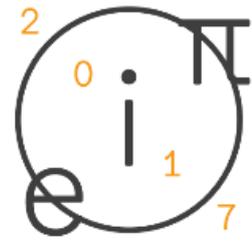


PROCEEDINGS OF THE
XXIII SCIENTIFIC
CONFERENCE



EMPIRICAL STUDIES IN PSYCHOLOGY

MARCH 24-26, 2017

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE



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

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Institute of Psychology, Faculty of Philosophy, University of Belgrade



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Belgrade 2017

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COGNITIVE PSYCHOLOGY

THE EFFECT OF RED COLOR ON ANAGRAM PERFORMANCE – REPLICATION OF EXPERIMENT¹

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The research represents a replication of Elliot and colleagues' experiment in which they hypothesized that the red color exerts an inhibitory effect in the achievement context, by affecting the tendency of respondents to avoid failure. Taking participants' general ability scores and their performance on the pre-test as covariates, Elliot and colleagues confirmed this hypothesis. Sample included 143 students of undergraduate psychology studies. Experimental stimulus consisted of a three-digit code, inscribed in three different colors (red, green, and black). Codes were of the same size, at the same position. The participants were instructed to check whether the code was written on all pages, to ensure that they were exposed to the stimulus. Results showed no statistically significant inhibitory effects of the red color on anagram test solving. Our findings underline the importance of precise defining of every factor used in research and experiment design. In addition, cultural differences and previous experience should be included in research design.

Keywords: anagram, color, red, inhibitory effect, avoidance motivation

Introduction

Color is one of the first qualities that person detects in objects. Its symbolization varies through time and cultures (Popović, 1992; Radenković, 1996). Personal meanings one attributes to a certain color, depend on person's private history and the context in which the color is observed. Many authors that researched effect of color on psychological functioning, based their hypothesis on Goldstein's conceptualization of colors coupled with the Yerkes-Dodson's law (Elliot, Maier, Moller, Friedman & Meinhardt, 2007). They argue that red color triggers avoidance motivation in achievement context, impairing participant's cognitive ability. However, the results of experimental studies of effects of colors are inconsistent.

Elliot and colleagues (2007) performed an experiment to check the hypothesis that the brief exposure to red color has an inhibitory effect on anagram solving, by affecting participant's tendency to avoid failure. Taking participants' gender, general ability scores and their performance on the pre-test as covariates, Elliot and colleagues confirmed the

¹ The paper was written within the project "Identification, measurement and development of cognitive and emotional competences important to society oriented to European integration" (No.179018) funded by the Ministry of Education, Science and Technological Development of Republic of Serbia.

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hypothesis. Later studies, inspired by Elliot's experiment, gave inconsistent results (Gnambs, Appel & Batinic, 2010; Olsen, 2010; Tanaka & Tokuno, 2011). Experiment presented in this paper was a replication of Elliot's anagram experiment.

Method

Sample

The sample consisted of 143 students of the second year of undergraduate psychology studies. There were 87% women. Age range was 20-33 years ($M = 21.83$; $SD = 2.51$). Serbian was the mother tongue of all the participants.

Design and Procedure

First participants performed a test-exercise (pre-test), designed in the same form as the experimental anagram test that followed immediately after. Each of the anagram tests included 25 anagrams, five letters each. Experimental stimulus consisted of a three-digit code, inscribed in one of three colors (red, green, and black ink) in the upper right corner of each page of the experimental test. Codes were of the same size and at the same position as in Elliot's experiment (Elliot et al., 2007). The stimulus material was prepared in advance and put in envelopes. Envelope with the experimental test was randomly chosen for each participant, thus participants were randomly assigned to one of experimental conditions (Red, $n = 48$; Black, $n = 48$, and Green, $n = 47$). To ensure that participants were exposed to the stimulus, they were instructed to check whether the code was written on all the five pages of the testing material.

After the experimental test, participants took verbal reasoning test. To parallel Elliot's SAT (Scholastic Assessment Test) results, we used analogy subtest from the prof. Borisav Stevanovic Verbal series test (Stevanović, Dragičević, Štajnberger & Bukvić, 1988), as a good general intelligence test (Lalović, 2005).

Answering time was five minutes for each test. The participants individually performed all the tests. At the end of the experiment, we checked if participants were aware of the purpose of the experiment, as well as the color of experimental stimulus.

In addition to the main experimenter, there were three other experimenters that were completely unaware of the main research hypothesis. Experimenters could not see the color of the stimulus i.e. to which group the participant was assigned. In order to examine if there was an effect of experimenters, we performed ANOVA that proved there was no significant

effect of experimenters on participants achievement on none of the tests: the anagram pretest ($F(3,139) = .526, p = .665$), the verbal reasoning test $F(3,139) = 1.246, p = .296$, nor the experimental test ($F(3,139) = 1.435, p = .235$).

Results

Participants were not aware of the purpose of the experiment, as it was not mentioned by any of them, when asked after the testing. They either thought that it was an intelligence test, or they had no assumptions of the purpose of the testing. The majority of the participants correctly identified the color of their code (91.6%). There was no significant difference on the experimental test between those who correctly identified the color of the code, and those who could not ($t(141) = -1.594, p \geq .113$). There was a significant correlation between pre-test and experimental test ($r = .545, p < .001$), and general ability test and experimental test ($r = .406, p < .001$). Gender showed no significant effect ($F(1,141) = .792, p = .375$).

The main hypothesis was that red color would have an inhibitory effect on anagram solving (Table 1). ANOVA showed there was no statistically significant effect of the red color on anagram test solving ($F(2,140) = 0.367, p = .694$).

Table 1
Experimental test results

Experimental condition	N	M	SD
Black	48	13.62	4.56
Red	48	13.96	4.92
Green	47	13.13	4.77

Discussion and conclusion

Color is an attractive research variable because of its' possible effects on numerous aspects of psychological functioning, particularly on cognitive performance. Based on a series of experiments, Elliot and colleagues (2007) concluded that red color can be an important cue for performance attainment. Inspired by Elliot and colleagues' findings about the effects of brief exposure to red color on anagram test performance, we replicated one of their experiments. The finding about the inhibitory effects of the red color was not confirmed.

Previous experimental studies inspired by Elliot's research design gave inconsistent findings. Exploring the effect of the red color in web-based knowledge testing, Gnamb, Appel and Batinic (2010) found inhibitory effect of the red color, but only for men. At the other side, Olsen (2010) did not confirm the effect of color in a signal-detection task. The lack of precise control of the quality of colors applied in experiments could be listed as a source of inconsistency of research findings. In our research we could not exactly replicate the quality of the red applied in Elliot's experiment and it could be one of the possible important limitations of this study. It should be noted that computer-aided experimental designs differed in controlling the qualities of presented color stimuli. For example, color stimuli were precisely defined in Olsen's study, and they were not controlled in Gnamb and colleagues' study. For future research it would be important that authors precisely define all the parameters of the colors they used, such as quality of colors, duration and extent of exposure.

Elliot and colleagues (2007) developed pre-test and experimental anagram tests from the published list of anagrams selecting moderately difficult anagrams for both tests. We applied anagram tests that were developed for this study based on a small scale pilot research. Future research could benefit from applying standardized anagram tests.

Color in context model assumes that color has different effects depending on a psychological context (Meier, D'agostino, Elliot, Maier, & Wilkowski, 2012). It is questionable whether students that participated in our study perceived the experimental context in the same way as students that participated in Elliot's study. One of important implication of our replication of Elliot's study in Serbian cultural context could be the need for controlling students' overall approach towards the experimental assignments.

Considering contradicting conclusions from the different studies that investigated effects of colors on cognition, our findings underline importance of precisely defining of every factor used in research and experimental design. In addition, Elliot and colleagues' (2007) experiment and its variations were conducted in different cultures, and future research should take into account cultural differences and previous cultural experience. As colors can have rich personal meanings, future studies should include them as covariates.

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PARTS OF SPEECH IN EARLY SERBIAN CHILD LANGUAGE¹

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The study was aimed at the preliminary quantitative exploration of distribution of parts of speech in Serbian children's early language production and comparisons with the distribution in language input. The Serbian Corpus of Early Child Language (SCECL) was used in retrieving production of children and adults longitudinally recorded in interaction sequences at 16 age levels (18-48 months). Automatic lemmatization and manual check and corrections were made on six parts of speech, mainly content words: nouns, verbs, adjectives, adverbs, pronouns, and prepositions. In order to make a better differentiation between language structure and language use, information on the distribution of parts of speech from a large corpus of standard Serbian written language was also included in the analysis. The findings reveal a high degree of similarity between the parts of speech distributions in child language and conversational language input. In comparison to the distribution in written Serbian language, it reveals that formation of structure in child language is not influenced by language structure itself but by functional aspects of its use in natural face-to-face interaction. Child language deviates from language input at early stages of development, and incremental approximation towards the model distribution is recorded. The findings are in accordance with distributional accounts in the theory of language acquisition.

Keywords: child language, adults' language, parts of speech, distribution, spontaneous production

Introduction

By virtue of emergentist and usage-based approach (Elman, Bates, Johnson, Karlmilloff-Smith, & Plunkett, 1996; Lieven, Behrens, Speares & Tomasello, 2003; Tomasello, 2003) exploration of distributions of language structures in different samples attracted much of attention recently in the field of language acquisition (Adi-Bensaid, Ben-David & Tubul-Lavy, 2015; Behrens, 2006; Tomasello & Stahl, 2004). They rely on the hypothesis that inductive learning is the main impeller of language development driven by the frequency and statistical regularities in the distribution of structures in language input.

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This study is a preliminary quantitative exploration focused on distributions of parts of speech in samples of early Serbian child language and comparisons with distributions of parts of speech available in samples of Serbian adults' language. The main aim is to focus on the degree of similarity/difference between spontaneous children's production and language input as a source of information on structural regularities for young learners of Serbian. Developmental regularities in the acquisition of word classes are traced and special attention was devoted to deviation from adults. The study is also a source of information on basic properties of the used language samples from the *Serbian Corpus of Early Child Language (SCECL)*.

Method

The SCECL corpus (Anđelković, Ševa & Moskovljević, 2001) contains the samples of language production of 8 children and accompanying adults longitudinally recorded in spontaneous interaction sequences at 16 age levels from 18 to 48 months of children's age. The corpus is compiled in the *CHILDES* database (MacWhinney, 2000) and contains almost one million of words, with more than 785000 produced by adults and 205000 by children. The samples of children's and adults' production were separately retrieved, and the additional preparatory procedure was applied - all the words were automatically lemmatized by means of data from the *Frequency Dictionary of Contemporary Serbian Language* (Kostić, 1999). Manual check and corrections of lemmas were made for six parts of speech (mainly content words): nouns, verbs, adjectives, adverbs, pronouns, prepositions. Other parts of speech (connectives, particles, interjections, and numbers) due to a widely spread homography were subject to a high proportion of miss-lemmatization and consequently pulled together into one category named *rest*. A special attention was devoted to low age levels (18-26 months). Words produced by children in a way that phonologically deviates from standard Serbian language were manually lemmatized. It enabled that a large number of children's words unconventionally pronounced due to developmental constraints was also included in the analysis. All rhymes, curse words, onomatopoeias, vocalizations, and exclamations were excluded from the analysis.

Three sources of data were included in comparisons: children's language production from the *SCECL* corpus, input language produced by adults in the same corpus, and information on parts of speech frequency from a highly reliable corpus of contemporary standard Serbian language (Kostić, Đ., 1965).

Results

Nouns and verbs are considered to be the most frequent word classes in the Serbian language - 36.85% and 15.78% respectively (Kostić, 1965). But it should be noted that this information was obtained on a sample written language. Our results provide the evidence that the distribution of parts of speech in conversational language produced in the spontaneous interaction between children and adults is different (Figure 1).

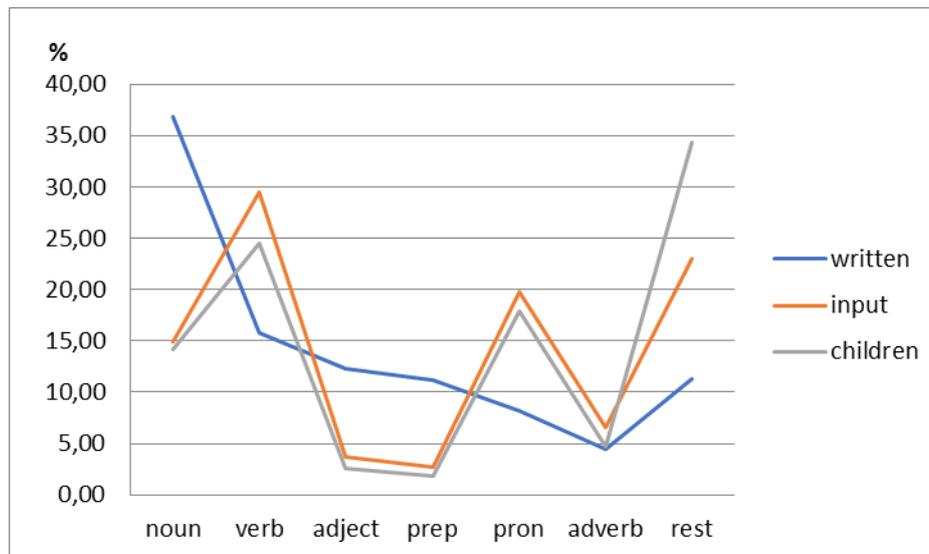


Figure 1. Distributions of parts of speech in different Serbian language samples: written language, conversational language input, and child language. Data on written language were obtained from Kostić, Đ. (1965).

The most frequent word classes in conversational language input are verbs (29.46%), followed by pronouns (19.72) and nouns (14.97). Very similar distribution is found in the children's production. The largest difference between adult's language input and children's production is in the category *rest* which is more frequent in children than in adults, due to a relatively high proportion of non-interpretable words at early age levels. Statistical analysis shows that correlation between distributions in input and child language is very high and significant, while distribution in written language is different (Table 1).

Table 1

Comparisons of the parts of speech distributions in written language, conversational language input, and child language

		Correlations		
		written	input	children
Kendall's tau_b	Correlation Coefficient	1.000	.238	.143
	written Sig. (2-tailed)		.453	.652
	N	7	7	7
	Correlation Coefficient	.238	1.000	.905**
	CDS Sig. (2-tailed)	.453		.004
	N	7	7	7
	Correlation Coefficient	.143	.905**	1.000
	children Sig. (2-tailed)	.652	.004	
	N	7	7	7
Spearman's rho	Correlation Coefficient	1.000	.286	.214
	written Sig. (2-tailed)		.535	.645
	N	7	7	7
	Correlation Coefficient	.286	1.000	.964**
	CDS Sig. (2-tailed)	.535		< .001
	N	7	7	7
	Correlation Coefficient	.214	.964**	1.000
	children Sig. (2-tailed)	.645	< .001	
	N	7	7	7

** Correlation is significant at the 0.01 level (2-tailed).

Distributions of parts of speech across age levels

Further inspection of data shows that distribution of language input is highly homogenous across different samples of target child's age (Figure 2). The range of differences in the proportions of particular parts of speech across age levels is only between 1.84% and 5.04%.

