adult attachment styles and separation anxiety. The studies from the past years and decades prove that all of the three topics are among the most popular research areas of our time. In the present study 560 females and 116 males participated. We used the Facebook Jealousy Scale, the Adult Separation Anxiety Questionnaire (ASA-27) and the short version of the Experiences of Close Relationships (ECR-12). The statistical analysis indicated that fearful-avoidant and preoccupied attachment styles show positive correlations with jealousy appearing on the online social media. Furthermore those research participants who showed higher rates of jealousy on Facebook, has an increased level of separation anxiety. Another significant result was the positive correlation between the dimension of attachment anxiety and separation anxiety.

### Facebook jealousy: the role of attachment to partner and sociosexuality

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Recently, more researchers are exploring jealousy in the context of social networks, in this research, we focused on Facebook jealousy. Attachment and sociosexuality were in

previous studies often examined in the context of traditional offline jealousy. The main purpose of this research was to examine the role of attachment and sociosexuality in Facebook jealousy. Additional aim was to examine the differences in Facebook jealousy, dimensions of attachment (anxiety and avoidance) and sociosexuality considering sex and relationship status. The study was conducted on a sample of 226 participants (82% of female students). Considering relationship status, 23% of them were single, 65% were in a committed relationship while 12% participants were occasionally seeing one or more person(s). Most of the studies have determined that women are more prone to Facebook jealousy than men but difference was not found in this research. Men and participants who were occasionally seeing one or more person(s) were more sexually unrestricted. On the other hand, those who are in committed relationship experienced lowest level of Facebook jealousy and were sexually restricted. Single people were more prone to Facebook jealousy and also those who are occasionally seeing one or more person(s) were more anxious and avoidant. Participants who worried that their partners would leave and abandon them and those who were more sexually restricted felt more Facebook jealousy.

### **The contribution of some personal characteristics to sibling relationship quality**

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The research on sibling relationship quality during the period of adolescence was initially focused on the influence of the so-called constellation factors which could clarify the differences in the relationship quality. Due to the fact that the research of the mentioned factors resulted in inconsistent findings, the researchers became more focused on family factors and the individual characteristics of the child. Consequently, the aim of this research was to investigate the contribution of some individual characteristics (empathy, aggressive behavior and strategies for coping with stressful situations) to the sibling relationship quality during early adolescence period. The research involved boys ( $n = 160$ ) and girls ( $n = 192$ ) from 13 to 15 years of age, who have sisters no more than 5 years older or 6 years younger than them. The data were collected by means of an anonymous self-report questionnaire containing the measures of the children's perception of quality of sibling relationship and individual characteristics. This study has shown that during early adolescence, some personal characteristics play an important role in explaining the perception of warmth and conflict in the relationship with sisters. More precisely, in mixed dyads the results showed that better relationship with sisters have boys who are less aggressive, those who have more pronounced empathy and tend to solve problems actively. In same gender dyads it was confirmed that aggressive girls and those who tend to cope passively with stressful situations have worse relationship with their sisters.

### **Sport participation, self-esteem and perceived health as predictors of university students' life satisfaction**

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Life satisfaction is viewed as the cognitive component of subjective well-being and involves a global evaluation of the quality of one's life. Since it has been linked to many advantageous outcomes, this concept has received considerable research attention in recent years, especially by studying the emerging adult population, when different changes and challenges occur. The present study examines the predictive power of sport participation level, perceived health status and multidimensional self-esteem on life satisfaction of university students. The sample included 205 Slovenian undergraduate students with a mean age of 20.8 years. The Satisfaction with Life Scale, State Self-Esteem Scale and Self-Rated Health Status Measure were used in the study, while physical activity level of participants was determined according to their reported exercise frequency, intensity and duration. Results of stepwise multiple regression analysis revealed that life satisfaction was significantly predicted by self-rated health ( $\beta = .34, p < .001$ ), performance self-esteem ( $\beta = .28, p < .001$ ), and sport participation ( $\beta = .18, p < .05$ ). Together these variables explained 39 % of the variance in life satisfaction. The findings suggest that besides experiencing competence in the academic field, a healthy and active behavioural style can contribute to greater emerging adults' satisfaction with life.

### **"Narcissus added you as friend!": the narcissistic correlates of social media- and Facebook addiction**

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The relationship between narcissism and addictions is a well-known, clinical based result, which consequently reappears in the scientific literature. However in the last decades the information technological changes and the emerging models reshaped both of the constructs. While earlier substance abuse was a dominant form of addictions, contemporary behavioural addictions (like social-media addiction) become widespread. In the case of narcissism also several new „subtype” became known, changing the previously accepted homogenous view of malignant self-love. The aim of our study is to explore the relationship between modern forms of addictions and complex-narcissism models. Four hundred and sixteen people participated in our online survey (78.4% males), with the mean age 28.6 years ( $SD = 12$ ). The participants filled out narcissism tests (NPI, MCNS), personality questionnaires (BIS-BAS Scales), social media- and Facebook addiction scales (SMAS, BFAS). The participation was

anonymous and voluntary, personal assessment was not carried out. According to our results, overt- and covert vulnerable narcissists have significantly higher level of social media- and Facebook addiction. Covert- and overt vulnerability were a significant predictor of social media addiction, while covert vulnerability also prognosticated Facebook addiction. Among the four narcissism subtypes gender became the most important distinctive feature, but the two assessed addictions also had significant effects. Summarizing our finding, there is a statistically significant connection between modern types of behavioural addictions and the different narcissism types, however the understand of their exact complex nature requires further empirical attention.

### Sociocultural differences in self-construal and subjective well-being

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Cultural models—interdependence, interdependence, and integration—that describe the hypothesized relationships between dimensions of self-construal and emotional components of subjective well-being among individualistic and collectivistic countries have been proposed and already tested in limited number of countries [Cheng et al., *Journal of Cross-Cultural Psychology*, **42**, 832 (2011)]. In our study the proposed models were examined in three European countries. According to Hofstede's study [*Cultures and organizations*, McGraw-Hill, New York (2010)], Slovenia and Croatia are classified as collectivistic cultures and thus interdependence model regarding relationship between self-construal and emotional well-being should be characteristic for them; on the other hand, for Italy as an individualistic culture the independence model should be relevant. In our study we also examined relationship between self-construal and psychological and social well-being. We expected that for these two aspects of well-being interdependent self-construal would be a crucial predictor regardless of predominant orientation (collectivism, individualism) of the culture. Slovene ( $N = 242$ ), Croatian ( $N = 211$ ), and Italian ( $N = 170$ ) participants filled out the Independent – Interdependent Self-Construal Scale, and the Mental Health Continuum – Short form. Regarding the emotional well-being, the results were in accordance to interdependence model for Slovenia and independence model for Croatia; regarding the psychological well-being the results were in accordance with the independence model for Croatia and Italy and the integration model for Slovenia. On the other hand, the interdependent self-construal was an important predictor of social well-being in all three countries, thus confirming the interdependence model. Results indicated that individuals' perception of themselves as strongly related to others is especially relevant for social well-being regardless of country's orientation toward individualism or collectivism.

### Inhibitory control network in healthy young internet addicts and healthy control

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It has long been posited that impaired inhibitory control, similarly to other addictions, plays a crucial role in the development and maintenance of internet addiction. It is important to explore the underlying neural networks from both a research and clinical approach. Thus, our aim was to test the relationship between internet addiction and functional networks involved in inhibitory control. We used the Stroop-task and the Simon-task to assess cognitive control and measured task-related fMRI responses in 60 young adults. We analyzed fMRI data by a tensor probabilistic independent component analysis that allows decomposition of activation into independent spatio-temporally coherent functional networks. The Problematic Internet Use Questionnaire (PIUQ) was used to measure internet addiction, and the Barratt Impulsiveness Scale (BIS-11) to measure impaired control. After visual checking of the data, we ran Pearson correlations between the independent components and the two questionnaires. We found three components that correlated positively with both impaired control subscale of PIUQ and motor impulsivity subscale of BIS-11 after applying Benjamini-Hochberg correction on the results. The activation pattern across the three components all highly similar, involving various frontal areas (e.g. Precentral Gyrus, Superior Frontal Gyrus, Supplementary Motor Cortex, Frontal Orbital Cortex, etc.) as expected. Deactivations in all three components are similar to that of the Default Mode Network (i.e. Precuneus Cortex, Postcentral Gyrus, Medial Frontal Gyrus, Frontal Pole, etc.). Our results provide further evidence for altered brain functions in internet addiction. The results may help understand the underlying factors of IA and develop a treatment.