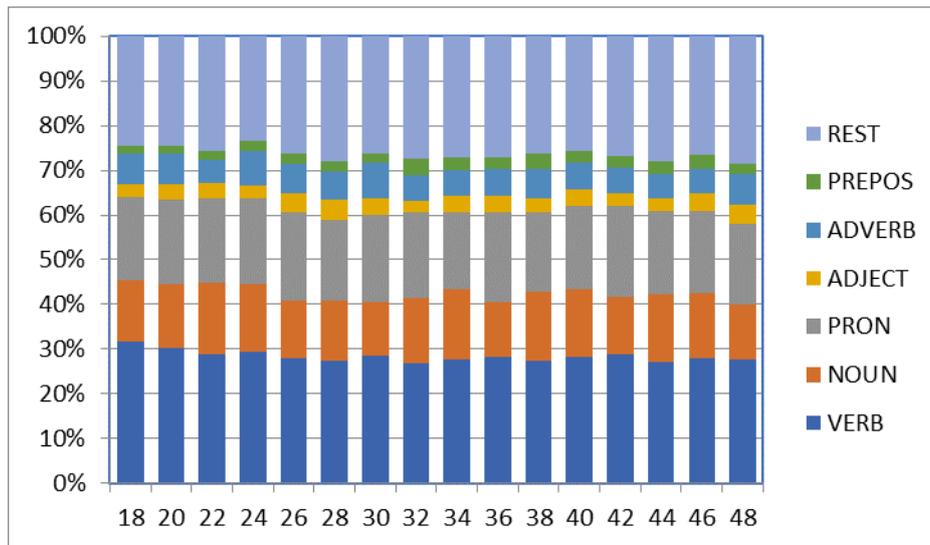


Figure 2. Distribution of parts of speech in language input across the target child's age

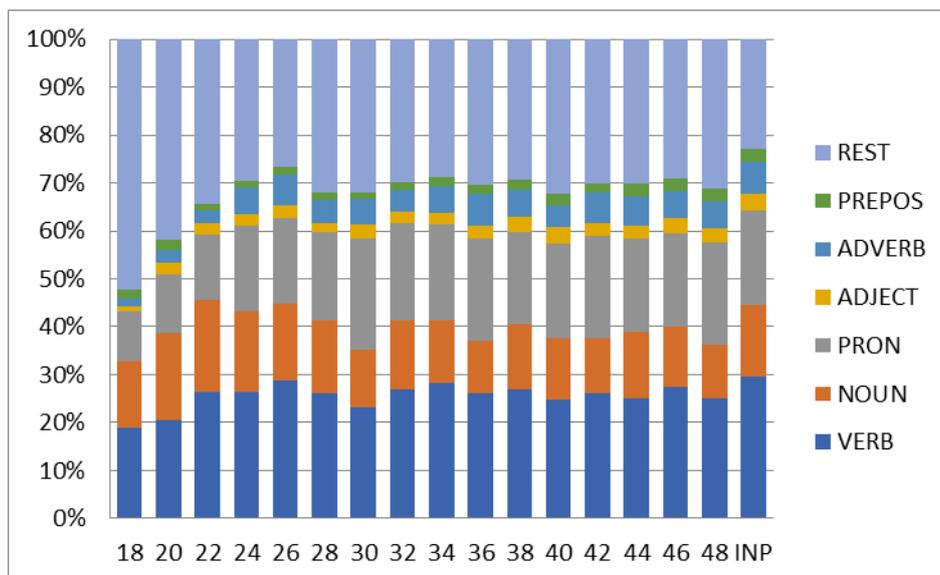


Figure 3. Parts of speech in children's language across age and language input (INP)

Contrary, the parts of speech distribution in child language across age levels deviates from distribution in language input at the lower stages (Figure 3).

Since manual check of lemmatization of children's production was made up to 26 months of age, statistical comparisons with the language input were made for the first 5 age levels (Table 2). The comparisons reveal that the children's distribution from 18-26 months of age deviates significantly from language input, but it has a stable tendency to approximate the adults' distribution in the course of time.

Table 2

Approximation of the children's parts of speech distributions across age to the distribution in language input

Parts of speech in 18-26 months old children and adults

	N	df	Chi-square	p	C-coef.	p
All ages X input	12277	30	572.361	0.01	0.211	0.01
18m X input	7399	6	374.018	0.01	0.219	0.01
20m X input	7496	6	201.953	0.01	0.162	0.01
22m X input	7423	6	102.809	0.01	0.117	0.01
24m X input	7960	6	49.316	0.01	0.078	0.01
26m X input	8109	6	18.714	0.01	0.048	0.01

Conclusion

An astonishing similarity is exhibited between the distributions of parts of speech in spontaneous child language and conversational language input. In comparison to the distribution of standard written Serbian language, it reveals that formation of structure in child language is not influenced by language structure itself but by functional aspects of its use in natural face-to-face interaction. The data reveal a prominent function of verbs in conversational language which is referring to events and actions relatively more often than standard written language.

In spite of the large similarity between the overall sample of child language and language input, thorough inspection of data uncovered hidden differences across age. Child language deviates from language input at early stages of development, and incremental approximation towards the model distribution is recorded. It is an additional empirical evidence for the hypothesis of inductive and incremental growth of language offered by the distributional accounts in the theory of language acquisition.

Since the findings are only preliminary, further manual work on the accuracy of the *SCECL* corpus will enable more detailed exploration of developmental changes on all age levels. Missing estimation is when the process of approximation towards the input language is about to end. An inspection of individual differences among children is also planned for the purpose of exploration of different developmental rates.

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QUANTITATIVE INDICATIONS OF CHANGE IN EARLY SERBIAN LANGUAGE PRODUCTION¹

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The study is an exploration of quantitative indicators of the growth of spontaneous language production of eight children longitudinally recorded at 16 age levels from 18-48 months of age. The interaction sequences were transcribed and compiled in the Serbian Corpus of Early Child Language. The study is focused on the usage of words and utterances, vocabulary size, lexical diversity, and the length of utterance. The aim was to retrieve information on the average performance of children and variation on each measure and to compare them across ages. The findings revealed significant increase across age on all quantitative indications. Differences among children are explored and a preliminary estimation of the levels of language productivity and growth was made. The individual profiles are compared, so advanced and slower children are identified in the corpus.

Keywords: child language, Serbian language, vocabulary size, lexical diversity, Mean Length of Utterance

Introduction

Research on language acquisition is very often dependent on data compiled in corpora of child language. Even though extremely time-consuming for building, corpora are often unreliable for being collected on a limited sample of children and in naturalistic contexts susceptible to all kinds of situational and pragmatic variability. It is therefore recommended to make a detailed examination of a corpus to be worked on, as an opportunity to acquaint with positive and negative properties of the sample.

The study is a preliminary exploration of the quantitative indications of language development of the sample of children included in the *Serbian Corpus of Early Child Language (SCECL)* (Anđelković, Ševa & Moskovljević, 2001) in *The CHILDES* database (MacWhinney, 2000). The analysis was conducted on transcripts of children's production and aimed at the computation of commonly used basic measures of lexical and syntactic development: production of words, vocabulary size, lexical diversity, production of

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utterances, mean length of utterance and deviation in the mean length of utterance. The aim was to retrieve information on the average performance of children and variation on each measure and to compare them across ages. Differences among children are explored and individual profiles compared in order to make a preliminary estimation of the levels of language productivity and growth.

Method

Sample

The *SCECL* contains the transcripts of spontaneous verbal production of eight children longitudinally recorded at 16 age levels (18-48 months). The corpus underwent an automatic lemmatization based on *The Frequency Dictionary of Contemporary Serbian Language* (Kostić, 1999; Ilić & Kostić, 2002), with an additional manual check of the children's production and standardization of the words deviating from the conventional phonological form. The target of our analysis were words and predicative utterances, so we excluded unanalyzed expressions like children's rhymes, curse words, exclamations, onomatopoeia, vocalizations, and other unintended and unconventional vocal emissions.

Variables

The following quantitative indicators of lexical development in child language were monitored: the overall number of words produced as an indication of general productivity (Tokens), the number of different words as a measure of vocabulary size (Types), and Type/Token Ratio (TTR) as a measure of the use of vocabulary items - lexical diversity. The TTR index is considerably dependent on the number of hapaxes, i.e. the words that occur only once in a corpus, so it is often used as an indication of the occurrence of lexical novelties in a child language sample. It is negatively represented by its numerical value – the smaller TTR index indicates the larger lexical diversity. In addition, a negative non-linear relationship between TTR and sample size was found (Richards, 1987), so the index of TTR weighted by the number of tokens (TTR/tokens) was calculated instead, as a way of index standardization.

In the domain of utterance production, the number of utterances was retrieved, the Mean Length of Utterance as a measure of syntactic ability calculated in words (MLUw), and the standard deviation of MLUw as an indication of a child's ability to construct prolonged utterances (SD.MLUw). The findings of previous studies (Hickey, 1991; Malakoff, Mayes,

Schottenfeld, & Howell, 1999; Parker & Brorson, 2005) show that the MLUw is highly correlated (0.97-0.99) with its classic counterpart the Mean Length of Utterance calculated in morphemes (MLUm) suggested earlier by Brown (1973). Since defining morphemes in morphologically complex Slavic languages is a demanding and time-consuming task, we opted for MLUw as a reliable measure of child language development.

Data analysis

All the measures are calculated for all 16 age levels (8-48 months) compiled in the *SCECL* corpus. Comparisons between age levels and individual children are made. A preliminary inspection of individual and group verbal production revealed more intensive developmental changes in the earlier age levels than later on, so regression analysis with the function of logarithmic type was systematically applied.

Results

The analysis showed a statistically significant change in all selected indicators of language development as presented below.

The overall production of words (Figure 1) significantly increased with age: $R^2 = .899$, $F(1,14) = 125.303$, $p < .01$. The number of word types as an indication of vocabulary size (Figure 2) also increased significantly: $R^2 = .908$, $F(1,14) = 138.505$, $p < .01$.

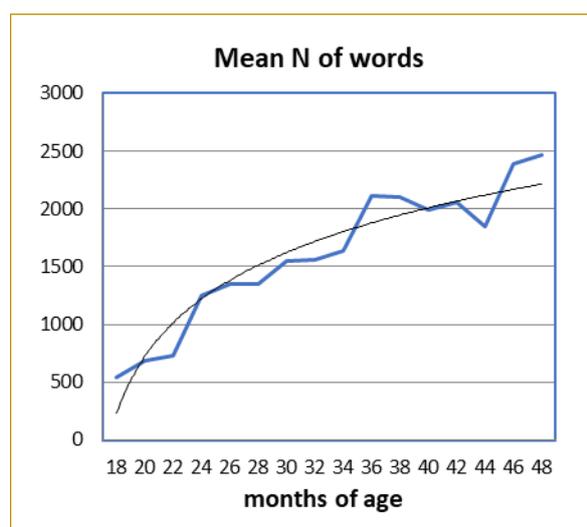


Figure 1. The overall production of words across age

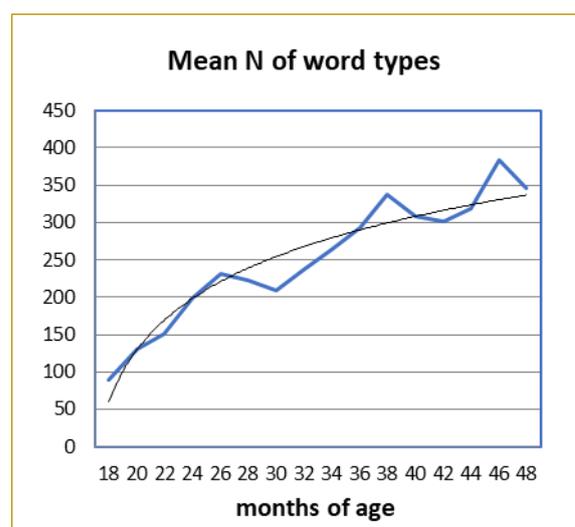


Figure 2. The increase in vocabulary size across age

A significant decrease in Type/Token Ratio weighted by sample size (TTR/token) reveals the distribution of the usage of vocabulary items across age (Figure 3): $R^2 = .862$, $F(1,14) = 87.449$, $p < .01$. It provides an evidence of increased lexical diversity, i.e. appending of new coming words into the children's vocabulary.

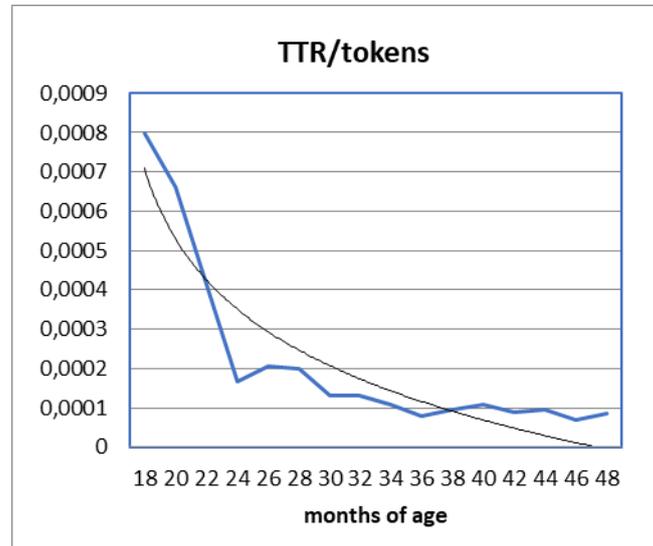


Figure 3. The decrease of TTR/tokens as an indication of the increase in lexical diversity

The production of utterances was also calculated across 16 ages levels. The increase in the average number of utterances produced by children is statistically significant: $R^2 = .8458$, $F(1,14) = 76.79$, $p < .01$ (Figure 4). The increase of the Mean Length of Utterance in words (MLU_w) across age was also significant (Figure 5): $R^2 = .9589$, $F(1,14) = 326.63$, $p < .01$, as well as the increase of the Standard Deviation of Length of Utterance (SD.MLU_w) (Figure 6): $R^2 = .9352$, $F(1,14) = 202.049$, $p < .01$.

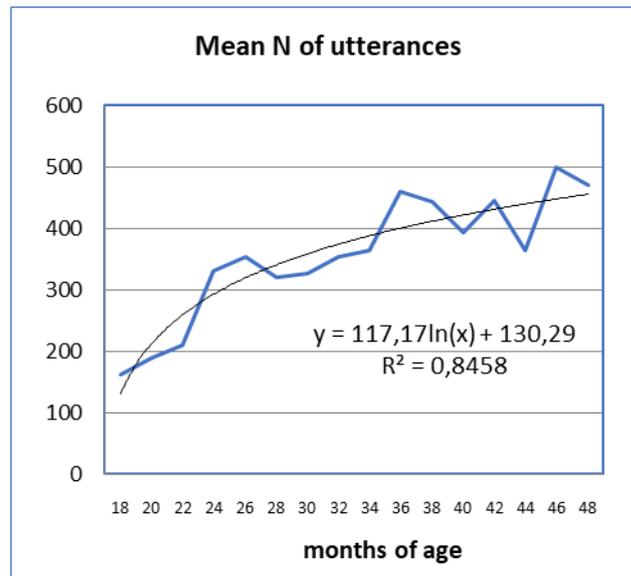


Figure 4. The average number of utterances produced by children at different age levels

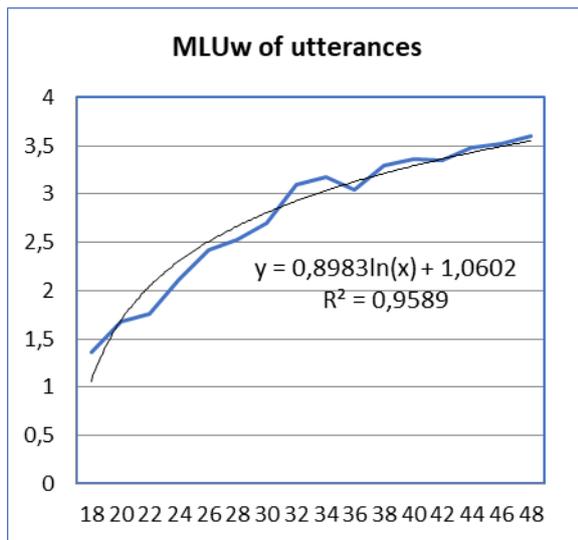


Figure 5. The Mean Length of Utterance in words (MLU_w) across age

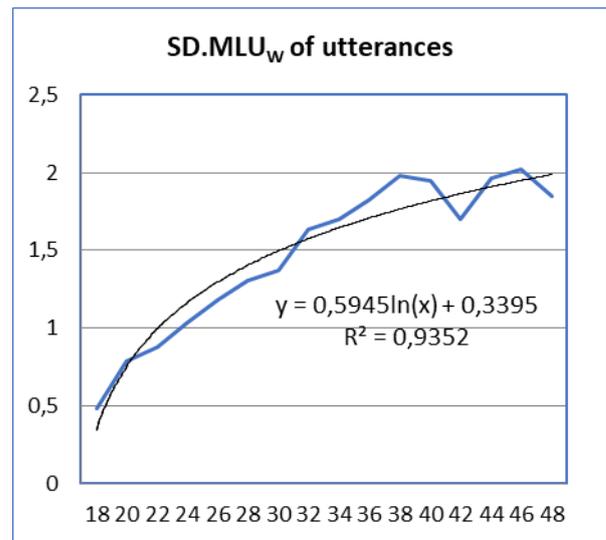


Figure 6. The Standard Deviation of MLU_w (SD.MLU_w) across age

Growth in the language production of individual children

More detailed exploration of the curves of individual improvement revealed rather large variety across age levels, as illustrated by the increase in vocabulary size (Figure 7), and the increase in the length of utterance (Figure 8).