### Prevention of suicidal behaviour in the school environment – The preliminary results of a Slovenian preventive programme Do you understand (yourself)?!

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Adolescence is a developmental period where young people must cope with physical, emotional, cognitive and social changes which may leave them vulnerable to mental health problems and also suicidal behaviour. The latter is one of the major public health problems. In Slovenia about 20 adoles-

cents between the age of 14 and 19 die by suicide every year, but there are far more suicidal attempts. The recognition of the high risk-groups is still very difficult, due to the specifics of the developmental period. Therefore, systematic evidence-based prevention programmes are very much needed. Do you understand (your)self?!? is a preventive-intervention programme for improving mental health and suicidal behaviour in the school setting in Slovenia. The programme is based on an integrative approach that includes workshops for pupils and students, information about mental health issues in adolescence for parents and education for teachers and school personnel for recognising and acting upon suicidal risk. In addition, through the programme we cooperate with counselling services and school's administration. The ongoing evaluation of the programme is assessed through changes in indicators of mental health, depression and suicidal ideation and the results of the school year 2017/2018 will be presented. Also experiences and challenges in implementation of such interventions will be addressed.

### **Gestalt counselling and therapeutic approach with railway workers of different cultural origin**

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We can not see ourselves or other people in an isolated way, but only as a whole that interacts with the complex ecological and cultural system of our environment. The region of Vojvodina (Northern Serbia) is a mosaic of different peoples, religions, languages and cultures. From a total of 1.9 million inhabitants, Serbs account for two-thirds of the population (66.8%). Hungarians are the most relevant minority in Vojvodina (13.0%), followed by Slovaks (2.6%), and so on. Gestalt Therapy has developed a counseling and a psychotherapy system that responds to the complex needs of the population within a comprehensive universe and seeks to include all relevant dimensions as well as the cultural environment. We will present examples from the practice of counseling work of employees from different areas of Hungarian and Serbian national workers. In the restructuring of the railway, some of the employees were forced to change their workplace and, after many years of performing a certain type of occupation, they were offered the option of forced labor change or abandonment of the workplace with severance pay. We will show the way in which counseling work was done and overcoming resistances through gestaltistic stages. We have come to the conclusion that the ways in which clients are reassured at the moment of stress is largely conditioned by the environment in which the individual grew. One conclusion is that the therapeutic approach is similar regardless of its cultural origin, but that personal experience and circumstances are dominant.

### **Sexing and emotional dysregulation**

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The aim of this study was to examine the relationship between sexting and emotional dysregulation. A total of 440 students participated in the study. Sexting Behaviors Scale was used to assess the frequency of receiving, sending and posting sexually suggestive or provocative texts, photos or videos. Individual differences in two emotional regulation processes were examined by Emotion Regulation Questionnaire. Obtained results showed that young men were more likely to engage in the activity of sexting than young women. The results revealed that older participants were more likely than those in young age groups to engage in the activity of sexting than younger ones. Furthermore, it was found that young men use the strategy of expressive suppression more intense than young women. When it comes to the relationship between sexting and emotional regulation, there is a difference in cognitive reappraisal between people who post and people who do not post sexually suggestive content. Statistically significant low correlation was found between posting sexually suggestive content and cognitive reappraisal. Findings highlight the possible role of emotional dysregulation in sexting behaviour. Interventions targeting should be focused on the interplay of emotional regulation and sexting.

### **Accessible tourism as a mean for inclusion: The Aquileia case study**

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In recent years, the inclusion of people with disabilities within everyday activities has become a hot topic. Indeed, European Union strongly promotes and supports projects with such an aim. Among the various fields where inclusion is pursued, tourism is one of the most relevant, as it ensures both the right to rest – which is enshrined in the Universal Declaration of Human Rights – and the participation in cultural life, recreation, leisure and sport – which is enshrined in the Convention on the Rights of Persons with Disabilities. Within this framework, Friuli Venezia Giulia – an Italian autonomous region – financed a multidisciplinary project aimed at improving the accessibility to the local cultural heritage for persons with sensory and cognitive disabilities, across the life span. In particular, as a case study it was chosen Aquileia, a UNESCO World Heritage Site in light of its glorious ancient Roman past, witnessed by the archaeological area and the Patriarchal Basilica. An ICT-based prototype was developed in order to allow people with disabilities to explore the most relevant

sites with the highest possible level of autonomy. The prototype was tested with samples of various populations, obtaining encouraging reactions and precious feedback for its improvement. As a consequence, we think that the implementation of similar systems could improve tourism accessibility, and in turn inclusion, to a significant extent.

### **Communication strategies on eye health promotion: A study about the FVG region**

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The EyeCare project (CUP: J22F16000130002) – funded by the Friuli Venezia Giulia Region (L.R. 17/2014) and realized by the University of Trieste in collaboration with the Istituto Rittmeyer and Irifor FVG – aims at identifying the most effective communication modalities as for the eye health promotion for the regional population. According to the existing literature on the utilization of eye care services, we developed an ad hoc questionnaire, which was really easy and quick to fill in, on participants' attitude toward health promotional initiatives and on their approach to communication strategies. The questionnaire was administered to about 2500 persons. We found interesting differences across sociodemographic variables as for the use of communication channels and tools, the attention paid on health promotion campaigns shared through different media and the motivation for attending, or not attending, eye care services. Our results will be employed to develop and test the effectiveness of new communication campaigns, specifically targeted to that regional population. Lastly, guidelines for the development of adequate communication campaigns for eye health promotion will be developed and shared among policy makers and stakeholders.

### **Functional health literacy in varying levels of medical emergency**

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Due to language, administrative and knowledge barriers it is crucial to address the issue of public engagement with health-care system through health literacy. Health literacy encompasses the necessary skills and knowledge for understanding illness and treatment, and the ability to navigate the health-care system. Our research focused on help-seeking through the assessment of various degrees of urgency of medical conditions and their appropriate responses, while indirectly exploring understanding and recognition of specific symptoms. This take on health literacy is underrepresented in the field. We have distributed a questionnaire with 14 medical vignettes to 466 people, where we explored demographic factors that influence health literacy as well as first-aid training and past first- or second-hand experience with certain medi-

cal conditions. While the majority of participants correctly estimated the urgency of severe medical scenarios (cardiac arrest, stroke, hypothermia), there still remains a considerable level of uncertainty in how to react in less-threatening scenarios. Lower rates of health literacy are associated with risks of bad health decisions, misinterpretations of instructions or symptoms, and unnecessary examinations. In light of recent and future reforms in Slovene public healthcare system there is a need for a broad health literacy evaluation. This research tries to explore the core concept and propose practical ways of enhancement.

### **How much mindfulness is enough mindfulness?**

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Mindfulness is commonly defined as the state of being attentive and aware of what is happening in the present moment. Even though the concept is mostly associated with eastern culture, it found its way into the western culture. Previous studies have shown that higher levels of mindfulness are correlated with lower levels of numerous psychological problems mostly because of meta-mechanism called "reperceiving" which is a product of the process of mindfulness. Considering potential benefits of mindfulness on psychological well-being, the aim of this study was to investigate the differences in the levels of intolerance of uncertainty, ruminative thought style, negative perfectionism, anxiety, and depression among college students ( $N = 317$ ) with low, mediate, and high levels of mindfulness. The results have shown that the highest levels of intolerance of uncertainty, ruminative thought style, negative perfectionism, anxiety, and depression are present among college students with low levels of mindfulness, significantly lower among those with moderate levels of all measured constructs, and the lowest among students with high levels of mindfulness. The fact that even those who have moderate levels of mindfulness are in more favorable position than those with low levels of mindfulness implies that even relatively small changes in mindfulness can be beneficial to an individual. Taken together, these results are in accordance with previous research of mindfulness, and because of the focus on the student population, they have practical implications in terms of practicing mindfulness in academic setting since it has been known to be competitive and demanding.