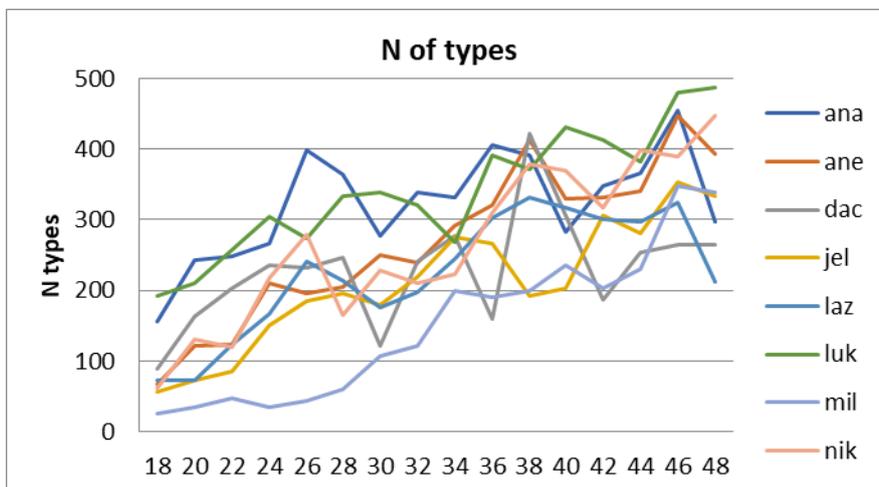


Figure 7. The curves of individual improvement in vocabulary size across age

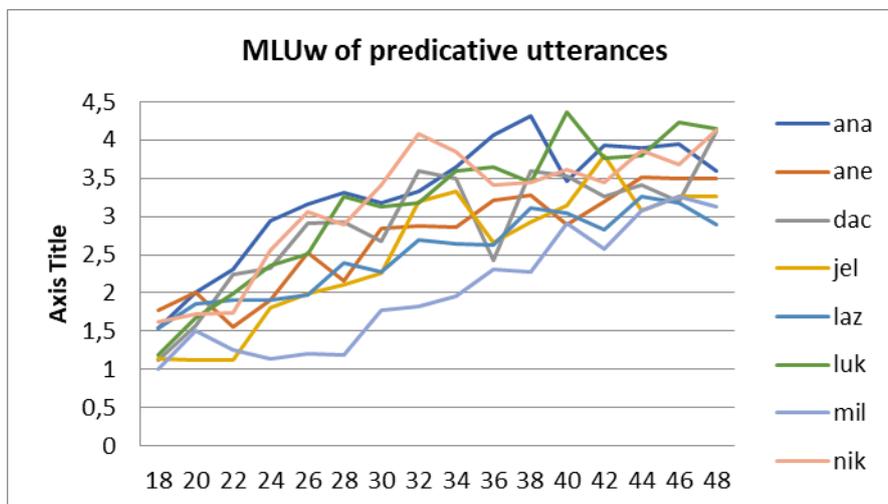


Figure 8. The curves of individual improvement in the length of utterance

Variety in the individual curves across age was also found in all quantitative indications. So, it must be taken into consideration when using the *SCECL* corpus in a research, and an estimation of developmental progress of individual children are to be made.

For the purpose of comparisons between the children, the individual profiles at different indications of change are presented (Figure 9). It should be mentioned that five out six indicators are positively represented by their numerical values (high index reveals high

performance). Only the measure of lexical diversity (TTR/token) is negatively represented by its numeric (high performance is indicated by low index). In order to make it comparable with other measures, it was necessary to make an inversion of TTR/token index by multiplying with -1 (Lexical_diversity in the Fig. 9).

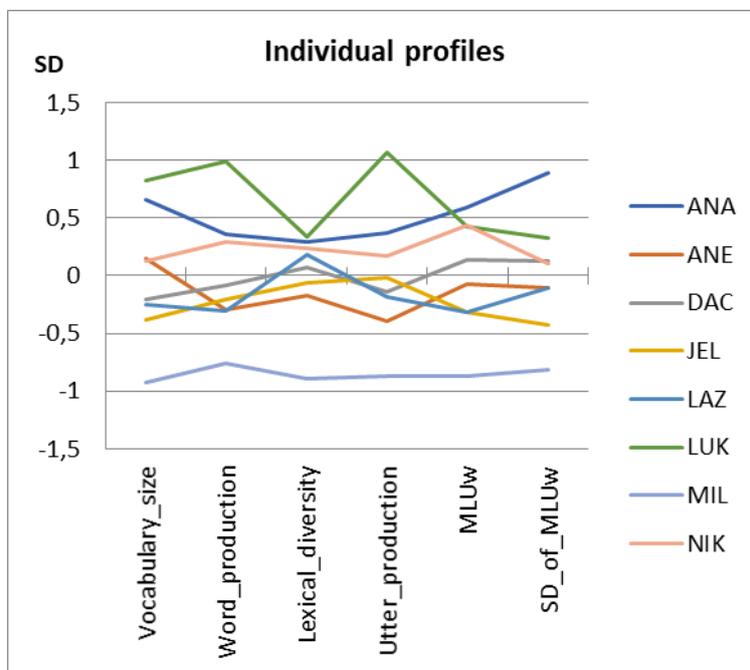


Figure 9. The individual profiles on six quantitative indications of developmental change

The preliminary language profiles obtained on the average of all age levels revealed that individual performances of children and their position in the peer group are rather stable across domains (Figure 9). LUK, ANA, and NIK with large vocabulary size have high performance in all indicators. DAC, JEL, LAZ and ANE are children around the average in all indicators. MIL production is systematically low, but his indexes do not deviate from the average more than 1SD.

Conclusion

Significant increase across age was recorded on all six measures of word and utterance production. Exploration of individual differences helped in identification of developmentally more advanced and slower children in the sample. On the other side, the varying rates of individual progression of a single child across age display the natural situational and pragmatic variability in the recording sessions. It is important to note that the vocabulary size is used here as an indication of the sample size (n of types) at different age levels in the corpus, which is surely an information important for an exploration of the

sample. However, from a developmental point of view, a better estimation of the natural growth in children's vocabulary would be an exploration of cumulative number of types, which takes into account cumulative effects of appending words in the usage. There are also other measures which could provide a better estimation of developmental change across age and they will be explored in the future studies.

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AN IMAGE IS WORTH A THOUSAND WORDS, BUT WHAT OF NUMBERS? THE IMPACT OF MULTI-MODAL PROCESSING ON RESPONSE TIMES AND JUDGMENTS OF CONFIDENCE IN BASE-RATE TASKS¹

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This study introduces images into a well-researched base-rate task. In one set of experimental situations the image represented a base rate consistent or inconsistent with the intuitive answer, and in the second set, a base rate number accompanied the image (multi-modal situation). In the second set of situations the image was equivalent to the numeric ratio, or designed to represent a 60% decrease in the ratio. In both of these situations base rates and images were in conflict with intuitive responses. Consequently, four levels of conflict were induced. After each decision participants made a judgment of confidence. We found a significant effect of conflict level on response times. Higher conflict prolonged response times and lowered rates of intuitive responses. The same effect was not found for confidence, probably due to high judgments overall. We also compared induced levels of conflict by images compared to numeric base rates using data from our previous study. We found a strong overall effect of consistency with slower responses for conflict items. The group by consistency interaction was also significant. Image-based conflict increased response times to a lesser degree than the usual numeric base rates. The same effects were found for confidence ratings. We conclude image-based items induce the same type of effects but to a lesser degree than numeric-based items.

Keywords: base rate task, metacognition, confidence judgment, dual processing, multi-modal processing

Introduction

The psychology of thinking and reasoning has, in large part, been based on the dual-processing approach. A larger number of theories exist, but they are all based on the assumption of two types of processes. Type 1 processes are described as heuristic-based, fast and intuitive. Type 2 processes are described as analytical with higher cognitive load (Evans, 2007).

Pennycook, Fugelsang, and Koehler (2015) suggested conflict monitoring processes are a key mediator between Type 1 and Type 2 processes. They proposed that tasks initiate

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intuitive responses, if the responses are inconsistent there is a possibility of conflict detection. Failure to detect conflict results in a dominant Type 1 response while successful detection leads to Type 2 processing which may or may not result in a change of response. All of the mentioned processes are generally done on an unconscious level. This model predicts longer response times when conflict is detected, regardless of the final response.

Work done by Thompson et al. (2013) integrates a metacognitive framework (see Ackerman & Thompson, 2015) into the dual processing approach. Their results show that higher levels of conflict reduce judgments of confidence and that one of the key cues for the formation of these judgments is answer fluency (measured by response times). Research also shows conflict detection can induce an autonomic response (De Neys, Moyens, & Vansteenwegen, 2010) which may contribute to metacognition.

In previous research (Dujmović & Valerjev, 2017) we used a base rate task to investigate the connection between metacognition and conflict. In this task participants were shown a single trait for a random person (e.g. *Person A is organized*) after which they were shown information about the group from which the person was chosen (e.g. *The group consists of 900 artists and 100 lawyers*). The participants had to decide from which subgroup was the person likely chosen. In this example the stereotypical answer is *a lawyer* while the numerically probable answer is *an artist*. For these types of items response times were longer and confidence judgments were lower due to the conflict between responses.

The goal of this study is to determine whether a different modality of the base rate information (images) would produce the same conflict effect on response times and metacognitive judgments. Furthermore, we wanted to investigate if a combination of two types of information (multi-modal base rate) would modulate the effect. Finally, we wanted to compare the pure effect of images and numbers on conflict induction.

Method

Participants and design

Participants ($N = 35$) were undergraduate psychology students. The design was a four level repeated measures experiment. The four situations (Table 1) induced distinct levels of conflict. Two situations presented base rate information through images, and two combined images with numeric information (multi-modal set).

Table 1
Experimental situations

Situation	Base rate information and relation to the stereotype	Expected level of conflict
S1	Image-consistent	No conflict
S2	Image-inconsistent	Lowest
S3	Image (mitigating) + numeric base rate-inconsistent	Intermediate
S4	Image + numeric base rate-inconsistent	Highest

Stimuli

Examples of the four situations can be seen in Figure 1.

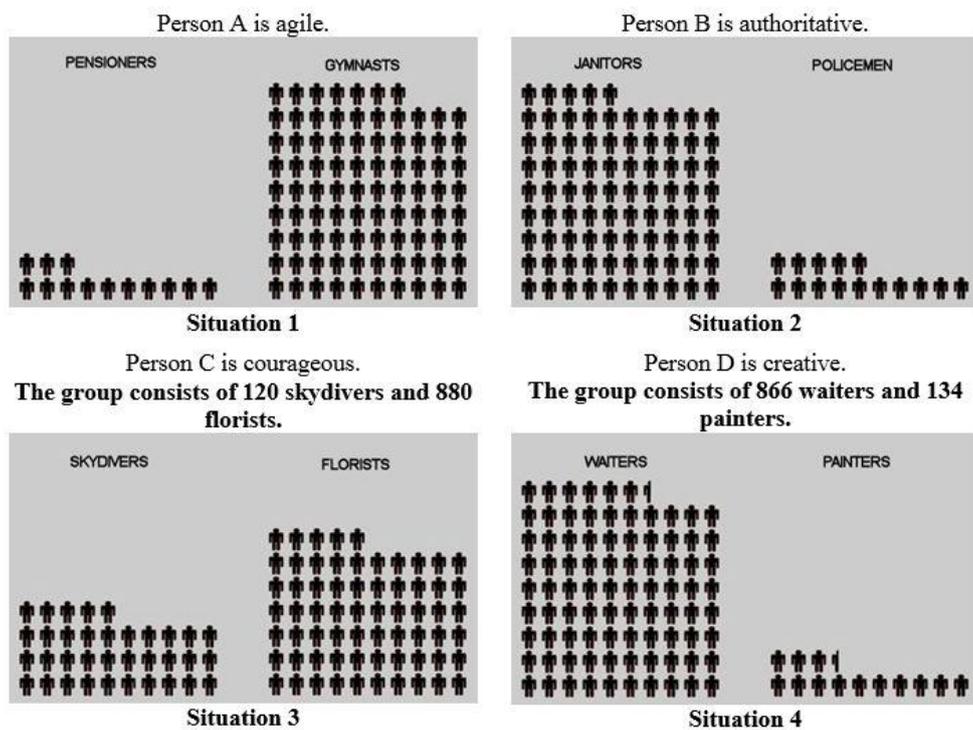


Figure 1. Examples of experimental stimuli

We used items from our previous research (Dujmović & Valerjev, 2017) in order to compare purely image-based items to purely numeric-based items.

Procedure

Each trial followed the basic design from the example in the introduction (Figure 2) Metacognitive judgments were made on a scale from 50% (guessing) to 100% (complete confidence).

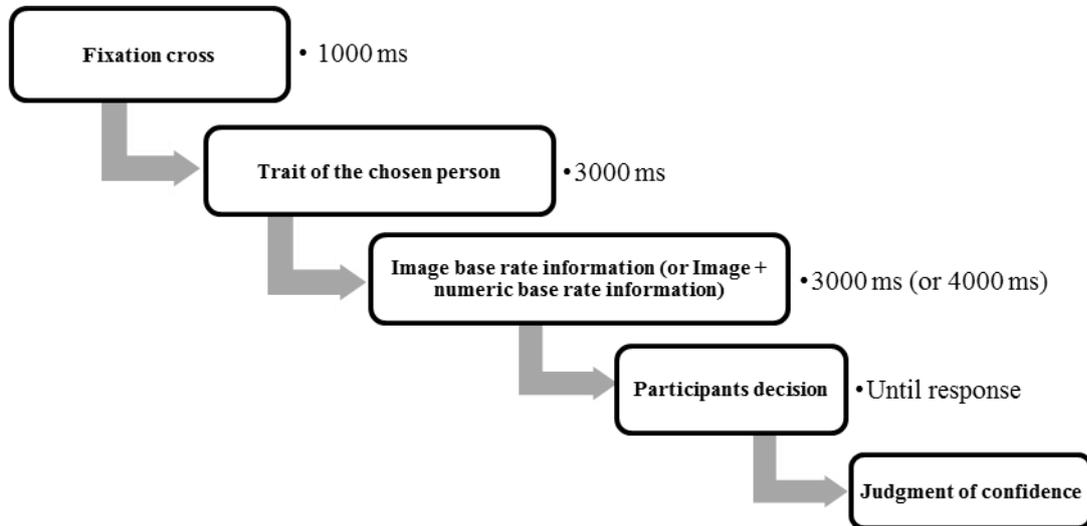


Figure 2. Single trial procedure

Participants completed a total of 20 trials (5 per condition). Trials were presented in two blocks, an image only block, and a multi-modal block. Trials within each block were randomized for each participant. Block order was rotated among participants.

Results

All response time and confidence variables passed normality tests. We verified that block order had no effect on the dependent variables. One way repeated measures ANOVAs were calculated for response times and judgments of confidence. For response times there was a significant effect of conflict level ($F(3,102) = 6.71, p < .01, \eta_p^2 = .16$). Tukey HSD post-hoc comparisons were significant between the non-conflict and the two highest conflict situations. Other comparisons were not significant, but the expected trend was present (see Figure 3).