### **The relation of intensity of emotional bond to a pet dog and life satisfaction: Moderating role of social loneliness**

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Previous studies show that there are different forms of attachments depending on the quality of each relation. Dog owners form strong emotional bonds to their pets, while positive effects of pet attachment regarding owners' well being are well

documented. Social structure and quality of owners' interpersonal bonds are linked to development of pet attachment itself. The aim of this study was to explore the relation of intensity of emotional bond to a pet and life satisfaction in dog owners, by defining the role of social loneliness. The sample consisted of 219 dog owners (179 female, on average 34 years old) who completed paper-pencil survey. Results indicate positive relation of emotional bond intensity to a pet and life satisfaction in owners who report low and middle degree of social loneliness. Yet, in individuals who have expressed higher levels of social loneliness, stronger emotional bond to a pet is related to lower life satisfaction. It is possible that those with poorer social network are trying to compensate by relating emotionally to a pet, but this diminishes their well-being in turn. Results support certain expectations posted in empirical literature.

### **Belief in justified world, system justification and attitudes towards people with alcohol use disorders**

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Social psychology deal with how discourses in different fields can have a strong influence on treatment of patients. Most common treatment models are medical, socio-integrative and psychotherapeutic. In addition, attitudes indirectly affect treatment, especially towards different, marginalized groups of patients. The effect is also mediated by the belief in a just world and system justification. In our research we focused on three fields that work with people with alcohol use disorder (AUD). We took three groups of students: medical ( $N = 48$ ), psychology ( $N = 61$ ) and social pedagogy ( $N = 53$ ). They filled a questionnaire that included Just World Scale, System Justification Scale and Attitudes towards People with Alcohol Use Disorder Scale. Results showed that the students with higher scores on Belief in a Just World Scale and on System Justification Scale have more negative attitudes towards people with AUD. There were significant differences between groups. Medical students had the most negative attitudes towards people with AUD. Psychology students had the highest score on Belief in a Just World Scale and on System Justification Scale. Social pedagogy students had the most positive attitudes and the lowest score on Belief in a Just World Scale and on System Justification Scale. Psychology students had the score on Attitudes towards People with Alcohol Use Disorder Scale between the scores of the other two groups. Results show a possible connection between discourses and treatment models with attitudes in three fields we have observed.

### **Self and partners' evaluation and emotion of love: Chosen socio-cognitive aspects of analysis**

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Love is an integral part of a romantic relationship. There are several different models, trying to explain the phenomenon of love. We decided to use the socio-cognitive model of emotion as a theoretical framework of our approach. Generally, our purpose was to explore the relations among self-evaluation, perceived emotional intensity, generated by particular antecedent social events, perceived intensity of physiological-body reactions, connected with target emotion and perceived symbolism of weather, colour, movie and season. One hundred thirty subjects participated in the research (24 males, 84 were in a romantic relationship). Average age was 22.9 years. We conducted a pilot study in which we tested several hypotheses. The most important findings were that individuals who value themselves more positively evaluate love more positively than individuals with lower self-evaluation (self-esteem). Evaluation of love differed significantly regarding different categories of weather and season. We have also found a significant difference between self-ratings and partner ratings. Individuals tended to rate their partners more positively than themselves. This may be related with the fact that our sample consisted of young adults whose relationships have started fairly recently and therefore probably did not rate their partners objectively.

### **Perceptions of own cognitive/learning modes and of modes perceived as prevailing in different educational institutions: preliminary comparison of three approaches to analyse their structure**

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The main purpose of our research was to compare and to analyse the structure of variables, showing the perceptions of four Kolb & Fry [*Toward an applied theory of experiential learning*, MIT, Cambridge, MA (1974)] learning (cognitive) modes/modalities, perceived in four different conditions (altogether  $4 \times 4$ , i. e. 16 target variables): perceived as existent and desired personal modes, perceived as prevailing at faculty (actual perceptions) and at respondents' high school (retrograde perceptions). Thirty-seven psychology students participated in a preliminary study in the school year 2016/17 (31 females, 5 males; mean age of participants was 21.4 years,  $SD = 0.43$ ). Base on facet theory analysis, the mapping sentence with two facets, each with four elements, was designed. The

structure of 16 structuples, i.e. manifest target variables, was analysed with multidimensional scaling and factor analysis (being aware of small number of participants) and the results were compared. In multidimensional scaling, the graphical solution groupings of variables showed almost exclusively homogeneous groupings of the same cognitive modality in particular quadrants, following the same order like Kolb's circle (CE – RO – AC – AT) but in direction from the 1st to the 4th quadrant. No such clear picture connecting relations between modalities and conditions was obtained with factor analysis as it was obtained with multidimensional scaling combined with principles of facet theory, regardless of the axial, modular or polar graphical solution. The ipsative evaluations (i.e. cognitive/learning modes) are, taking into account Kolb's approach, treated as summative scores. This approach is discussed and compared with non-ipsative approach.

### **The assessment of attachment behavior during adaptation to kindergarten regarding gender and age differences**

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From the perspective of the attachment theory, which is the theoretical framework of this research, the early childhood educator is distinguished as a significant figure, who can provide the children with support for research, protection and comfort in this stress situation. Therefore, this paper focuses on exploring the attachment behaviors of children in adapting to kindergarten, and their gender and age differences. An Attachment Style Checklist was used to assess the attachment behaviors in the preschool environment through four dimensions, fulfilled by 160 early childhood educators who rated the behavior of 408 children aged 1 to 6 years during their adaptation period. Statistical analyses revealed that 246 children exhibit patterns of secure attachment and positive emotional states; 288 children show positive behaviors and 220 children show adequate play and interaction with peers. In other words, the estimates of the largest number of children (ranging from 220 to 288) point to secure forms of attachment. Assessment of gender and age-related attachment behaviors showed that there is no significant correlation between the focus variable and the age of children, and that there are significant gender differences in the dimensions of attachment and behavior of children. The boys are rated as those who have significantly more insecure attachment than girls did, and the girls were rated as those with significantly more negative behavior than the boys did. The findings indicate significant implications for improving the work of educators during the adaptation of children to kindergarten.

## **Poster session 2**

### **The Psychological Counseling Center at the University Police College: a new approach to Croatian police officers' mental health**

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The aim of this poster is to present the design and implementation of a proactive approach to the mental health of Croatian police officers, utilized within the Psychological Counseling Center at the University Police College. The Center was established in November 2016 at the initiative of Ivana Glavina Jelaš PhD, current head of the Center, and its main activities are counseling, research and education. The Center brought a new and exceptionally successful approach to Croatian officers regarding their mental health. The emphasis is primarily on the project "Mindfulness in police", which consists of 3 levels. At the 1st level we have conducted Mindfulness Based Cognitive Therapy (MBCT) with police officers. This is the first time MBCT was conducted and scientifically validated in the Croatian police force. Results of the first group showed that officers' mental and physical health has improved significantly after the training. At the 2nd level, we have explored the relationship between dispositional mindfulness and mental and physical health of police officers. Results showed that there is a statistically significant negative correlation between dispositional mindfulness and almost all measured variables. At the 3rd level, we are currently exploring the effect of a short mindfulness intervention on memory and anxiety levels of Police College students. Some countries already conduct mindfulness in their police departments, but the fact that it has not been recognized by the police in all developed countries is not related to its effectiveness, but rather to police subculture. Some elements of the aforementioned subculture make officers less likely to seek out and accept the help of mental health experts. It is a worldwide problem and that is the reason why the success of this introduction of mindfulness to the Croatian police is extremely significant.

### **The relationship between the Big Five personality factors and the adaptation of search termination in human decision making**

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There are large interindividual differences in confidence, strategy selection and adaptation in decision making. This study investigates whether scores in the big five personality dimensions correlate with indicators of search termination, confidence and adaptation of strategies in dynamic environments. Participants ( $N = 60$ ,  $M_{age} = 27.94$ ,  $SD_{age} = 8.07$ ) completed a series of attribute-based inference decisions. We

adopted the “soil sample task” from Lee et al. [*Decision*, 1(4), 223 (2014)], where nine cues were searched sequentially and differed in their validity to predict which of two options had a higher value on a distal criterion. The experiment consisted of 200 trials, which were subdivided into three blocks. Which heuristic was more accurate varied between these blocks, specifically whether “Take the Best” (TTB) and a limited search, or the “Weighted Additive heuristic” (WADD) and an extensive search for information was required to maintain correct responses. We find that individuals vary in search termination according to Big Five scores. Conscientiousness, extraversion and openness correspond to a tendency for limited search, whereas agreeableness is correlated with an extensive search. We discuss how personality factors may be related to the adaptive selection of heuristic decision strategies.