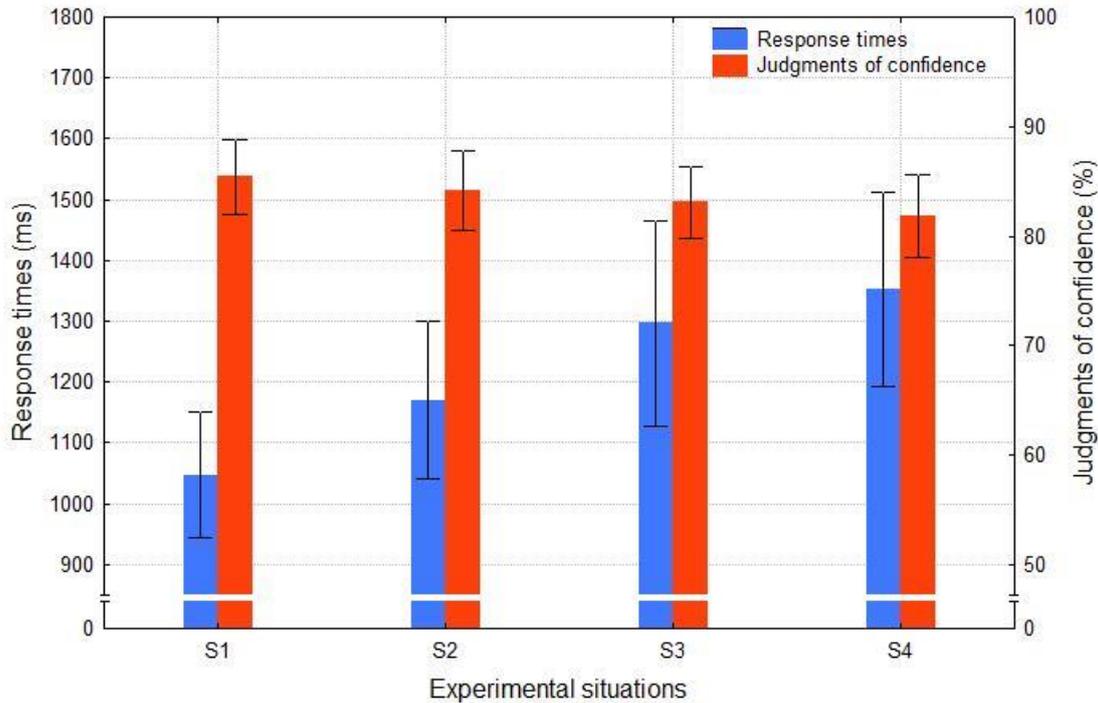


Figure 3. Average response times and judgments of confidence

The same effect was not present for judgments of confidence ($F(3,102) = 1.55, p > .05$). However, the results showed the expected trend. As Figure 3 depicts, conflict slightly reduced confidence judgments.

Stereotype-based response rates were: 94.29%, 81.71%, 76.00%, and 70.29%. As expected, Friedman's ANOVA showed a this decrease was significant ($\chi^2_{(3)} = 19.15, p < .01$).

An item-analysis was conducted to determine whether items with longer response times were accompanied by lower judgments of confidence. Results showed a significant negative correlation ($r_{(18)} = -.59, p < .01$).

Comparison with results from previous experiment

In order to compare the effect of two different modalities of base rate presentation on conflict induction we analyzed data from this and a previous experiment (Dujmović & Valerjev, 2017). Situations 1 and 2 from this experiment were compared to situations in which only numbers provided base rate information. Two 2x2 mixed ANOVAs showed a significant effect of consistency for both response times ($F(1,63) = 30.79, p < .01, \eta_p^2 = .33$) and judgments of confidence ($F(1,63) = 9.67, p < .01, \eta_p^2 = .13$). In general, conflict prolonged response times and lowered confidence ratings. A significant consistency by

modality interaction was found for both response times ($F(1,63) = 7.19, p < .01, \eta_p^2 = .10$) and confidence ($F(1,63) = 4.09, p < .05, \eta_p^2 = .06$). There was a larger effect of conflict when base rate information was presented numerically for both response times and judgments of confidence (see Figures 4 and 5).

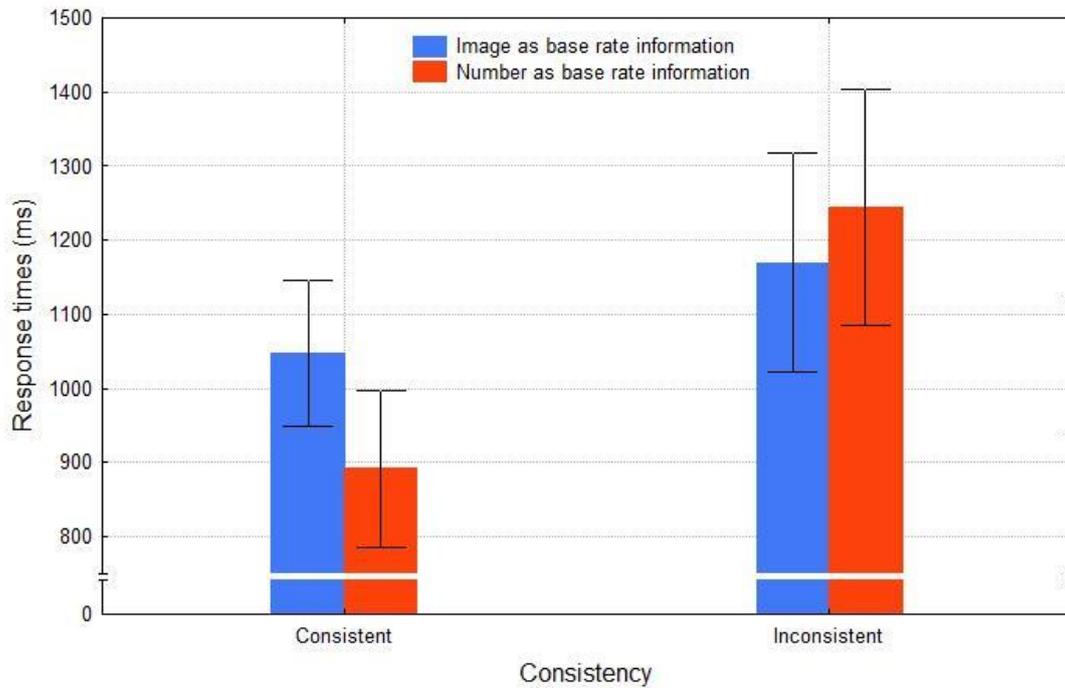


Figure 4. Response times as a function of consistency and modality

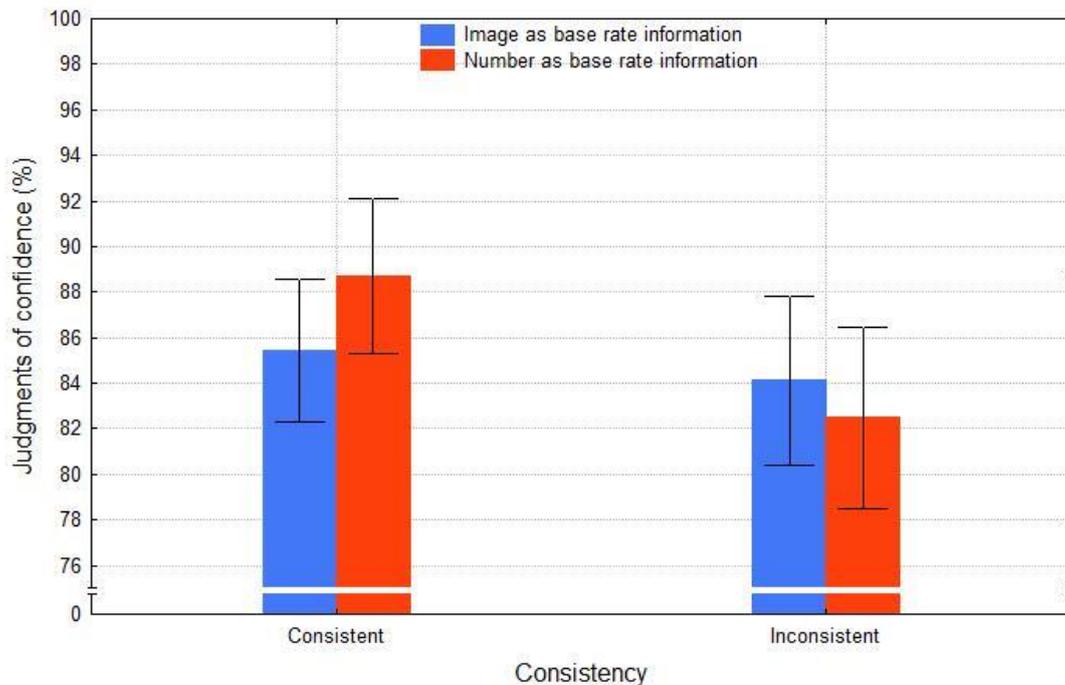


Figure 5. Judgments of confidence as a function of consistency and modality

Discussion and conclusion

As expected, our results showed images can induce conflict in base rate tasks. Furthermore, multi-modal base rate representations enhanced the effect. This multi-modal effect can be fine-tuned by manipulating the level of equivalence of the two information modalities. When image based information represented a 60% decrease of the numerical base rate a lower level of conflict was induced. The effect was strong for response times but not significant for judgments of confidence even though it followed the same trend. This result is likely caused by extremely high levels of confidence in our sample. The impact of conflict on confidence ratings can be observed indirectly from the significant inter-item correlation between response times and confidence. This analysis showed that longer response times (higher conflict level) were accompanied by lower confidence. This correlation has been well documented (e.g. Thompson et al., 2013).

When comparing the pure effect of image-based information with numeric information (Dujmović & Valerjev, 2017) we found that conflict was induced by both modalities, but the effect was stronger when using numeric information. This is probably due to the fact that presentation of numeric information was in the same modality as the rest of the task, particularly the stereotype-inducing trait. Images were probably less salient because of the mismatch in modality with the rest of the task, leading to a smaller effect.

To conclude, the addition of images to the original base rate task increased the conflict effect. Images by themselves induce the effect but to a lesser degree when compared to the numerical version of the task.

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MEDITATION, PROGRESSIVE MUSCLE RELAXATION AND COGNITIVE FLEXIBILITY

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Empirical findings show that the practice of meditation has many benefits on human functioning (Holzel et al., 2011; Sedlmeier et al., 2012). As a result of meditation practice, cognitive, emotional and behavioural responses to the environment become more flexible and less automatic. The aim of the current study was to investigate the impacts which a short-term 10 days meditation practice has on attention regulation and cognitive flexibility. Progressive muscle relaxation is used as active control training for the effects of bodily relaxation. The study included 63 participants, 53 females and 10 males in the age from 18 to 36, mostly psychology students of University of Rijeka. The results have shown that after the training both groups have increased levels of mindfulness, show higher efficiency in the networks of alerting and executive control of attention, while there was no change in the network of orienting or on the measure of convergent thinking. No observed changes between the groups could be attributed to the specific effects of the meditation training. The results show the effect of other factors apart from meditation training that have influenced the participants' performance. The present study and the research so far highlight the need for further development and research of the effects of meditation.

Keywords: short-term meditation training, mindfulness, attention regulation, cognitive flexibility

Introduction

In the last decades, significant attention has been given to meditation as a topic of interest in psychological research. The growing evidence of research is showing a wide range of beneficial effects: attention regulation, body awareness, emotion regulation, changes in the perspective of self (Holzel et al., 2011) with recorded structural and functional neural changes (Marchand, 2014). At the moment there are numerous methodological problems in this line of research, most being conducted without sufficient theoretical background (Sedlmeier et al., 2012) and a lack of appropriate measuring instruments (Dahl, Lutz, & Davidson, 2015). As a way to bridge this gap, models such as Wallace & Shapiro's (2006) model of mental balance built on the Buddhist tradition and Western psychology, and concepts such as mindfulness (Kabat-Zinn, 2003) were introduced.

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The question of the mechanisms through which meditation grants effects was posited, with few answers given at the present moment. Different models were presented, most of them explaining effects of meditation through attention control (Lutz, Slagter, Dunne, & Davidson, 2008). Consistent with them, Malinowski (2013) offers a model of 5 main tiers, including the motivation to engage in the practice, mind training, refinement of core processes of attention, emotional and cognitive flexibility, leading to a mental state of awareness, ultimately achieving mental and physical well-being. Attention is at the core of the practice and changes resulting from it. The research of long-term meditation practice shows the evidence of changes in attention and cognition due to meditation in a more consistent way than of the short-term trainings (Chiesa, Calati, & Serretti, 2011). Short-term meditation trainings are showing both significant and non-significant effects on the levels of mindfulness (Anderson, Lau Segal, & Bishop, 2007), attention networks (Ainsworth, Eddershaw, Meron, Baldwin, & Garner, 2013; Jha, Krompinger, & Baime, 2007), working memory and executive functioning (Zeidan, Johnson, Diamond, David, & Goolkasian, 2010), creative thinking (Colzato, Ozturk, & Hommel, 2012) as well as other measures of cognitive flexibility (Moore & Malinowski, 2009).

The aim of the current study was to investigate the effects of a 10 day long training of meditation and progressive muscle relaxation (PMR), as a way to control for the effect of bodily relaxation, on the levels of mindfulness, the networks of attention and cognitive flexibility, expecting changes on the measures towards higher and more efficient in the participants of the meditation training compared to PMR participants.

Method

Participants and procedure: 63 participants, mostly psychology students, randomly allocated into 2 trainings: meditation and PMR, lasting for 10 weekdays, 30min a day in the morning hours. The meditation training was held by an expert, each consisting of 5-min physical workout, followed by focusing on breathing and neutral objects all the while sitting upright in the chair and gently bringing back their attention every time the mind wanders. The PMR training was led by the experimenter, consisting of repetition of a series of tightening – relaxing cycles of different muscle regions progressively throughout the body. The measures were collected immediately before and after the trainings. The attention network test asked of the participant to determine which direction the central arrows shows, all the while remaining fixated on the central cross. The test consisted of 1 practice and 3 experimental blocks, each trial beginning with a short presentation of the signal (100ms), after which followed a short

interval (400ms) before the presentation of the target which stayed for 1.700ms. Data of the reaction time was collected.

Instruments: Five Facet Mindfulness Questionnaire – FFMQ (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), the Croatian standardized version (Gunjača, 2014) measuring the level of mindfulness; Remote Associates Test – RAT (Mednick, 1968; as cited in Chermahini, Hickendorff, & Hommel, 2012) measuring associative convergent thinking; Attention Network Test - ANT (Fan, McCandliss, Sommer, Raz, & Posner, 2002) measuring the efficacy of 3 attention networks: alerting, orienting, executive control of attention.

Results

In order to check the group characteristics, the baselines of dependent measures were compared. T-test showed the groups didn't differ in attention networks or convergent thinking. However, the t-test showed that the groups differed in levels of mindfulness ($t_{(61)} = 2.35, p < .05$), with the meditation group showing higher levels of mindfulness ($M = 129.00$) then PMR ($M = 119.70$).

In order to check the relations between meditation/PMR training and the dependent variables, a series of two-way mixed ANOVA were conducted on the two groups and measurement time (before/after). Considering the levels of mindfulness, ANOVA showed there is a main effect of the time of measurement ($F(1,60) = 40.28, p < .01$), with the state mindfulness higher after the trainings, then before. There is also a main effect of the group ($F(1,60) = 4.81, p < .05$), with the meditation group showing higher levels then PMR, with no significant interaction. Regarding the attention network, the analysis showed a main effect of the measure situation in alerting ($F(1,61) = 4.89, p < .05$) and executive control ($F(1,61) = 56.67, p < .01$), with higher efficacies after, compared to before trainings. There is no main effect of the group or the interaction. There were no noted differences in the network of orienting nor of convergent thinking between the groups or the measurement situation. All the results are given in the Table 1.