### **How do anchors affect our perception with regard to our own knowledge about specific topics?**

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The results of replication studies often do not add up to the original studies. The replication crisis is a phenomenon that causes doubts in the validity of some scientific research. The anchoring effect is a simple yet powerful and robust method to influence people in their decisions about fields they do not know about. This research extends upon the results of Mussweiler and Strack [*Journal of experimental social psychology*, 36(5), 495 (2000)] to include the effects of anchors to exemplar knowledge of specific topics. The purpose of this study is to investigate whether the results of experiment 3 and 5 of the original study are replicable. Forty undergraduate students aged 19–31 years were divided into four groups of 10 people and were asked four questions about different topics. The only difference between the questions were the selected anchors per group that was divided in high, low, implausible low, and implausible high. The findings show strong similarities to the original studies. High anchors implicate higher numbers than lower anchors also in assessing what people already know. These results also apply to implausible anchors. There is a difference in decision time between implausible and plausible anchors. This research shows that the anchoring effect partly has the same outcome even if it is applied to your own knowledge about specific factors. The quality of the results as true replication of the original study is discussed.

### **Quality of life and overall functioning in elderly: Importance of cognitive reserve**

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Cognitive reserve is used to explain the difference between the degree of brain damage or pathology and its clinical manifestations. People with high cognitive reserve are more

resistant to detrimental effects of age- and disease-related changes. This is assumedly achieved by more efficient and flexible use of compensatory brain networks. Educational level, occupation, premorbid intelligence and engagement in leisure activities are commonly used as a proxy for cognitive reserve, either separately or together. Cognitive Reserve Index questionnaire (CRIq) is a recently introduced measure of reserve, consisting of three subscales: Education, Working activities, and Leisure time. In this study we wanted to investigate whether CRIq could predict the quality of life and overall functioning in elderly. A total of 178 participants, aged between 61 and 89, participated in this study. The results showed significant correlation between cognitive reserve and cognitive abilities, as measured by two subtests from M-series. Also, CRIq showed positive relation to the overall physical activity and quality of emotional regulation, measured by The Physical Activity Scale for the Elderly (PASE) and Emotion Regulation Questionnaire (ERQ) respectively. These results suggest the importance of cognitive reserve and lifelong cognitive engagement for high quality aging.

### **Gender differences in relationship of Internet addiction and the volume of frontal cortex**

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Internet addiction (IA) is a very common behavioural addiction disorder. Addictions are related to the control function, which is controlled by frontal lobe regions. Therefore internet addiction can cause structural changes in these regions. The prevalence of IA is similar in males and females, but the internet using habits are different in genders. We examined whether these differences affect the neural correlations of IA. We analyzed MR images of 144 healthy, Caucasian university students with volumetry and voxel-based morphometry. We used the Problematic Internet Use Questionnaire to assess IA. We found significant positive correlation between IA and the volume of pars opercularis in women. This region is related to the control function and the success of social interactions. We suggest that the increased gray matter measures of this structure might be explained by the extended effort to control for the impulsive behaviour in addiction, and with the increased number of social interactions via the Internet.

### **The role of REM and NREM sleep in memory consolidation**

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Allen Rechtschaffen said that “if sleep does not serve an absolute vital function, then it is the biggest mistake the evolutionary process ever made”. There are many functions associated with sleep- most theories suggest a role of non-rapid eye movement (NREM) sleep in energy conservation and in nervous system recuperation. Theories of REM sleep have

suggested a role of this state in periodic brain activation during sleep, in localized recuperative processes, and in emotional regulation. Sleep also plays an important role in memory. David Hartley (1801) offered one of the possibly earliest evidence for the role of sleep in memory. Hartley, followed by Jenkins and Dallenbach [*American Journal of psychology*, **34**, 605 (1924)] postulated that the strength of a memory might be more preserved if its acquisition is followed by periods of sleep than by equal periods of wakefulness. Since then the literature has consistently declared the need for sleep in order to consolidate and enhance both, procedural and declarative memory. However, the specific functions of REM and NREM sleep in memory consolidation are still not fully understood, but there are three “major hypothesis” which describe the relationship between REM and NREM sleep and memory: dual-process hypothesis, sequential hypothesis and active system consolidation hypothesis. The aim of this study is to review existing literature on the role of REM and NREM sleep in memory.

### **The Even-Odd task: Matching bias in a simple mathematics task**

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Recent models of dual-process reasoning propose the existence of multiple Type 1 processes which cue initial responses. These responses differ in weights which produces a hierarchy of Type 1 responses. When response conflict is present and detected, Type 2 processing is initiated to resolve it. Most typical tasks induce conflict between heuristic and normative responses with a large difference in weight. Our goal was to design a task for which the correct response could be based on processing which should produce a response closer in weight to a known heuristic. Participants ( $N = 57$ ,  $M_{\text{age}} = 20.80$ ,  $SD_{\text{age}} = 1.63$ ) were shown two single- or double-digit numbers and were asked to decide as fast and as accurately as possible whether the sum of those numbers was even or odd. The participants completed three experimental conditions (two even numbers, two odd numbers, an even and an odd number). A matching bias should lead to more accurate and rapid responses when both numbers are even, and to a decrease in speed and accuracy when both numbers are odd. Analysis showed significantly lower accuracy in the odd/odd compared to both of the remaining conditions. Additionally, accuracy was higher in the even/even than the even/odd condition. In general, responses were faster for single- than for double-digit trials. The differences between all three combinations of presented numbers were significant with the slowest responses in the odd/odd and fastest in the even/even condition. These differences were more pronounced in the double-digit condition. To conclude, the Even-Odd task successfully discriminates between different Type 1 processes, which would make it suitable for a wide range of studies.

### **The relationship of socioeconomic status and adolescent domain specific identity development with regard to family functioning in Hungarian adolescents**

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Research shows that socioeconomic status is associated with a wide range of cognitive and socioemotional outcomes in children and adolescents. The present study focuses on the impact of socioeconomic status (SES) on domain specific identity development and the role of different aspects of family functioning and family life. Two hundred fifty-six adolescents (131 male, 125 female) participated in our study, with the average age of 16.81 years ( $SD = 1.1$ ). Subjects filled the Hungarian version of the following questionnaires: Socioeconomic Status Scale, the Family Rituals Questionnaire, the Do You Know Scale for measuring the knowledge of family history, Inclusion of Ingroup in the Self Scale for measuring the identification with family. Identity development was measured by U-MICS in the domain of education and friendship. The socioeconomic status showed significant relationship with the Meaningfulness of family ritual ( $r = .36$ ), with the knowledge of family history ( $r = .24$ ) and with Identification with family ( $r = .24$ ). Based on the three dimensions of U-MICS, four clusters were identified in both identity domains corresponding to the four identity statuses proposed by Marcia. In both domains the four clusters significantly differed in family factors. Based on these results the mediating role of family factors in the link of SES and identity was examined with pathway analysis. Our model implies that through the effect on family functioning, SES has an influence on identity development in the domain of education and friendship.

### **Individuation, career insight and consideration of future family in emerging adults**

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Emerging adulthood is one of the most unstable and heterogeneous developmental periods. During this period emerging adults become more independent of their parents, many are still in education process or in the phase of finishing it, most begin their career and some of them also start to create their own family. The purpose of this study was to investigate the relationships among individuation, career motivation (i.e. career insight) and consideration of future family in career planning. We were also interested in differences among these three constructs according to different demographic variables (gender, age, employment status etc.). The sample included 250 participants (74.8% of women) aged between 20 and 30 years ( $M = 25.3$ ). The results showed no relationship between career insight and the willingness to consider future

family in one's career plans. Significant but low correlation was found between career insight and connectedness with parents and seeking mother's support. Also, significant but low correlation was found between willingness to consider future family when making career plans and aspects of individuation in relation to father. Higher levels of career insight were found in men than women, older than younger group of participants, employed participants and those who lived alone. Participants who considered future family in their career plans more were those with children, participants in a relationship, the ones living with their partner and the older group of participants. Most differences in aspects of individuation were found between men and women and between younger and older group.

### Beauty ideals of adolescents: do reality stars have anything with this?

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Concerning provocative media content (predominantly in "realities"), the aim of the study is to discover: 1) Whether the exposure to provocative media content affects adolescents' beauty standards and 2) In what way such exposure determines the role-models that adolescents admire. Two hundred eighty-five ( $M_{age} = 17$  years; 66.3% female) participants rated photographs of Natural beauties and Provocative prototypes on dimensions of Beauty and Attractiveness. For female participants, additional indicators of the beauty standards were: Desired resemblance to "natural" or "provocative", Anticipated attractiveness of each and readiness to do a plastic surgery. Exposure to provocative TV content and risky sexual behaviour were measured by questionnaire. Exposure to provocative TV content is positively correlated to: rated beauty ( $r = .26, p < .01$ ), attractiveness of provocative prototypes ( $r = .25, p < .01$ ) and desired resemblance to them ( $r = .31, p < .01$ ), while it is negatively correlated to rated beauty ( $r = -.14, p < .05$ ) and attractiveness of natural women ( $r = -.20, p < .01$ ), as well as to the anticipated attractiveness of natural women ( $r = -.18, p < .01$ ). Almost 40% of girls intent to do a plastic surgery. The more boys are exposed to provocative TV content, the more they feel pressured by both promoted beauty standards ( $r = .22, p < .05$ ) and sexual behaviour ( $r = .32, p < .01$ ), while there is no such link recorded in the reports of girls. Moreover, girls who are more exposed to the provocative TV content are more prone to find their idols in popular reality stars. Results will be discussed in the light of the pressure adolescents may feel due to the imposed artificial beauty standards and sexual patterns.

### Exploring the consequences of traditional bullying: The emergence of toxic behavior, player identification and problematic gaming in League of Legends

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Online games provide a safe environment to try out different roles through identification, however there are several dangers of games like toxic behavior and addictive gaming. Furthermore traditional bullying has several negative behavioral consequences which can appear in online games. The aim of our study was to explore whether the consequences of bullying are present in League of Legends. Two hundred eight gamers (148 male, average age 21.86 years,  $SD = 3.45$ ) participated in our research. The study consisted of the following questionnaires: Bullying Prevalence Questionnaire (Rigby & Slee, 1993) to measure previous role in traditional bullying, the Ten-Item Internet Gaming Disorder Test, the Player Identification Scale and the modified version of Cyber Victim and Bullying Scale to measure toxic behavior in online games. ANOVA was conducted to determine whether previous bullies, victims and outsiders differ among toxic behavior, player identification and problematic gaming. The results demonstrate that previous bullies perform verbal cyberbullying, assist the enemy and cheat more frequently in League of Legends than the other two groups. Furthermore previous victimization and game identification have a significant effect on problematic gaming. The results show that traditional bullying has negative consequences on both victims and bullies which are present in online games. Bullies tend to continue their aggressive behavior in online games while victims might use games addictively as a maladaptive coping against the negative outcomes (depression, loneliness) of previous bullying experience.

### Anthropopsychocology, social and humanistic interdisciplinary studies, biopsychocology, and anniversaries in the year 2019

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The year 2019 will be the 100th anniversary of foundation of University of Ljubljana and of its Faculty of Arts, and the 140th anniversary of the first psychological experimental laboratory foundation. This will be the opportunity to connect many names, ideas and conceptions (like Wilhelm Wundt, Mihajlo Rostohar who was the main founder of Ljubljana University and the founder of social psychology in Slovenia,

“Volker & Physiologische Psychologie”, social psychology, socio-psychology/psycho-sociology, social and humanistic transdisciplinary sciences) into the paradigmatically new proposals of anthropopsychoeology, social and humanistic interdisciplinary studies (derived and developed also from “Volkerpsychologie”) and biopsychoeology (based on human biology, natural sciences, multidisciplinary environmental and chosen technological fields, derived and developed partially also from “Physiologische Psychologie”). The Anthropopsychoeology section of the Slovene Scientific Association T. G. Masaryk for Philosophical Anthropology, Ethics and Collaboration of Humanistic and Social Sciences has prepared educational programs for each of the mentioned fields. The association developed “anthropopsychoeology” (which has originally been strongly supported by the main founder of the Slovene association T. G. Masaryk) as a new study program at different academic levels. The general idea and structure of the program will be presented.

### Children are playing computer and video games: what do their parents say?

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The research was conducted in order to explore parents' view on their children's participation in computer and video games. The main research questions were: what types of change were needed, according to parents, and whether the desire for change was related to the children's participation in other home-based activities. Participation was operationalized through the frequency and involvement level. Type(s) of change included changes in frequency, involvement and/or variety of activities. The sample consisted of 141 parents of children aged 7–18 years (mean  $11.78 \pm 3.21$ ). The Home Section of Participation and Environment Measure for Children and Youth (PEM-CY) was used. Needed changes were related to the frequency of children's participation in household chores ( $\eta_p^2 = .05, p = .006$ ), playing computer and video games ( $\eta_p^2 = .15, p < .001$ ), socializing ( $\eta_p^2 = .03, p = .026$ ), and the level of involvement in arts, crafts, music and hobbies ( $\eta_p^2 = .06, p < .001$ ), socializing ( $\eta_p^2 = .05, p = .004$ ), and school preparation ( $\eta_p^2 = .04, p = .015$ ). Less frequent computer and video games were desired when creative activities were less frequent ( $r = .23, p = .040$ ) and when children were less involved in socializing with family members or houseguests ( $r = .24, p = .026$ ). Less involvement was desired when indoor play and games were less frequent ( $r = .29, p = .007$ ) and when socializing using technology was more frequent ( $r = .30, p = .007$ ). The results confirmed that parents associated both frequency and involvement of their children in computer and video games with participation in several other home-based activities.

### Challenging behaviour of school age children and their participation in household chores – is there a relationship?

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Children with challenging behaviour often have difficulties in engaging in activities of daily living, including household chores. Having household responsibilities is one of the first steps towards future independent living. This preliminary study aimed to examine the relationship among challenging behaviour and participation in household chores of boys and girls aged 7–18 years. The sample included 142 participants (49.3% males), mean age 11.8 years ( $SD = 3.2$ ). To collect the data, Child's Challenging Behaviour Scale, Version 2 (CCBS) and Home Section of the Participation and Environment Measure for Children and Youth (PEM-CY) were used. Partial correlation was used to explore the relationship between the extent of challenging behaviour exhibited by a child during daily life and the frequency of participation and the involvement level in household chores, while controlling for age. Generally, those children who participated in household chores more frequently or with a higher involvement level exhibited less challenging behaviours and their parents were more confident in their parenting skills. The less frequent household chores were associated with non-compliant or uncooperative behaviours, while lower level of involvement was related to reliance on routine, including refusal to deviate from routine. Fewer correlation coefficients were confirmed in girls, mostly related to their independence, overall extent of challenging behaviour and the frequency of participation. The study findings point to the importance of further research of the challenging behaviour consequences that can be detected in the everyday engagement of school age children.

### Narrative metaanalyses: Attachment-related dyadic processes and combat related PTSD

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The aim of this paper is to review the present knowledge of combat related PTSD and partner's attachment. Researches have shown that although there is an evidence for stability in attachment patterns, change is common in both children and adults, particularly in response to adversity. Empirical studies found that in sample of ex-prisoners of war early PTSD symptoms predicted later partner attachment better than early attachment predicted later PTSD symptoms. The opposite results were found in the sample of ex-prisoners' wives where

attachment anxiety predicting secondary PTSD symptoms, and not vice versa. Moreover, attachment theory emphasizes the importance of dyadic perspective on attachment processes, because one partner's attachment insecurities can affect the other partner's cognitions, emotions, and behavior. On the best of our knowledge, there is only one study that examine both within person and dyadic associations between attachment patterns to spouse and the severity of PTSD symptoms among veterans and their wives. Results show that for both, veterans and wives, attachment anxiety was associated with the severity of their own and their spouses' PTSD symptoms. On the dyadic level, wives' PTSD symptoms were associated with attachment anxiety of their traumatized husband. However, wives' attachment anxiety was not associated with greater severity of their husbands' PTSD symptoms. The studies about dyadic relationships between attachment and PTSD have important implication in treatments of PTSD, especially for couples' psychotherapy where therapists must be aware of dyadic attachment relations, especially attachment anxiety, in maintenance of the disorder.