Table 1
Main effects of group and time of measurement on mindfulness, attention and convergent thinking

Dependent variable	Group	M (SD)		Time of measurement	F	
		Before training	After training		Group	Interaction
Mindfulness	Meditation	128.88 (15.94)	136.34 (15.08)	$F(1, 60) = 40.28^{**}$	$F(1, 60) = 4.81^*$	$F(1, 60) = 0.79$
	PMR	119.70 (15.72)	129.60 (14.22)			
Alerting	Meditation	29.09 (21.49)	37.76 (20.83)	$F(1, 61) = 4.89^*$	$F(1, 61) = 0.74$	$F(1, 61) = 0.65$
	PMR	34.93 (15.59)	38.97 (20.44)			
Orienting	Meditation	37.55 (20.96)	33.30 (19.63)	$F(1, 61) = 2.77$	$F(1, 61) = 0.00$	$F(1, 61) = 0.09$
	PMR	36.73 (19.13)	33.80 (16.92)			
Executive control	Meditation	121.79 (33.64)	98.30 (29.78)	$F(1, 61) = 56.67^{**}$	$F(1, 61) = 0.04$	$F(1, 61) = 0.30$
	PMR	125.43 (50.17)	98.27 (30.01)			
Convergent thinking	Meditation	13.06 (5.53)	13.18 (4.52)	$F(1, 60) = 0.01$	$F(1, 60) = 0.92$	$F(1, 60) = 0.15$
	PMR	14.24 (4.23)	14.03 (3.10)			

* $p < .05$; ** $p < .01$

Discussion and conclusion

The found results show changes in mindfulness levels, efficacy of alerting and executive control as a result of both trainings, with no specific effects of the meditation training. Many previous studies have found that short-term meditation training results in a higher level of mindfulness (Anderson et al., 2007) and higher efficacy of attention networks (Jha et al., 2007), but not in the relaxation group (Ainsworth et al., 2013). Possible explanations for these results could be similarities between the first stages of practicing meditation and PMR, attending and spending time on a training itself. The network of alerting and convergent thinking showed no changes in the groups after the training. In explaining these results, it is important to discuss the non-satisfactory psychometric characteristics, especially the lack of sensitivity of the chosen instruments (Dahl et al., 2015). Attention networks measured by the ANT and RAT aren't showing a consistent pattern in the

research of short-term meditation training (Ainsworth et al., 2013; Colzato et al., 2012). The noted differences between the groups on the baseline of mindfulness occurred even though the participants were randomly assigned to experimental groups. This occurrence could be attributed to participants' expectations and motivation, their effort to be a "good participant", influence of the experimenter and other, showing the methodological problems of the present study.

Key problems in current meditation research are the lack of comprehensive theories and instruments sensitive enough to measure meditation effects. The field is flooded with methodological errors (Sedlmeier et al., 2012) and usage of a wide range of instruments resulting with a variety of found results (Chiesa et al., 2011) thus enabling to make general conclusions and predictions. Research of long-term practices and exploratory designs are currently the most promising (Dahl et al., 2015). Western psychology offers the precision of scientific empirical methods to the wealth of Buddhist practices, giving possibilities for mutual enrichment (Shapiro & Wallace, 2006) and for this line of research to challenge, refine and expand the current models of meditation.

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PSYCHOLOGY OF ART

GROUP SINGING: THE DRAMA STUDENTS' AESTHETIC EXPERIENCE OF THEIR SINGING VOICE

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The paper aims at investigating the relationship between aesthetic experience of voice during group singing of different compositions and aesthetic experience of voice while listening the performance of those compositions by drama students. 32 students of the drama department of Academy of Arts who assessed aesthetic experience of their voice after singing in the group and after listening to recording of their performance of three different songs. The ratings were made on 12 seven-point scales measuring three dimensions of aesthetic experience (dynamism, exceptionality and evaluation). The results have shown that Medium (live and recording), as well as Song (three different songs from musical genre) have significant main effect on assessments of aesthetic experience of singing voice while participating in group singing. The different practical and theoretical implications of the results of this research about group and individual singing are discussed.

Keywords: singing voice, group singing, aesthetic experience, drama students

Introduction

The voice is primary, and most widely used tool for work and communication and it is a carrier of thoughts and emotional states. A person's voice is usually an integral part of his or her self-perception and it holds the individual and emotional characteristics and thus provides an "imprint of speech", which has its own frequency, intensity and its specific spectral analysis (Mumović, 2004). Singing, as a complex sensory-motor phenomenon, is an all-embracing action which involves the entire self, both physical and mental, as well as particularly balanced physical skills (Sataloff, 2005).

The speaking and singing voice may be understood as a movement of the body to express a thought or feeling (Tarneaud, 1941), and according to García-López and Gavilán Bouzas (2010, p.442) singing may be defined as a "synthesis of various aspects: anatomical, physiological, aesthetic, acoustical, psychological, and so on". The vocal technique for the singing voice is based on the physiology, as those of the speaking voice, and consists of the following elements: body posture, breathing, emission, resonance and articulation (Kob,

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Henrich, Herzel, Howard, Tokuda & Wolfe, 2011). Singing voice also has three other characteristics: vibration, tuning, and the concept of vocal registration (Kob et al., 2011). Every human being has the same instrument, but depending on how human voice is trained to produce a sound and some other aspects, e.g. health, individual tendencies, social and cultural aspect, etc., the person may or may not be a professional voice user.

Previous research singled out that there is a difference reported by people when they sing or listen to their voice recorded (Peretz & Coltheart, 2003; Richards & Durrant, 2003; Obata, 2004; Hall, 2005; Welch, Howard, Himonides & Brereton, 2005). Since previous research has indicated a kind of mismatch between the intended and actual singing, this research aims at investigating the relationship between the aesthetic experience of voice *during singing different compositions* and aesthetic experience of voice *while listening to the recorded performance* of those compositions. Furthermore, this research emphasises the aesthetic experience both while singing and while listening the recorded performance of the song, testing it in the context of group singing.

Experiment

The aim of this experiment was to investigate the relationship between aesthetic experience of voice during group singing of different compositions and aesthetic experience of voice while listening to the performance of those compositions by drama students.

Method

Participants

In the study participated 32 students from Department of Dramatic Arts, University of Novi Sad Academy of Arts. There were 16 male and 16 female students, Mean of age 19.25, ($SD = .842$), who did not have any formal music education. Students participated voluntarily and they did not receive any course credit or payment.

Stimuli

The stimuli consisted of three songs from the genre of Musical: 1) Andersson, Björn Ulvaeus, Stig Anderson: „Honey Honey” song from the musical *Mamma Mia*, duration: 01:37 min; 2) Elton John: „Strongest Suite” song from the musical *Aida*, duration: 00:54 min; 3) John Cander: „Willkommen” song from the musical *Cabaret*, Duration: 00:40 min.

Instrument

The instrument used in this research was defined in a previous study (Vukadinović & Marković, 2012). The drama students' aesthetic experience of their singing voice when they perform in the group was rated on 12 seven-point scales measuring three dimensions of aesthetic experience: Dynamism (expressive, powerful, strong, exciting), Exceptionality (eternal, unspeakable, unique, exceptional) and Affective evaluation (delicately, elegant, seductive, emotional).

Procedure

Participants sang these 3 different songs in the group using headphones through which they listened to the sound of a recorded piano accompaniment while singing on the microphones. Then, they made their evaluations of their singing voice performed live and in group. Later, the students listened to their audio recording of the performed songs and then made their evaluations again. Participants assessed aesthetic experience of their voice after singing in the group and after listening to recording of their performance of three different songs. For the technical support of the research, the Steinberg's software Cubase 5.0 was used. Using this software, the music was played through headphones, participants sang in group on microphones and their singing voice was recorded on a separate channel in Cubase 5.0.

Design

The design was multivariate two-factorial. The Independent variables were MEDIUM (live and recorded) and SONG (three songs). The Dependent variables were ratings on the scales which forms 3 dimensions of the aesthetic experience: Dynamism, Exceptionality, Affective Evaluation. The design was repeated by the subjects – all participants rated their singing voice in all of three live and recorded performance.

Results and Discussion

The results of the analysis of variance – repeated measures have shown that both Medium ($F(3,29) = 22.66, p < .001$) and Song ($F(6,122) = 3.33, p < .005$) have significant main effect on assessments of aesthetic experience of singing voice while singing in the group. Interaction Medium x Song is also significant ($F(6,122) = 14.85, p < .001$).

The significant effect of Medium indicates that ratings of the drama students' aesthetic experience of their voice when singing in the group are higher when they listen to recorded group performance of the songs compared to their live experience. The results have shown that the effect of Medium is significant regarding all assessed dimensions of aesthetic experience of singing voice (see Table 1).

Table 1
Ratings on the dimensions of the aesthetic experience of singing voice when drama students' listen to recorded group performance of the songs compare to their live experience

The effect of Medium. Group singing: Dimensions of aesthetic experience of students' singing voice	Live		Recorded	
	M	SD	M	SD
Dynamism $F(1,31) = 31.99, p < .001$	3.52	0.26	4.31	0.24
Exceptionality $F(1,31) = 51.85, p < .001$	3.01	0.27	3.68	2.36
Affective Evaluation $F(1,31) = 29.97, p < .001$	3.72	0.72	4.71	0.26

These results indicate that students have significantly different ratings of aesthetic experience of their singing voice when they performed the songs live in a group and when they listened to recorded performance. When they listen to the recording of their singing voice while performing songs in the group, students regard their own voice as expressive, stronger, more caring, extraordinary, and seductive. These results are in line with previous studies which, as well, reported the difference in assessments of singing voice when people do it live comparing to listening recorded singing voice (Peretz & Coltheart, 2003; Richards & Durrant, 2003; Obata, 2004; Hall, 2005; Welch, Howard, Himonides, & Brereton, 2005).

The results have shown that effect of the Song is significant concerning all assessed dimensions of aesthetic experience of singing voice. The aesthetic experience of their singing voice drama students rate with different values depending on the song (see Table 2).

Table 2

Ratings on the dimensions of the aesthetic experience of singing voice when drama students' listen to three different songs

The effect of song. Group singing: Dimensions of aesthetic experience of students' singing voice	SONG 1 "Honey Honey"		SONG 2 "Strongest Suite"		SONG 3 "Willkommen"	
	M	SD	M	SD	M	SD
Dynamism $F(2,62) = 6.78, p < .002$	4.03	0.21	3.64	0.28	4.17	0.27
Exceptionality $F(2,62) = 6.05, p < .004$	3.32	0.28	3.12	0.20	3.57	0.27
Affective Evaluation $F(2,62) = 9.72, p < .001$	4.28	0.32	3.95	0.36	4.43	0.28

As it can be seen in Table 2, students assess the third song, "Willkommen", a song from the musical *Cabaret*, with the highest values regarding all dimensions of the aesthetic experience ($p < .05$). It is highly possible that this result resulted from the fact that students are more familiar with "Willkommen", a song from the musical *Cabaret*, compared to other two songs. This result, also, may be in line with previous studies which suggested that familiarity has significant influence on aesthetic experience (Pereira, Teixeira, Figueiredo, Xavier, Castro, Brattico, 2011; Brattico, Bogert, & Jacobsen, 2013; Jola, Ehrenberg, & Reynolds, 2011; Reason & Reynolds, 2010). However, the question of the influence of familiarity of the song on the judgement of the aesthetic experience of singing voice, remain as an open question for future studies.

Regarding the interaction Medium x Song, the results have shown that there is significant effect on the ratings of Dynamism ($F(2,62) = 9.49, p < .001$) and Affective Evaluation ($F(2,62) = 9.96, p < .001$). Depending on whether they sang the song live or listen to a recording of their voice during group singing, students assessed the dimension of Dynamism and dimensions Affective Evaluations differently while performing different songs. Students evaluate their singing voice as expressive, stronger, more sensitive and softer regarding all songs, when they listen to their recorded singing voice in a group performance compared to singing live and in the group.

Conclusion

On the basis of the findings of this study, it can be concluded that aesthetic experience of singing voice in the group performance is influenced by the type of song and the medium through which the singing voice is perceived (live and recorded). The differences in aesthetic experience of singing voice may be better understood if we have in mind the importance of

formal characteristics of a particular song such as: tempo, tonality, melody, range, duration, complexity etc., as well as, individual preferences for specific type of music. The other element which could influence on differences in aesthetic experience of singing voice is singers' individual vocal skills, e.g. vocal technique, type of singing voice, vocal mobility and so forth.

However, to address the questions related to relationship of aesthetic experience of singing voice and formal characteristics of particular song, as well as, influence of individual vocal skills and preferences for the type of song, requires further testings, which can serve as motivation for future studies.

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RELATIONSHIP BETWEEN INTERPERSONAL ORIENTATION, OPTIMISM AND PESSIMISM AND EXPERIENCING BEAUTY OF HUMAN FACES

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The aim of our study is to examine relationship, i.e. predictive power of the aspect of interpersonal orientation, optimism and pessimism in regard to the experiencing beauty of human faces. 96 students participated in the research. They filled in the Scale of interpersonal orientation, Scale of optimism and pessimism and Scale of experiencing beauty of human faces. Analysis shows positive correlation between Philanthropic orientation and experiencing Elegant beauty. Also, analysis shows that there is a positive correlation between Optimism and experiencing Phenomenal and Clear beauty of human faces. Aspects of Misanthropy and Pessimism do not realize statistically significant relations with any aspect of experiencing beauty of human faces. Regression analysis results show that Need for people and Friendship are significant predictors in predicting experience of Elegant beauty, while the Optimism is a significant predictor in predicting experience of Clear beauty.

Keywords: interpersonal orientation, optimism, pessimism, experiencing beauty of human faces

Introduction

Giving importance to physical beauty dates back from the times of old civilizations. Then, just like in modern times, physical beauty was related to personality traits. Relating beauty to goodness, competence, socialability, warmth and even a higher level of intelligence show that importance of the effect known as “what is good is beautiful, too” is still valid (Feingold, 1992; Langlois et al., 2000). That is the reason why it still arouses attention of modern researchers. The question posed is whether the personality traits assessment is under the influence of stereotype expectations to such an extent that the assessor will not even try to assess personality traits of a beautiful person with more precision? Although it is confirmed that individuals who are attractive either have or develop later in life positive personality traits (Langlois et al., 2000). Findings show that attractive individuals are observed in accordance with desirable normative profile, but they are, at the same time, observed with more distinctive precision (Lorenzo, Biesanz, and Human, 2010). Thus, attractive individuals are assessed as generally more likeable, but the attention they are given causes development of

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more distinctive ability of the assessors. Miler (Miller, 1970) states that the differences between attractive and unattractive individuals are 15 out of 17 chosen personality traits in a way that the low attractiveness is related to negative personality traits, while high attractiveness is related to the positive ones. It is also observed that the individual is assessed as more attractive if the assessor thinks that s/he has some desirable personality traits for him (Little, Burt & Perrett, 2006). Desirability of an individual, a partner in love or friendly relationship increases if the photograph of the individual is enclosed with a list of positive personality traits in relation to the neutral context. However, the assessment of attractiveness of the individual on the photograph also increases. (Lewandowski Jr., Aron & Gee, 2007).

From the period of an early childhood children thought to be beautiful receive more attention. At the early age the choice of partners for play is also based on physical attractiveness of face and body (Fisher, 1986, in Popkins, 1998). At schools, teachers also continue to treat children depending on their looks and have different expectations accordingly. Fulfillment of their expectations is in favour of beautiful children which leads to self-fulfilling prophecy (Patzner, 1985). By developing desirable personality traits and in the mutual interaction with individuals alike, the individual conforms an opinion of himself with the opinions of the others thus becoming a part of subpopulation which in combination with good physical looks leads to popularity and higher social desirability (Popkins, 1998). Having taken this into account, lower physical attractiveness followed by lower assessments by the others leads to a lesser social popularity which may influence reduced self-respect and self-confidence (Zuckerman, 1991).

The question posed is how people depending on their attitude towards other people or their global view of the world assess beauty of their own face? Is their optimistic view of the world and positive relations with people and their turning towards them reflected on experiencing beauty of their own face and how?

Method

Participants

This study includes 96 students from the Department of Psychology, Faculty of Philosophy, Kosovska Mitrovica, of both genders (29 male and 67 female), and average age $M = 19.96$, $SD = 1.39$.