### **Pretreatment change expectancy as a predictor of emotional change during a psychological treatment**

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The aim of this study was to examine the potential role of client's pretreatment change expectancy in predicting changes in positive and negative affect during the course of psychological treatment. Of the initial sample consisting of 117 clients, 36 participants with an average age of 31 and predominantly female (80.6%) completed the treatment and filled in all of the questionnaires. The treatment consisted of ten sessions of routine psychotherapy practice in The War Trauma Center in Novi Sad. The study included a total of six assessments - the first one during the diagnostic session with the client, the second one an average of two weeks later, just before the start of the first treatment session, the third one after the third treatment session, the fourth one after the sixth treatment session, the fifth one at the end of the treatment and the sixth one three months after the end of the treatment. Pretreatment change expectancies were assessed by Anxiety Change Expectancy Scale, while positive and negative affect were assessed by Serbian Affect Inventory based on the Positive and Negative Affect Schedule – X. The results of multilevel regression analyses suggest that the pretreatment expectancy significantly predicts the average decrease of negative affect in a linear manner, while the average increase of positive affect is predicted in a negative quadratic manner. The theoretical and practical implications of these findings will be discussed.

### **Does the rise of change expectancies shape the decrease of distress or vice versa? Exploring the time perspective**

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The contextual model of change in psychotherapy hypothesize that one of the greatest determinants of change in distress during the course of treatment is the rise of specific expectations of psychological change. We examined the latent growth for these constructs within 36 participants with an average age of 31 and predominantly female (80.6%). The treatment consisted of ten sessions of routine psychotherapy practice in The War Trauma Center in Novi Sad. The study included a total of six assessments - the first one during the diagnostic session with the client, the second one an average of two weeks later, just before the start of the first treatment session, the third one after the third treatment session, the fourth one after the sixth treatment session, the fifth one at the end of the treatment and the sixth one three months after the end of the treatment. Pretreatment change expectancies were assessed by Anxiety Change Expectancy Scale, while distress was assessed by Depression, Anxiety and Stress Scale – 21. The changes in these construct appear to be moderately negatively correlated, although the majority of distress decrease occurred before the growth of positive treatment expectations. We will question the previous contextual model presumption by the argument of reverse time occurrence of change within these constructs.

### **The patterns of emotional distress change during a psychological treatment – a myth or reality**

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The aim of this study was to examine whether the emotional distress for different clients is changing in a different way or we can hypothesize about existence of the universal and common path of emotional distress change. Of the initial sample consisting of 174 clients, 65 participants ranging from 18 to 63 years of age and predominantly female (65%) completed the treatment and filled in all of the questionnaires. The treatment consisted of ten sessions of routine psychotherapy practice in The War Trauma Center in Novi Sad and the study included a total of six assessments. Emotional distress was measured by Depression, Anxiety and Stress Scale – 21 which is widely used measurement for psychological symptoms and distress. The results of the analysis of latent profiles identified four patterns of emotional distress change during the treatment, of

which two profiles are characterized by high initial distress, while in the case of the other two profiles initial distress are low. Profiles with high initial distress have different paths of change: one profile shows a stable distress (13% of sample), while the second profile records the largest and continuous drop of distress during treatment (28.8% of sample). When it comes to profiles with low initial distress, one profile is characterized by a drop in distress (40.2% of sample), while in the case of the second profile the distress increased during treatment (18% of sample). The theoretical and practical implications of these findings will be discussed.

### **Resilience researches in connection with parents of children with ADHD: A systematic narrative review**

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ADHD (attention-deficit/hyperactivity disorder) is one of the most prevalent childhood disorders. Numerous studies focus on this research field, but only a few regard the role of resilient parenting. The aim of the current study is to provide a review of resilience researches in connection with parents of children with ADHD. A systematic literature search was conducted using two databases: MEDLINE and ScienceDirect. The following keywords were searched: ADHD, attention deficit hyperactivity disorder, resilience, resiliency, resilient, parent, parenting stress. We included articles both in English and Hungarian. Eleven relevant articles were identified, all of them were in English. According to the findings of these studies, child behavior problems predict parenting stress, and child ADHD envisage less positive parenting. The results also suggest that the psychological distress of the mother of a child with ADHD is associated with the attribution of the controllability of child behavior. Recent researches also reveal a certain intervention method, namely, mindfulness training that may improve resilience. The results of these studies emphasize the importance of the knowledge of the impact of the ADHD on the parents. Further studies are required to explore the whole fields of risk and protective factors in connection with the resilience of the parents of children with ADHD.

### **The role and effect of self-monitoring and social support in the Health Action Process Approach: the examination of the dietary behavior of coronary heart patients**

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Coronary artery diseases (CAD) represent the most common causes of cardiovascular mortality. Heart-healthy nutrition plays a major role in both the onset of CAD and the management of the disease. The Health Action Process Approach

(HAPA) provides an integrative theoretical framework to understand, examine and predict health behavior. The aim of the study is to reveal the possible mechanism that is relevant to the dietary behavior of coronary heart patients. One hundred nineteen CAD patients who underwent coronary artery bypass grafting (CABG) or percutaneous transluminal coronary angioplasty (PTCA) participated in the study. They filled out the questionnaires three times: during the hospital stay, two and six months later. We measured the health behavior of the patients based on the HAPA-model. To investigate the longitudinal associations between HAPA variables, structural equation modeling with latent variables was employed. In the final model pre-action self-efficacy and outcome expectancies significantly predicted the behavioral intention. The relationship between the intention and the actual dietary behavior six months later was mediated by self-monitoring, social support, action and coping planning. In the final model 22% of the variance of dietary behavior was explained by the present set of the variables. Our study confirms the utility of HAPA in predicting dietary behaviors of CAD patients. Moreover it provides further evidence on the importance of self-monitoring strategies and social support from family and friends in adopting heart-healthy dietary behaviors of coronary heart patients after the surgical intervention.

### **Exploring adult attachment and ADHD in an addict population**

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Despite the growing interest in both adult attachment styles and adult attention-deficit/hyperactivity disorder (ADHD), the correlations of the two is a hardly explored area. However several studies deal with the coexistence of Adult ADHD and different types of addictions. The present study investigates the correlations between adult attachment styles and ADHD in a clinical, addict sample ( $N = 79$ ). The Hungarian adaptation of the Experiences in Close Relationships Scale (ECR) was used to detect attachment styles and the Hungarian translation of the Conners Adult ADHD Rating Scales Self report – Short version (CAARS-S:S) was used to measure adult ADHD. The study was conducted in a clinical sample including patients with alcohol dependence and substance addictions. Our results on the clinical sample were compared to a non-clinical control group. Significant correlations are shown between attachment anxiety and ADHD both in the clinical and non-clinical group, furthermore the correlation is much stronger in the clinical group. However, there were no inter-relationship between attachment avoidance and ADHD. Also attachment anxiety represented a significantly high frequency in the control group, unlike attachment avoidance, which did not. The connection between ADHD and adult attachment was verified. Further studies are required to explore the exact nature of this correlation.

## The role of stereotypization and inductive inference in formation of xenophobic beliefs

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This paper focuses on researching the effect of two types of false concluding on xenophobic attitude. Firstly, we predicted that participants would transfer the hypothetic person's characteristics onto his/her social background (inductive reasoning). Secondly, we predicted that in case of a strictly positive or negative description of the hypothetic person's traits (whether it was an immigrant or a local) and their social background the participants would make logically incorrect conclusions about that person which would match the positive/negative charge of the given descriptions (stereotyping). Thirdly, we hypothesised that the described effect would appear in both xenophobically charged and non-xenophobically charged examples, but that the effect would be significantly bigger in the former case. Lastly, we predicted that in case of being given mixed positive/negative description of the hypothetic person and their social background, the participants would be more likely to take into account the more general description of the referenced population than the statements about the person. We sampled 116 people aged 18–45 years. They participated by filling in an online questionnaire which we had designed specifically for our research. It tested the tendency to practice false inductive reasoning, stereotyping and heuristics in both xenophobic and non-xenophobic examples. We could conclude that the participants perceived locals more positively, but at the same time did not perceive immigrants as more negative. This is an important finding in the understanding of how xenophobic attitude develops, since it insinuates that xenophobic attitude, at least to some extent, results from lack of positive information about immigrants and their social background.

## Attitudes toward homosexuality in Bosnia and Herzegovina: A comparison of implicit and explicit measures

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Subject's attitudes toward any topic can be tested in two ways – using explicit or implicit measures. While implicit measures are considered to be manifestations of subject's automatic, uncontrollable processes, explicit measures are understood as controllable, influenced by the phenomenon of social desirability, environment in which subject grew up, their religious beliefs, attitude toward gender roles, sex etc. The goal of this research was to compare the implicit and explicit attitudes toward homosexuality. Since the subjects were from Bosnia and Herzegovina ( $N=60$ ) in which expressing negative

attitudes regarding this topic is still socially acceptable, it was hypothesized that there will not be any discrepancies between implicit and explicit attitudes toward homosexuality. Although the difference between results of these two measures was not significant, the results were of opposite direction – subjects had highly positive attitudes toward persons of homosexual orientation, so the hypothesis was not confirmed. Possible reason for such results could be the fact that the subjects were students of Faculty of Humanity and Social Sciences who are generally more liberal compared to other students. It was also hypothesized that the male subjects will have significantly more negative attitudes toward male persons of homosexual orientation than toward female persons of homosexual orientation, while that difference in attitudes wasn't expected in female subjects. Hypothesis was based on understanding of the male gender role as more rigid. This hypothesis was confirmed when explicit measures were used, however, when implicit measures were used it was rejected.

## Differences in some social perceptions between homosexual and heterosexual young Slovenian men

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This study investigated the differences in social perceptions between young homosexual and heterosexual men in Slovenia. The sample included mainly young Slovenian men, who were asked to define their sexual identity according to Kinsey sexual scale. The aim of the study was to find out if homosexual men perceive and evaluate the taxonomy of given situations the same way heterosexual men do. The taxonomy of situations included six situations in which two people display their intimate relationship publicly: (1) two individuals hold hands in public; (2) two individuals hug each other in public; (3) two individuals kiss each other in public; (4) an intimate relationship between two individuals is shown in media (film, television, posters and (6) two individuals are seen with their child in public. Several questions were addressed: (i) is there a difference between homosexual and heterosexual men in how they evaluate certain values, how they evaluate "Slovenian homosexual men" as a social object and how homosexual men and heterosexual men differ when it comes to self-respect; (ii) are there any differences in negative beliefs towards homosexual men and in self-respect between homosexual men who came out to family/friends and homosexual men who did not come out to family/friends; (iii) what associations the respondents get when they hear the word "gay/homosexual man", (iv) how the respondents think we could eliminate homophobia heterosexual have towards homosexual men in Slovenia, and finally (v) what kind of problems homosexual men in Slovenia face on a daily basis. The connection between how many homosexual people heterosexual men personally know and how they evaluate the given situations was tested as well.

## Anger through sociocognitive model of emotions with addition of anger allegories

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Emotions are characterized by physiological arousal and social cognition. The latter is emphasized in the sociodynamic model of emotions, which was used as the base for this research paper. The purpose of this study was to examine different levels of intensity and frequencies of anger in inter-personal relationships observed in different situations. In addition, the relationship between physiological signs of anger and participants' way of coping with it as well as their opinion on suitability of certain anger allegories was explored. For the purpose of the research, authors designed the Questionnaire of Anger in Interpersonal Relationships, which was applied on 50 participants, aged between 19 and 32. The results indicate that anger is most often expressed in relationships with friends, mostly when the participants felt that they have been treated unfairly. Anger is mainly expressed by elevated heartbeat and high respiration rate. Furthermore, findings show important differences in intensity and frequencies of certain physiological signs of anger with regard to their opinion on the suitability of three (out of 9 observed) metaphors describing the state of anger. No significant differences in physiological signs of anger contingent on the participants' typical coping strategies were found. These findings highlight which social situations evoke anger. The results also provide an insight into how perceiving specific metaphors as suitable to describe anger can be connected to our physiological responses to that emotion.

## Resilience and adaptive coping in sport

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Most athletic performance research focuses on stress-related factors and situations, as well as athletes' modes of coping. Resistance to stress or post-traumatic growth is not equal to the invulnerable and is more than surviving stressful events in life. It is a flexible resilience that simultaneously means the stability and stress tolerance of a system (person, family, team, ecosystem). Resilience is a construct that is closely related to adaptation capabilities, the resilient person is characterized by internal control, empathy, optimism, positive self-image, positive treatment of changes, and self-acting behavior. During my research, I conducted narrative interviews to examine emotional intelligence and resilience in young basketball players group. During narrative interviews, the buzzwords were emotional categories (sadness, anger, joy, and pride).

## Grit, determination and coping: A comparative study between athletes and non-athletes

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Grit is a rather new concept in psychology. Scientific researchers only started looking for the individual differences of successfulness and effectiveness, those traits that assist an individual in performing better. Grit is one of these traits, it is based on an individual's passion for a particular long-term goal, with a powerful motivation to achieve it. This study aimed to discuss in detail the grit phenomenon, the essence of hardiness, and the different stress coping techniques. The objective was to get answers to the following: whether grit has a relationship with coping, and if there are individual difference in grit between top athletes and non-athletes. Our research methods included the Grit Scale which measures grit and the CISS-48 questionnaire, a self-report measure of stress coping, which was completed by 235 people (123 top-athletes and 112 non-athletes), aged between 14 and 64 years. Results showed that the higher the score on the Grit Scale, the more likely the individual uses task-oriented coping technique and the more unlikely the individual uses emotion-focused and avoidance-oriented coping techniques. Significant differences were observed between the groups surveyed as to their grit-level: top-athletes seem to be higher in grit than non-athletes. There was no significant difference in grit level among top-athletes.

## Job satisfaction and personality traits as determinants of achievement motive in teachers

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The aim of this study was to investigate if job satisfaction and personality traits determine achievement motive in teachers. The sample comprised 570 teachers (76.8% females) from eleven Bosnia and Herzegovina elementary schools. We used Big Five questionnaire, Job satisfaction survey and Achievement motive scale which contains four sub scales: Competition with other people, Resistance in achievement goal, Goal achievement as a source of satisfaction, Orientation towards planning. The data processing was done using hierarchical regression analysis. The results showed that personality traits of Big 5 model and job satisfaction explained 6.6% ( $p < .001$ ) of the total variance of competition with other people, 49.8% ( $p < .000$ ) of the total variance of resistance in achievement goal, 33.3% ( $p < .001$ ) of the total variance of goal achievement as a source of satisfaction, and 21.3% ( $p < .001$ ) of the total variance of orientation towards planning in teachers. The significant contribution to the competition with other people was given by extraversion ( $\beta = .12, p = .016$ ) and openness to experience ( $\beta = .16, p = .001$ ). Job satisfaction ( $\beta = .21, p < .001$ ),

extraversion ( $\beta = .09, p = .008$ ), conscientiousness ( $\beta = .49, p < .001$ ) and openness to experience ( $\beta = .12, p = .001$ ) contributed significantly to the resistance in achievement goal. Also, job satisfaction ( $\beta = .12, p = .002$ ), extraversion ( $\beta = .12, p = .005$ ), conscientiousness ( $\beta = .35, p < .001$ ) and openness to experience ( $\beta = .14, p = .001$ ) contributed to goal achievement as a source of satisfaction. Finally, significant contribution to the orientation towards planning was given by job satisfaction ( $\beta = .17, p < .001$ ) and conscientiousness ( $\beta = .45, p < .000$ ). The obtained results are important for researchers, in order to better understand the achievement motive in teachers, but also for better selection of candidates for position of teachers. Also, the results suggest that the management of the schools, in order to promote achievement motive in teachers, should work on increasing their job satisfaction.