Variables and instruments

Variables in this study were such as follows:

1) Two aspects of interpersonal orientation with its facets: Philanthropic orientation (need for people and friendship) and Misanthropic orientation (Distrust and social isolation) measured by Scale of interpersonal orientation (IO) (Bezinović, 2002).

2) Optimism and Pessimism were measured by Scale of optimism - pessimism (O-P scale) (Penezić, 2002).

3) Six dimensions of beauty of human faces: Amazing, Arousing, Cute, Erotic, Clear and Elegant beauty are measured by Basic dimensions of experiencing beauty of human faces (Markovic et al., 2014).

Procedure

After having filled in the Scale of optimism – pessimism and Interpersonal orientation, each subject assessed beauty of his/her own face on the 12 seven degree scales of Basic dimensions of experiencing beauty of human faces.

Results

According to the correlation analysis, only Philanthropy with its aspects and Optimism was significantly correlated with some aspects of experiencing beauty of human faces. Misanthropy and Pessimism do not realize statistically significant correlation with aspects of experiencing beauty of human faces.

Table 1
Relationship between interpersonal orientation and optimism/pessimism with experiencing beauty of human faces

	Elegant beauty	Amazing beauty	Clear beauty
Need for people	.237*	.119	.112
Friendship	.214*	.152	.115
Optimism	.173	.225*	.373**

* Correlation significant on level $p < 0.05$

** Correlation significant on level $p < 0.01$

The model of multiple regression was used for the testing of predictive power of interpersonal orientation in prediction of experiencing beauty of human face. Results of multiple regression show that Philanthropic orientation is a significant predictor ($F = 5.49$, $p = 0.02$) of experiencing beauty of human face and that it explains 5.6% variance of Elegant beauty.

Table 2

Interpersonal orientation as predictor of experiencing Elegant beauty of human faces

	ΔR	F	p	β	t	p
Philanthropy	.056	5.491	<.001			
Need for people				.237	2.343	.002
Friendship				.214	2.104	.003

* $p < 0.05$

Both Need for people and Friendship are significant in predicting experiencing beauty of human faces. Taking into account the value of β coefficient, Need for people is a better predictor of Elegant beauty ($\beta = .237$, $p = 0.02$), and very similar to it is Friendship contribution ($\beta = .214$, $p = 0.03$).

Results of multiple regression also showed that the Optimism is significant in predicting Clear beauty ($F = 14.351$, $p < 0.001$) and explains 13.9% variance of experiencing Clear beauty of human faces.

Table 3

Optimism/pessimism as predictors of experiencing beauty of human faces

	ΔR	F	p	β	t	p
	.139	14.351	<.001			
Optimism				.373	3.788	<.001
Pessimism				.087	.820	.415

* $p < 0.05$

Conclusion

Individuals, who are in interpersonal relations positively oriented (philanthropists), experience their face as elegant and sophisticated. For those individuals who showed a need for people and friendship, it can be confirmed that they would have high score on the dimension of experiencing beauty of their own face. It can be said, that individuals who have optimistic view of their future, duties and expectations, experience their own faces as fresh

and healthy, and also as amazing and fabulous. It can be also added, that individuals who think of themselves as optimists experience their face as fresh and healthy.

Individuals who assess their face as elegant and sophisticated express an obvious need for other people as well as for making friendly contacts with them. Also, on the basis of expressed need for people and friendship 5.6% of those who experience their face as elegant and sophisticated may be predicted. The optimistic view of the future events and assessment of probability of positive outcomes in future correlates positively with the experiencing of one's own face as fresh and healthy, and also amazing and fabulous. Individuals who have expressed optimism in 13.9% experience their faces as fresh and healthy.

Therefore, individuals who are opened to other people and who have largely positive view of the world, experience beauty of their own face in accordance with their starting standpoint. If we leave out the dimension of face beauty which alludes to sex appeal (Arousing, Cute and Erotic beauty) the three dimensions are related to these generally positive standpoints.

In earlier mentioned findings it was pointed out that attractive individuals make social contacts more frequently than the others, which makes them more popular which is, in turn, reflected on their level of self-respect and self-confidence. In this study, we have pointed out findings which directed us to the conclusion that people whose view of the world is positively oriented are inclined to experience pleasure with their own beauty. It can be said that healthy and fresh view of the world is reflected on the optimistic view of one's own face.

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CONTEMPORARY DANCE: THE INFLUENCE OF THE CHOREOGRAPHER'S STYLE ON THE AESTHETIC EXPERIENCE OF THE CHOREOGRAPHIES

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This research aims at investigating the differences in the aesthetic experience of contemporary dance choreographies depending on choreographers' style. 38 students from the University of Novi Sad participated in the study. Stimuli consisted of eight contemporary dance choreographies that included four contemporary dance choreographies made by Travis Wall and four made by Sonya Tayeh. Choreographies were originally performed within American televised dance competition show *So You Think You Can Dance* that aired on Fox between 2008 and 2016. The participants observed choreographies and rated their aesthetic experience on the 12 seven-point scales measuring three dimensions of aesthetic experience of dance: Dynamism (expressive, powerful, strong, exciting), Exceptionality (eternal, unspeakable, unique, exceptional) and Affective Evaluation (delicate, elegant, seductive, emotional). Analysis of variance has shown a significant main effect of both Choreographer and Choreography on ratings of aesthetic experience of contemporary dance choreographies. The results of this study are in line with the earlier findings which suggest an important role of choreographer but they reveal as well that elegance, emotionality and delicacy differentiate the specific style of each choreographer.

Keywords: aesthetic experience, choreographer, choreography, contemporary dance

Introduction

Contemporary dance implies the movement that is deliberately and systematically cultivated for its own sake, with the aim of achieving work of art (Stevens & McKechnie, 2005, p. 243). It is a kind of dance which doesn't belong to strictly defined category but covers the idea of what is current in other artistic disciplines; it is a "dance without rules", where choreographers introduce the audience to abstract ideas (Bremser, 2000; Cerović, 2005). Choreographers are similar in putting an accent on intellectualisation, but different in the styles and techniques of doing it (Bremser, 2000; Cerović, 2005).

Due to the difference related to the choreographers' styles in contemporary dance and for better control of a large number of variables: e.g. stage or street scenes, duration of choreography, number of dancers, their age and dance training, the level of dance technique

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etc., choreographies that will be used in the study are downloaded from *So You Think You Can Dance*, a TV series, so that they have similar duration (up to 2 min), dancers performing them are similar in age, dance training and in high level of dance technique.

So You Think You Can Dance is American televised competition of dancers who belong to different styles of dance: classical ballet, modern dance, hip-hop, jazz, Latin and Ballroom dances, Indian dances, African dances and others. It has aired on Fox from 2005 until today. There is one season each year which includes about 13-16 episodes. *So You Think You Can Dance* is executive-produced by its co-creator Nigel Lythgoe, Allen Shapiro, Barry Adelman and Jeff Thacker.

During different seasons, several permanent choreographers who belong to different styles have participated in the show. Among the choreographers of contemporary dance are Mia Michaels, Christopher Scott, Stacy Tooky, Mandy Moore, Sonya Tayeh and Travis Wall. To investigate the influence of choreographers' style on the aesthetic experience of contemporary dance choreographies, for the purpose of this research choreographies of two different choreographers are chosen. Travis Wall and Sonya Tayeh are two choreographers who were more than three times nominees for *Primetime Emmy Awards for Outstanding Choreography*. Thus, this research aims at exploring differences in the aesthetic experience of contemporary dance choreographies made by Travis Wall and Sonya Tayeh.

The aim of this research is to investigate observers' aesthetic experience of contemporary dance choreographies depending on choreographers' style.

Method

Participants

In the study participated 38 students from the University of Novi Sad (10 male and 28 female students, aged between 18-23 years, $M = 19.68$; $SD = 1.27$). Participants did not have any formal education in dance or experience in dance training. Students participated voluntarily and they did not receive any course credit or payment.

Stimuli

Stimuli consisted of eight contemporary dance choreographies that included four choreographies made by Travis Wall and four made by Sonya Tayeh. Choreographies were originally performed within American televised dance competition show *So You Think You*

Can Dance that aired on Fox between 2008 and 2016. The recorded choreographies are taken from the Internet and adapted for research purposes.

Choreographies made by Travis Wall included:

1. "How it ends" – De VotchKa <https://www.youtube.com/watch?v=9YbEtfJryXA>
2. "Wave" – Back <https://www.youtube.com/watch?v=SnoQlthExKA>
3. "Medicine" – Daughter <https://www.youtube.com/watch?v=LXvCEfq39ws>
4. "Mirror" - Alexandre Desplat <https://www.youtube.com/watch?v=DctLJHiJgOI>

Choreographies made by Sonia Tayeh included:

5. "Tore my Heart" – Oona & Dave Tweedie <https://www.youtube.com/watch?v=I6tp8xByIAE>
6. "The Gulag Orkestar Beirut" <https://www.youtube.com/watch?v=leciwOXX1g>
7. "So Broken" (Live version) – Björk <https://www.youtube.com/watch?v=0UO4dLY3vBI>
8. "Game on" – District 78 <https://www.youtube.com/watch?v=DdsTQoN4WcQ>

All videos were downloaded from the Internet and adapted for the purpose of this research. Choreographies are presented in balanced order.

Instrument

The instrument for measuring aesthetic experience of dance performances, used in this research, was defined in a previous study (Vukadinović & Marković, 2012). It consists of 12 seven-point scales measuring three dimensions of aesthetic experience: Dynamism (expressive, powerful, strong, exciting), Exceptionality (eternal, unspeakable, unique, exceptional) and Affective evaluation (delicately, elegant, seductive, emotional).

Procedure

Video recordings of 8 choreographies were presented to the participants via LCD projector. They watched choreographies in the group and after each presented choreography participants made their ratings on the instrument for measuring aesthetic experience of dance. The time predicted for participants to make their ratings was not limited.

Design

The design was multivariate two-factorial. The Independent variables were Choreographer (Travis Wall and Sonya Tayeh) and Choreography (8 choreographies). The Dependent variables were ratings on the scales which forms 3 dimensions of the aesthetic

experience: Dynamism, Exceptionality, Affective Evaluation. The design was repeated by the subjects – all participants rated their aesthetic experience in all of eight choreographies.

Results and Discussion

Analysis of variance has shown significant main effect of both Choreographer ($F(3,35) = 3.85, p < .018$) and Choreography ($F(21,777) = 9.54, p < .001$) on ratings of aesthetic experience of contemporary dance choreography.

The significant effect of Choreographer indicates that participants' ratings of aesthetic experience contemporary dance choreographies, are different regarding the style of the choreographer who made the particular piece of dance. Univariate test ($F(1,37) = 7.15, p < .011$) shows that dimension of *Affective Evaluation* is assessed with higher values concerning the choreographies made by Travis Wall ($M = 4.31, SD = .179$) than the choreographies made by Sonya Tayeh ($M = 3.95, SD = .223$). These results are in line with the previous findings which suggest an important role of choreographer (Banes, 2011; Glass, 2005; Foster, 1986) but they reveal as well that elegance, emotionality and delicacy differentiate the specific style of each choreographer.

The results have shown that effect of the Choreography is significant concerning all assessed dimensions of aesthetic experience of dance. The aesthetic experience of dance choreographies is rated with different values depending on the particular choreography (see Table 1).

Table 1
Ratings on the dimensions of the aesthetic experience when participants watch eight different contemporary dance choreographies

CONTEMPORARY DANCE	Dynamism $F(7,259) = 18.88,$ $p < .001$		Exceptionality $F(7,259) = 17.72,$ $p < .001$		Affective Evaluation $F(7,259) = 11.53,$ $p < .001$	
	M	SD	M	SD	M	SD
K1 – "How it ends"	4.41	0.26	3.62	0.26	3.97	0.24
K2 – "Wave"	5.00	0.25	4.05	0.24	3.97	0.24
K3 – "Medicine"	3.86	0.31	3.23	0.29	3.77	0.31
K4 – "Mirror"	6.42	0.14	5.57	0.21	5.02	0.23
K5 – "Tore my Heart"	5.23	0.24	4.01	0.26	4.29	0.29
K6 – "The Gulag Orkestar Beirut"	5.61	0.19	4.57	0.27	5.02	0.23
K7 – "So Broken"	4.03	0.32	3.32	0.31	3.34	0.30
K8 – "Game on"	5.01	0.26	3.70	0.27	3.10	0.29

Generally, comparing to other choreographies it can be noticed that Travice's choreography "Mirror" has significantly the highest ratings on all of the dimensions of aesthetic experience of contemporary dance choreographies ($p < .05$). It could be assumed that this ratings singled out because of the impact or the story of the choreography and emotional identification that this choreography provokes, since it is previously reported that story and emotional identification are significant factors in shaping the aesthetic experience of dance (Glass, 2005; Stevens, Schubert, Morris, Frear, Chen, Healey, Schoknecht, & Hansen, 2009; Vukadinović, 2011).

Furthermore, the limitations of this study include the choice of choreography regarding the stimuli, as well as their recorded presentation. As reported by earlier studies (Jola, Ehrenberg, & Reynolds, 2011; Jola & Grosbras, 2013; Reason, 2006; Vukadinović & Marković, 2012) there is significant impact of the medium of presentation (live or recorded), which suggested that the observers' ratings of the aesthetic experience of dance are higher when dance is watched live compare to recorded.

However, the variables of the medium of the presentation, story, and emotional identification were not empirically tested and their influence remains as an open question and motivation for future studies.

Conclusion

Following the results of this study, it can be concluded that choreographers' style has a significant impact on the aesthetic experience of contemporary dance choreographies. The differences in observers' aesthetic experience of dance choreographies are based on the dimension of Affective Evaluation. The more choreographers' style is delicate, elegant or seductive the ratings of aesthetic experience are higher.

Moreover, the results have shown significant differences in observers' aesthetic experience regarding the specific choreography of contemporary dance. However, the influence of formal characteristics of choreography (e.g. dance technique acquired, dynamics, tempo, story-line, etc.) or the influence of specific features of the dancer (e.g. staging, attractiveness, etc.) on the aesthetic experience, are not empirically tested and they may alter the results of this research. To address all of this questions, further studies have to be conducted in the future.

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THE DIFFERENCES IN THE AESTHETIC EXPERIENCE OF CONTEMPORARY AND HIP-HOP DANCE CHOREOGRAPHIES

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This research aims at investigating the differences in the aesthetic experience of hip-hop and contemporary dance choreographies made by choreographers who were more than three times nominees for Primetime Emmy Awards for Outstanding Choreography. 38 students from the University of Novi Sad participated in the study. Stimuli consisted of video recordings of five contemporary dance choreographies and five hip-hop choreographies. Participants were observing choreographies in the group and afterwards they rated their aesthetic experience on 12 seven-point scales measuring three dimensions of aesthetic experience of dance: Dynamism (expressive, powerful, strong, exciting), Exceptionality (eternal, unspeakable, unique, exceptional) and Affective Evaluation (delicate, elegant, seductive, emotional). The results have shown that there is a significant main effect of Type of dance, as well as, significant effect of Choreography on the the ratings of aesthetic experience of choreographies in all tested dimensions of aesthetic experience. The results of this study indicate that aesthetic experience of two types of dance – contemporary as a category of stage dance and hip-hop as a category of street dance differ in elegance, emotionality and delicacy.

Keywords: aesthetic experience, choreographies, contemporary dance, hip-hop

Introduction

This study deals with the observers' aesthetic experience of dance choreographies which belong to different types of dance. For the purpose of this research, contemporary dance and hip-hop are chosen. To control for as much variables as possible, e.g. stage or street scenes, duration of choreography, number of dancers, their age and dance training, the level of dance technique etc., choreographies that are used in the study are downloaded from *So You Think You Can Dance*, a TV series, so that they have similar duration (up to 2 min), dancers performing them are similar in age, dance training and in high level of dance technique. In the American televised competition *So You Think You Can Dance* that has aired on Fox since year 2005, the dancers compete in four different categories: 1) western contemporary or classical styles; 2) ballroom styles; 3) hip-hop or street styles and 4) Jazz and its related styles.

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Categorization derived from experience with different dancers who participated in the competition related to their previous education and experience includes categories of "Stage dance" and "Street dance". Category of "Stage dance" includes contemporary dance, modern dance and classical ballet. In the *So You Think You Can Dance* competition among the choreographers of "Stage dance" are Dee Caspary, Tyce Diorio, Joey Dowling, Justin Giles, Mandy Moore, Mia Michaels, Dwight Rhoden, Desmond Richardson, Garry Stewart, Sonia Tayeh, Stace Tookey, Travis Wall, Tovariss Wilson, and Keith Young. On the other hand, the category of "Street dance" includes hip-hop (popping, locking and new style), lyrical hip-hop, Breaking, B-boying, Krump, Stepping and Waacking. The choreographers of "Street dance" working in *So You Think You Can Dance* competition are Cicely Bradley, Luther Brown, Tessandra Chavez, Dan Karaty, Tabitha and Napoleon D'umo, Marty Kudelka, Lil' C, Chuck Maldonado, Todd Sams, Christopher Scott, Dave Scott, Shane Sparks, Jamal Sims, Olisa Thompson, Dana Wilson, Pharside and Phoenix, Luam.

Having in mind mentioned classification of dance into category of stage dance and street dance, we conducted this research which aims at investigating the influence of the type of dance on the aesthetic experience of dance choreographies. Thus, in this study the differences in the observer's aesthetic experience of contemporary dance choreographies and hip-hop choreographies are explored.

The aim of this research is to investigate observers' aesthetic experience of choreographies depending on type of dance including contemporary dance and hip-hop.

Method

Participants

In the present study participated 38 students from the University of Novi Sad (10 male and 28 female students, aged between 18-23 years, $M = 19.68$; $SD = 1.27$). Participants did not have any formal education in dance or experience in dance training. Students participated voluntarily and they did not receive any course credit or payment.

Stimuli

Stimuli consisted of ten choreographies that included five contemporary dance choreographies and five of hip-hop. Choreographies were originally performed within American televised dance competition show *So You Think You Can Dance* that aired on Fox

between 2008 and 2016. The recorded choreographies are taken from the Internet and adapted for research purposes.

Contemporary dance choreographies included:

1. "How it ends" – De VotchKa <https://www.youtube.com/watch?v=9YbEtfJryXA>
2. "Medicine" – Daughter <https://www.youtube.com/watch?v=LXvCEfq39ws>
3. "Mirror" - Alexandre Desplat <https://www.youtube.com/watch?v=DctLJHiJgOI>
4. "Tore my Heart" – Oona & Dave Tweedie <https://www.youtube.com/watch?v=I6tp8xByIAE>
5. "The Gulag Orkestar Beirut" <https://www.youtube.com/watch?v=leciwOXXIlg>

Hip-hop choreographies included:

6. "Run the World (Girls)" – Beyonce <https://www.youtube.com/watch?v=qdxxN0sUsUI>
7. "Outta your Mind" – Lil Jon & LM*AO <https://www.youtube.com/watch?v=mhyWzC7df-0>
8. "Get Low" – Dilan Francis & DJ Snake <https://www.youtube.com/watch?v=neexFho8Z0I>
9. "Hello Good Morning (Remix)" – Diddi Dirty Monay feat. Nicky Minay & Rick Ross
https://www.youtube.com/watch?v=tCb_UOakEQI
10. "My Chick Bad" – Ludacris & Nicky Minay
<https://www.youtube.com/watch?v=XrT5ca9EbTw>

All videos were downloaded from the Internet and adapted for the purpose of this research. Choreographies are presented in balanced order.

Instrument

The instrument for measuring aesthetic experience of dance performances, used in this research, was defined in a previous study (Vuadinović & Marković, 2012). It consists of 12 seven-point scales measuring three dimensions of aesthetic experience: Dynamism (expressive, powerful, strong, exciting), Exceptionality (eternal, unspeakable, unique, exceptional) and Affective evaluation (delicately, elegant, seductive, emotional).

Procedure

Video recordings of ten choreographies were presented to the participants via LCD projector. They watched choreographies in the group and after each presented choreography participants made their ratings on the instrument for measuring aesthetic experience of dance. The time predicted for participants to make their ratings was not limited.

Design

The design was multivariate two-factorial. The Independent variables were Type of dance (hip-hop and contemporary) and Choreography (five choreographies). The Dependent variables were ratings on the scales which for is 3 dimensions of the aesthetic experience Dynamism, Exceptionality, Affective Evaluation. The design was repeated by the subjects – all participants rated their aesthetic experience in all of ten choreographies.

Results and Discussion

Analysis of variance has shown significant main effect of both Type of dance ($F(3,35) = 26.33, p < .001$) and Choreography ($F(27,999) = 12.84, p < .001$) on the observers' ratings of aesthetic experience of choreography.

The significant effect of Type of dance shows that participants' ratings of aesthetic experience of choreographies, are different regarding the type of dance. The results of Univariate tests have shown that dimension of *Affective Evaluation* ($F(1,37) = 59.93, p < .001$) is rated with higher values concerning the choreographies of contemporary dance ($M = 4.52, SD = 0.18$) compared to hip-hop choreographies ($M = 2.90, SD = 0.22$). Choreographies of contemporary dance are rated as significantly more elegant, sensitive and more seductive compared to the choreographies of hip-hop ($p < .05$).

These results confirm the earlier findings which suggested significant differences in observers' aesthetic experience depending on type of dance (Vukadinović, 2011; Vukadinović, 2014). Since in the base of these differences in the aesthetic experience of dance choreographies lies the dimension of Affective Evaluation, these findings may be explained by the fact that contemporary dance and hip-hop belong to different categories of dance. Defined by the competition rules of televised series *So You think You Can Dance*, contemporary dance is classified in "stage dance category" and hip-hop in "street dance category".

The results have shown that effect of the Choreography is significant concerning all assessed dimensions of aesthetic experience of choreographies. The aesthetic experience of choreographies is rated with different values depending on the particular choreography (see Table 1).

Table 1
Ratings on the dimensions of the aesthetic experience when participants watch ten different dance choreographies

CHOREOGRAPHIES	Dynamism <i>F</i> (9,333)=12.97, <i>p</i> < .001		Exceptionality <i>F</i> (9,333)=10.27, <i>p</i> < .001		Affective Evaluation <i>F</i> (9,333)=20.92, <i>p</i> < .001	
	M	SD	M	SD	M	SD
K1 – "How it ends"	4.41	0.26	3.62	0.26	4.48	0.24
K2 – "Medicine"	3.86	0.31	3.23	0.29	3.77	0.31
K3 – "Mirror"	6.42	0.14	5.57	0.21	5.02	0.23
K4 – "Tore my Heart"	5.23	0.24	4.01	0.26	4.29	0.29
K5 – "The Gulag Orkestar Beirut"	5.61	0.19	4.57	0.27	5.02	0.23
K6 – "Run the World (Girls)"	4.96	0.24	3.83	0.26	2.80	0.22
K7 – "Outta your Mind"	5.56	0.24	4.49	0.29	2.69	0.27
K8 – "Get Low"	5.72	0.22	3.89	0.25	3.36	0.28
K9 – "Hello Good Morning (Remix)"	5.23	0.25	3.82	0.30	2.63	0.25
K10 – "My Chick Bad"	5.16	0.26	4.14	0.29	3.02	0.28

As it can be noticed from the Table 1. Choreography "Mirror" has significantly the highest ratings on all of the dimension of aesthetic experience dance choreographies compared to all other choreographies included in the stimuli ($p < .05$). The other interesting finding of this research is that all choreographies of hip-hop are rated with significantly lower values on the dimension of Affective Evaluation compared to all choreographies of contemporary dance ($p < .05$). Beside the fact that type of dance influence on the observers' ratings of the aesthetic experience of dance differentiating it on the basis of the dimension of Affective Evaluation, results have shown that specific choreography influence on the aesthetic experience as well. These findings are in line with earlier studies which reported that choreography is important factor in shaping the aesthetic experience of dance (Glass, 2005; Stevens, Winkler, Howell, Vidal, Milne-Home, & Latimer, 2009; Vukadinović, 2014) As it has been shown in previous studies, formal characteristics of a choreography (e.g. tempo, technique acquired, complexity, etc.) influence the observers' aesthetic experience of dance (Glass 2005). Beside the limitation of this study regarding the control of all variables, choice of choreographies and their recorded presentation – in the sense of importance of the medium of presentation (cf. Jola, Ehrenberg, & Reynolds, 2011; Jola & Grosbras, 2013; Reason, 2006; Vukadinović & Marković, 2012), the major limitation is of this research is related with music. It could be assumed that it is highly possible that results of this study are influenced by the type of music to which choreography presented is danced. This problem has been singled out in previous studies as well, which suggests that liking or disliking the

music may alter the aesthetic experience of dance (Carrol & Moore, 2012; Christensen & Calvo-Merino, 2013; Glass, 2005; Reason & Reynolds, 2010).

However, since the variables of the medium of the presentation and influence of the music to which choreography is danced were not empirically tested, future studies may be motivated by addressing these unanswered questions.

Conclusion

On the basis of the results of this study, it can be concluded that the observers' aesthetic experience of dance choreographies differ depending on the type of dance and particular choreography. The findings of this study indicate the difference in the aesthetic experience of two types of dance – contemporary, as a category of stage dance, and hip-hop, as a category of street dance, which is in line with earlier studies that suggested importance of dance type as well as the significance of the specific choreography regarding aesthetic experience of dance. Results of this study revealed that aesthetic experience varies in relation to elegance, emotionality and delicacy with which choreography of the specific dance type is performed.

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PERCEPTION

AVATARS AND VASES: THE AUTOMATIC PROCESSING OF WHAT OTHER PEOPLE SEE¹

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We modified the dot perspective task to conduct a simple visual perception experiment. Our participants had to rapidly judge their own or a perspective of a 3D avatar when those perspectives could show the same (consistent) or different number of stimuli (inconsistent). Participants had to judge, as fast as possible, how many stimuli (vases) were seen in the scene by them, or by the avatar. Other studies have shown information of the other person's perspective was processed automatically prolonging response times for inconsistent trials even when participants made judgments from their own perspective. Recent research has been focused on what is the contribution of social versus perceptual information for the size of this interference. Our goal was to examine whether perspective taking was under the influence of a salient characteristic, skin tone. Participants had to make judgments from self/other perspective in consistent and inconsistent trials for two identical female 3D models which differed only in RGB values of skin color. Results show a significant effect of consistency: participants were faster in consistent trials. A significant consistency-perspective interaction revealed a stronger interference effect when taking the other perspective than the self perspective. The skin color effect was also significant with slightly faster responses for similar-color avatars.

Keywords: dot perspective task, visual perspective taking, mentalizing, visual attention

Introduction

Mentalizing is defined as the ability to represent other people's mental states and is based on the concept of *theory of mind* (Premack & Woodruff, 1978). People are capable of attributing mental states to others and take their point of view. Recent research indicated that processing other people's perspective happens on an implicit level even when participants are instructed to ignore the other person (Samson, Apperly, Braithwaite, Andrews, & Bodley Scott, 2010). These authors introduced the *dot perspective task* procedure. In this procedure participants are asked to take one of two perspectives: their own (*self*) or the perspective of an observer presented in an image (*other*). In one set of trials the same number of targets could

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be viewed from both perspectives while for the other set a different number of targets can be viewed from the two perspectives (see Figure 1).



Figure 1. An inconsistent type of trial from Samson et al. (2010, pp. 1261)

First, both the perspective and number of targets were cued. Then, participants had to decide whether the cued number of dots could be seen from the cued perspective. The main effect was a slower response in inconsistent conditions. This effect proved to be stronger when they had to take the perspective of the other person, but was also present even when they were instructed to take the *self* perspective which implied that the *other* perspective is automatically processed.

This effect has been replicated in other studies. However, it is not clear whether it is a bottom-up process based on perceptive cues or if there is a top-down social component contributing to the effect. According to Santiesteban, Catmur, Coughlan Hopkins, Bird, and Heyes (2014) the effect is perceptive in nature. They used human-like avatars and arrows which were perceptively similar to the avatar. Results showed no difference in the interference effect for the two types of figures. Using a different paradigm Cole and his colleagues (Cole, Smith, & Atkinson, 2015; Cole, Atkinson, Le, & Smith, 2016) reached the same conclusion. They tested the social component by placing barriers in the field of view of the avatars. Since they found no effect of the barriers on the interference they concluded participants did not automatically process the avatar's mental state. Rather, participants just processed the cueing information. On the other hand Kragh Nielsen, Slade, Levy, and Holmes (2015) found that the interference effect was lower for abstract compared to semi-social and social central figures. They also found a positive correlation between components of the Interpersonal Reactivity Index and interference size for social but not for the other conditions.

The aim of our study was to replicate the typical interference effect with a slightly different procedure by directly asking participant how many stimuli can be seen depending

on the perspective, and to determine the impact of manipulating the similarity of a human-like avatar and our participants on that effect.

Method

Participants and design

A total of 35 participants (all female undergraduate psychology students) completed a 2x2x2 repeated measures experiment. The independent variables were consistency (consistent/inconsistent), perspective (self/other) and avatar skin color (light/dark).

Stimuli

All of the presented stimuli were designed using Daz3D software. They consisted of a female avatar and one or two objects (vases). Depending on the gaze orientation of the avatar and the position of the objects (always one or two present objects) the avatar could “see” the same or a different number of objects as the participant (consistency variable). The same 3D avatar was used for both levels of the skin color variable. The only difference was the RGB value of skin tone color (Figure 2).

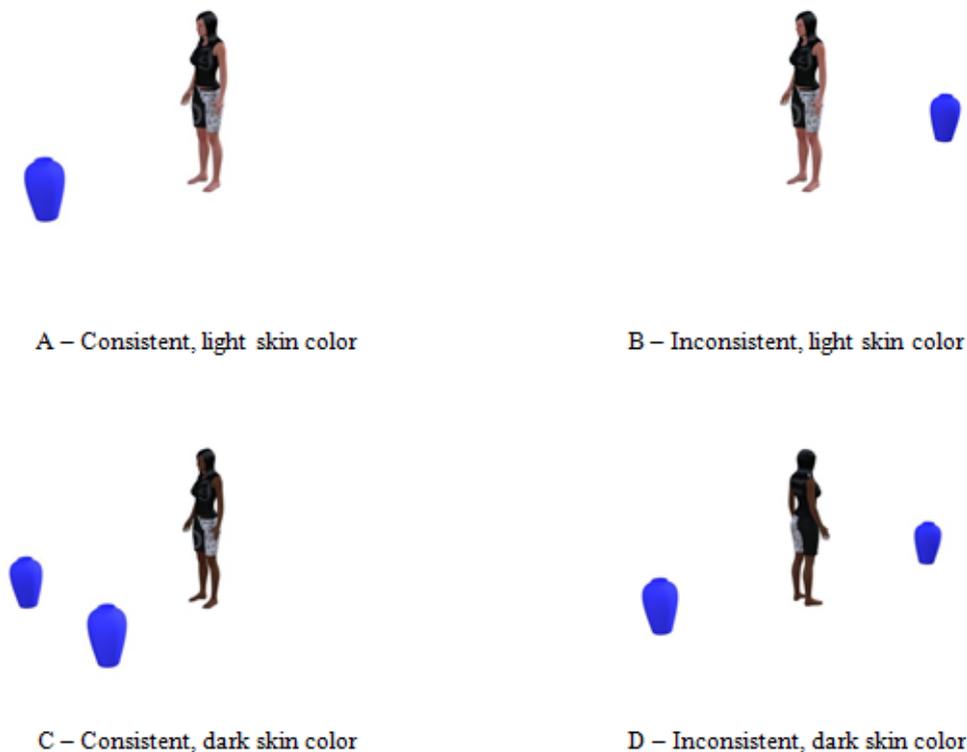


Figure 2. Examples of presented stimuli

Procedure

Participants completed two types of training tasks. The first was a choice reaction task in order for the participants to become familiar with the mode of responding. After that they completed four practice trials using the avatar stimuli. The main measurement consisted of 96 trials (12 per experimental situation). The single trial procedure is depicted in Figure 3.