### **New ways of working and work-family interaction among Croatian employees: Do all benefit from flexible work design the same?**

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New ways of working (NWW) refer to flexible work design usually including: flexible work time-schedule, location for work, and control over (electronic) communication used for work. Growing number of companies enables their employees to work flexibly, since the research show it is beneficial for both their productivity and work-related well-being. Nevertheless, it is still not clear how NWW impact the work-family interaction, calling for future studies to examine the consequences of NWW among persons varying in individual differences. Therefore, the goal of this study was to examine the benefits that NWW have on employees' well-being and work-family interaction, in various groups of Croatian employees. Participants were 320 employees of various Croatian organizations, heterogeneous regarding sociodemographic characteristics, employed in various sectors on various positions. Participants completed an on-line questionnaire which included The new ways of working scale, Work-family conflict scale, The recovery experience questionnaire, The Job Affective Well-being scale and Satisfaction with life scale. Also, we collected data on participants' sociodemographic and work-related characteristics. The results showed that there were significant differences in representation of NWW in groups of employees varying in demographic and work-related characteristics. In addition, based on correlations with family- and subjective well-being criteria, we can conclude that not all groups of employees benefit from flexible work design to the same extent. Hence, organizational support for encouraging flexibility in work should be customized to better suit every employee.

### **Employers' beliefs about older employees**

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Longer life expectancy and low birth rates in the developed world countries have led to a significant increase in the share of the elderly population. Such demographic changes are associated to the challenges of retaining and sustaining older adults among the working population. Previous studies suggest that older employees are often subject to discrimination in employment, as well as in workplace promotion and development opportunities. In order to overcome the barriers associated with the aging of the workforce, it is important to understand the attitudes and perceptions of those who decide on the employability of older people. The research overview indicates a more or less consistent pattern of certain negative beliefs among employers. The dominant assumptions are that older employees are inflexible and uninterested in technological change, less prone to changes and learning and not as ambitious as their younger counterparts. On the other hand, it seems that most employers consider older employees to be more reliable and have more knowledge and experience than younger employees. Furthermore, studies show that employer's attitudes about older workers have a direct impact on their job prospects. In the current research, we are examining the beliefs of Slovenian employers in order to reduce the gap between employers and employees, to provide better working conditions for older workers and, consequently, to increase the efficiency of organizations. We are currently in the final phase of data collection, and our sample is expected to cover more than 100 employers from different regions and industries.

### **Counterproductive work behavior and the organization's ethical climate**

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Most of contemporary researches focus on positive organizational behavior, while ineffective and even destructive actions are widespread in the modern work organization. Following Spector's (2006) framework, Counterproductive work behavior considers volitional acts intentionally aimed to harm organizations or people in organizations, including five facets: Abuse of others, Production deviance, Sabotage, Withdrawal and Theft. The present study examines how certain ethical climates within organizations are related to various types of counterproductive work behavior. For this purpose, the data was collected from the employees working in public sector and private companies in Serbia ( $N = 181$ ), using Counterproductive Work Behavior Checklist and Ethical Work Climate

Questionnaire. According to Victor and Cullen [*Research in Corporate Social Performance and Policy*, 9, 51 (1987)], the ethical climate of an organization refers to the shared perceptions of what is ethically correct behavior and how ethical issues are handled in the organization, classified into five different subtypes: Caring, Law and Code, Rules, Instrumental, and Independent. In order to check the predictor effects of perceptions of ethical climates within organizations to counterproductive work behaviors, multiple linear regression was conducted. The significant predictor of Abuse of others is lack of Caring climate, Product deviance and Sabotage are predicted by disrespect of Law and code, and predictors of Withdrawal included Law and code and Instrumental climate. None of five ethical climate subtypes were significant predictors of Theft. These results confirm the expectation that employees' perception of ethical climate predicts the frequency of counterproductive work behavior in organizations regardless of the industry sector.

### **Interpersonal justice and prosocial behavior in customer service: The mediating role of psychological empowerment**

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In addition to formally prescribed behaviors, providing customer service consists of voluntary prosocial behaviors. These are defined as helpful behaviors of employees, intended to promote the prosperity of the source at which they are directed. Such prosocial behaviors in the service industry are generally aimed towards customers and coworkers. The former is defined as extra-role customer service, which comprises employees' discretionary behaviors in providing service that expand beyond formal requirements. The latter addresses coworker-oriented cooperation defined as employees' helpful behaviors towards other members of their workgroup. The involvement in such prosocial service behavior is under the influence of interpersonal justice, defined as one's perception of others treating him or her in a polite and respectful manner. Research shows that fair treatment from customers and peers triggers positive prosocial behaviors directed back at the source of justice. Fair treatment from others is also shown to influence employees' psychological empowerment, which reflects how employees see themselves in the work environment and how they feel that they can shape their work roles. The aim of this study was to explore the mediation effect of psychological empowerment on the relationship between interpersonal justice stemming from various sources and prosocial service behavior targeting those sources. The model was tested on 243 pharmacists using scales for measuring interpersonal justice, psychological empowerment and prosocial service behaviors. Results showed that interpersonal peer justice predicts coworker-oriented cooperation

through psychological empowerment, whereas interpersonal client justice predicts customer-oriented extra-role behaviors directly and through psychological empowerment. These results imply that promoting fair treatment in the workplace is important in empowering employees and enhancing the quality of provided service.

### **Personality traits, goal orientations and school achievement**

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The aim of this study was to investigate the possibility of predicting school achievement through personality traits and goal orientations. The study was conducted on high school students ( $N = 222$ ) of second, third, and fourth grade (146 female, 76 male, mean age 17.07). Instruments used in this study were: the Big Five Inventory, which was used to measure five factor model of personality traits (extraversion, neuroticism, conscientiousness, agreeableness and openness to experience) and the Components of Self-Regulated Learning for measuring three goal orientation: learning goal orientation, performance goal orientation and work-avoidance goal orientation. As a measure of school achievement researchers gathered: students' previous grade point average, grade in Croatian language, mathematics, and first foreign language. The results of the hierarchical regression analysis suggested that conscientiousness and neuroticism are positive predictors of GPA and the grade in the Croatian language. Furthermore, openness is a positive predictor, while extraversion is a negative predictor of the grade in the first foreign language. Also, results have shown that learning goal orientation is a positive predictor of the grade in Croatian language. Finally, results have shown that learning goal orientation mediated the relationship between conscientiousness and the grade in Croatian language. This study indicates the importance of taking into consideration different predictors of achievement for each of the subjects.

## Pre-conference workshops

### Basics of EEG and its use in the study of cognition

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Electroencephalography (EEG) is an electrophysiological method, which has been used to measure the electrical activity of the brain since the 1930s. In next decades, signal averaging has enabled the study of event-related potentials (ERPs) and since the 1960s EEG has been one of the primary tools to non-invasively study electrical activity of the brain. Excellent time resolution has made EEG ideally suitable in studies of perception, attention and other cognitive processes. In the workshop we will cover the neural basics of EEG signal and compare it with other cognitive neuroscience methods. The focus will be on the widely used ERP technique. We will discuss the design and application of ERP experiments in cognitive neuroscience. Some of the most researched ERP components and their relations to cognitive processes will be presented. The last part of the workshop will briefly cover newer methods of EEG analysis such as time-frequency and connectivity analyses, which can significantly broaden the possibilities of EEG to foster our understanding of cognitive processes.

### Comparing means: why does measurement invariance matter, what is it and how do we test it?

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In psychological research, we often compare means of independent groups of participants or means of one group over several points in time or dependent conditions. To make valid comparisons of means, our construct(s) of interest must be measured in the same way in different groups or time/conditions, or in other words, the observed scores of the participants have to depend only on their actual latent scores, and not on their group membership or time point/condition. This assumption is called measurement invariance (MI). The aim of the workshop is threefold: (i) to provide an answer to the question of why MI is a prerequisite for means comparisons, (ii) to present an intuitive and a technical definition of MI, and (iii) to equip the participants with basic knowledge for testing measurement invariance across independent groups in the framework of multi-group confirmatory factor analysis (MG-CFA). The workshop will be divided into a theoretical part (an approximately one-hour lecture) and (an approximately three-hour) practical session. The participants will be required to bring their own laptops with the necessary software installed (R, RStudio, packages psych and lavaan; detailed instructions and materials will be provided a few days before the workshop).

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