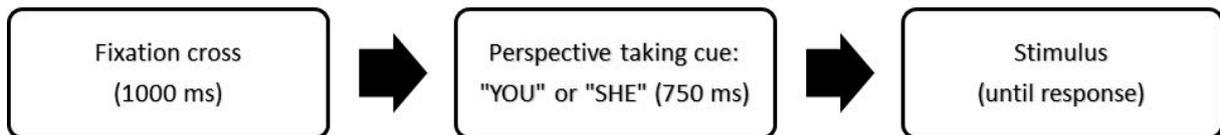


Figure 3. Single trial procedure

Participants were instructed to answer, as fast and as accurately as possible, how many objects could be viewed depending on the perspective taking cue, by pressing the appropriate numerical key (“1” or “2”). This was different from the original procedure in which participants reacted to a cued number rather than the number of targets. Stimuli from all eight experimental situations were randomized for each participant and presented in a single block.

Results

For each participant results were formed as median scores for each condition. Data for response times were normally distributed for all eight experimental conditions. A 2(consistency) x 2(perspective) x 2(skin tone) repeated measures ANOVA resulted in a significant consistency effect ($F(1,34) = 32.49, p < .01, \eta_p^2 = .49$). Participants responded faster in consistent compared to inconsistent trials. Skin tone color effect was also significant ($F(1,34) = 4.88, p < .05, \eta_p^2 = .13$). Participants were slightly faster when reacting to stimuli in which the avatar had lighter skin color. Finally, the consistency-perspective interaction effect was also significant ($F(1,34) = 5.45, p < .05, \eta_p^2 = .14$). The results are depicted in Figure 4.

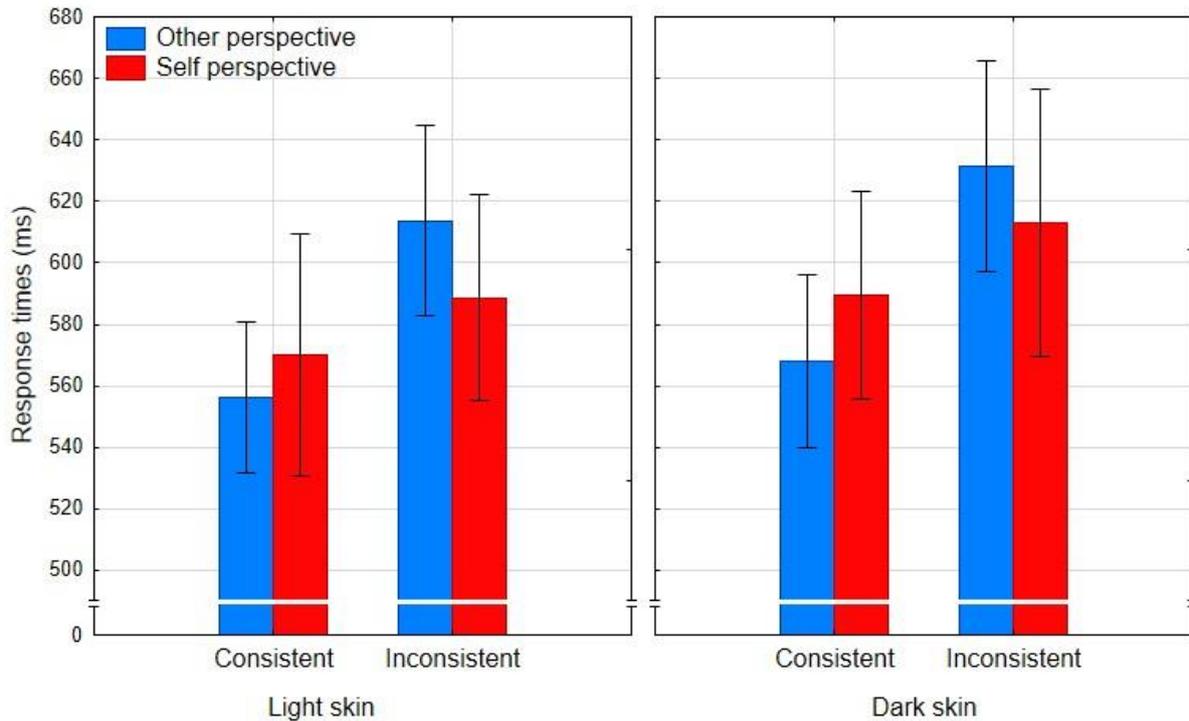


Figure 4. Response times as a function of skin tone, consistency and perspective

The interference effect was stronger when taking the *other* perspective than when taking the *self* perspective which was confirmed by Tukey HSD post-hoc tests. On average participants made 2.62% errors in consistent and 6.31% in inconsistent trials. Error rates were not normally distributed so the difference was compared using the Wilcoxon matched pairs test, which showed the difference was significant ($T = 69$, $Z = 3.36$, $p < .01$). To further test the robustness of the skin color effect the same analysis was conducted only on the last third of trials. We speculated that if the effect was robust it would remain regardless of training effects. The 2x2x2 repeated measure ANOVA showed only a significant effect of consistency ($F(1,34) = 19.51$, $p < .01$, $\eta_p^2 = .36$). The skin color effect was no longer significant. The consistency-perspective interaction effect was also not significant but the same trend remained, even post-hoc comparisons show a stronger interference effect in the *other* perspective.

Discussion and conclusion

Our study replicated the robust interference effect found in previous research. Participants were generally faster to respond in consistent trials compared to inconsistent trials. Additionally, this effect was stronger when taking the *other* perspective than the *self*

perspective. Even though the avatar's perspective had an interference effect in inconsistent trials we can conclude the *self* perspective is more dominant, which is also a replication of the results from Samson et al. (2010). There was no interaction between interference size and skin tone color, and the general effect of skin color disappeared with practice which indicates it is not an effect of social but rather perceptive information. We can conclude our participants experienced the same magnitude of interference regardless of skin tone color. Even though our results do not imply an impact of social information, further research should manipulate one or more social components of the avatars. Gender, age, socio-economic status (based on clothes of the avatar), and more complex signs like subculture affiliation are all candidates for experimental manipulation. It is our hypothesis that the effect of social information is subtle and sensitive requiring strict and thorough investigation.

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CLINICAL PSYCHOLOGY

THE DIFFERENTIAL DIAGNOSTIC POTENTIAL OF THE SOCIALIZATION TEST BATTERY IN THE ASSESSMENT OF YOUTH IN CONFLICT WITH THE LAW¹

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The Socialization Test Battery by Momirovic et al. (STB) is based on the cybernetic theory of conative functions. It is composed of four scales, DELTA1, DELTA3, SP5 and SIGMA1, measuring dissociative, regressive, anxiety and amoral dispositions leading to aggressive behavior and may interfere with successful socialization. The aim of the study was to explore the validity of the STB in differentiating between the youth in conflict with the law and their peers from the general population. The results obtained on the STB from 33 boys in conflict with the law aged 15-18 (M=16.24), were compared with the results of 237 same-aged boys from the general population. The results of MANOVA confirmed that the STB significantly differentiates those groups and ANOVA showed that the SIGMA1 contributed the most to the difference. The significant differences on all scales were obtained after including in MANCOVA analysis the effects of age as covariate and interaction between age and the group. The STB confirmed diagnostic potential to differentiate boys in conflict with law from their peers, particularly at the measures of psychopathic aggression.

Keywords: socialization test, aggressive behavior, antisocial behavior, personality assessment

Introduction

The Socialization Test Battery (STB, Momirović et al., 2005 and 2016), based on the Cybernetic Theory of Conative Functions (Momirović et al, 1992; Momirović et al., 1977, Horga et al., 1982), aimed to measure dissociative, regressive, anxiety and amoral dispositions leading to aggressive behavior that may interfere with successful socialization of youths from 15 to 18 years. It is composed of four scales, DELTA1, DELTA3, SIGMA1 and SP5. DELTA 1 measures dissociative disposition due to lower coordination and control of regulative function that contribute to difficulties in social communication. DELTA3 relates to behavior related with regression at earlier stage of functioning of histrionic (for females) or

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aggressive (for males) type. SIGMA 1 measures psychopathic aggression that includes rejection of social norms, lack of sense for needs and wellbeing of others, careless and aggressive seeking for immediate satisfaction of personal needs and lack of impulse control resulting in open attack. SP5 measures defensive aggressive behavior caused by primary anxiety. Each scale has 36 items with answers on five-level Likert scale. Higher scores at any of four dimensions could indicate the deviation in prosocial behavior while all of them together could have convergent influence on behaviour.

The STB has already confirmed high psychometric qualities (Momirović et al., 2005), but its validity in differentiating between the youth with difficulties in socialization and their peers from the general population hasn't been tested yet. Youth committing crimes has high risk for socialization issues due to undercontrolled, aggressive and antisocial behavior (Hrnčić, 2009) and therefore is suitable for testing STB validity. The goal of the study was to explore the validity of the STB in differentiating between the youth in conflict with the law and their peers from the general population.

Method

The validity of the STB was tested by comparing results of boys in conflict with the law with results of boys from general population. This study is based on analysis of data from different resources and samples who have been compared for the purpose of this study.

Samples

There were 33 young male aged from 15 to 18 ($M = 16.24$; $SD = 1.00$) who were in conflict with the law and accepted responsibility for committing at least one offence that includes violent offences (67.7%), property offences (21.2%) and possession of psychoactive substances (11.1%). The control group consisted of $N = 237$ boys 15-16 years old from the general population.

Data analysis included MANOVA, ANOVA and MANCOVA.

Results

High reliability of the Socialization Test Battery was confirmed (Cronbach Alpha=.86 to .93).

The results of MANOVA showed that the STB successfully differentiates two groups (Wilks' $\lambda = .84$, $F(4,262) = 12.53$, $p < .001$). The results of ANOVA shown the significant

differences in SIGMA1 ($F(1,265) = 20.503, p < .001, \eta^2=.07$) which measures psychopathic tendencies (Table 1). Boys in conflict with low (CL group) had higher scores at SIGMA1 ($M = 111.70, SD = 22.45$) comparing with the same aged boys from general population (GP group) ($M = 92.75, SD = 21.49$). Also, they had higher average scores at other three STB scales, but the differences were not statistically significant.

Table 1
Results of ANOVA for group of boys in conflict with low (CL group) and their peers from general population (GP group)

STB scales	CL group M (SD)	GP group M (SD)	Wilks' λ	F	df1	df2	p
DELTA1	92.73 (21.29)	85.51 (24.30)	.991	2.416	1	265	.121
DELTA3	96.20 (13.45)	92.90 (19.25)	.997	.830	1	265	.363
SIGMA1	111.70 (22.45)	92.75 (21.49)	.928	20.503	1	265	<.001
SP5	93.07 (22.35)	89.9 (22.54)	.998	.506	1	265	.477

Multivariate analysis of covariance (MANCOVA) with the variables of age and educational level as covariates, showed significant differences between groups in both cases. When age was covariate Wilks' $\lambda = .92, F(4,261) = 5.36, p < .001$ and in case of educational level as covariate Wilks' $\lambda = .84, F(4,259) = 12.04, p < .001$. In both cases SIGMA1 had major contribution ($p < .001$) while differences on other scales were not significant. When in multivariate model an interaction between the age and the group was included beside of the age as covariate STB still differentiated groups significantly [Wilks' $\lambda = .91, F(4,260) = 6.10, p < .001$] with major contribution of SIGMA 1 ($p < .001$), but other three scales became significant too ($p < .05$, Table 2).

Table 2
Results of MANCOVA with age as covariate and interaction between the age and the group

STB scales	CL group* M	GP group* M	Wilks' λ	F	df1	df2	p
DELTA1	104.06	86.30	.984	4.179	1	263	.042
DELTA3	106.87	93.39	.985	3.971	1	263	.047
SIGMA1	126.68	93.51	.935	18.203	1	263	< .001
SP5	107.23	90.34	.984	4.307	1	263	.039

* CL group - boys in conflict with law; GP group - control group from general population.

Discussion

The group of boys in conflict with the law had higher scores at all STB scales from general population although only the scores of SIGMA1 differentiated them from boys from general population significantly. Contribution of SIGMA1 to differences is not surprising considering that it measures psychopathic aggression that includes characteristics highly associated with delinquency (Patterson, Reid & Dishion, 1992, Henggeler, Schoenwald, Borduin, Rowland & Cunningham, 1998, Hrnčić, 2009).

Scores at other STB scales, measuring regressive behavior (DELTA3), aggression related with anxiety (SP5) and disintegrative dispositions (DELTA1) were slightly, but not significantly higher in the CL group even when influence of age and education were controlled. It is in the line with the idea that juvenile delinquency is continuum that in its “weaker end” include boys that doesn’t differentiate from normal population but in a few characteristics (Rutter et al., 1998).

Results obtained by comparing them with a peer group suggest that they share common “immaturity” and can react in specific situations impulsively, without planning, feel anxiety and lack self-confidence. Those characteristics could be associated with the problems manifested throughout aggression or/and difficulties in social relation as a result of social immaturity, but not exclusively throughout the conflict with law. Aggressive behavior could be in function of reduction of anxiety, tension or helplessness in a lack of more mature coping mechanisms and help them to obtain the sense of power (Sonkin & Wallker, 1985).

However, differentiation power of those three scales became significantly higher when beside the age an interaction between the age and the group was included into analysis.

With the age emotional regulation, control and planning of behavior is increasing resulting in decreasing of scores on dimensions measuring different aspects of unsocialized undercontrolled behavior (Cole, Cole & Lightfoot, 2004). That is supported by the results of comparison of the scores of the boys in conflict with the law with the norms of two years older boys aged 18. Simple T test showed that CL group had significantly higher average scores at all scales: DELTA1 ($t(32) = 3.430, p < 0.01$), DELTA3 ($t(32) = 2.236, p < 0.05$), SP5 ($t(32) = 2.997, p < 0.01$) and SIGMA1 ($t(32) = 6.080, p < 0.001$). Deficit of more mature behavior of CL group in comparing with GP group suggests that socialization processes are not as expected for their age.

Conclusion

The results confirmed that the convergent influence of all four dimensions measured by the Socialization Test Battery successfully differentiates boys with difficulties in socialization and in high risk for antisocial behavior from boys in general population singling out psychopathic tendencies as the most salient characteristic of the former group. These findings supported external validity of the battery. The results could also have important implication for practice, targeting the goals of treatment in particular cases.

These are preliminary results of the first application the STB at clinical sample. Therefore, there are some limitations of the study. First of all, the sample size of boys in conflict with the law is very low, so we cannot be sure if the results are a consequence of low study power. Also, the disproportional sample sizes and lack of control of other relevant variables limit generalization of the obtained results.

Considering those limitations, it would be recommended for the future studies to be tested at larger sample and control other relevant variables that could have significant influence at the social adaptation of adolescents, including socio-demographic variables, personality dispositions, mental health (especially conduct disorders), etc.

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PERSONALITY PSYCHOLOGY

DIFFERENCES IN PERSONALITY TRAITS BETWEEN PSYCHOTHERAPISTS, PSYCHOTHERAPY TRAINEES, PSYCHOLOGY STUDENTS AND GENERAL POPULATION

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The main subject of this paper is the examination of the effect that personal therapy has on personality traits and experiential avoidance of the trainees. Goal of this research was to assess said differences between psychology students that are very interested in psychotherapy, psychotherapy trainees, psychotherapists and members of general population with university education. The sample consisted of 459 participants: 123 students, 154 trainees, 77 psychotherapists and 105 members of general population. Two instruments were used: NEO PI-R and Multidimensional Experiential Avoidance Questionnaire. Main finding of this research is that groups differ on every personality trait, most notably on Neuroticism. Similar differences were observed in Experiential avoidance where psychotherapists had significantly lower scores than the other three groups. Additionally, mean differences show that both therapists and trainees have significantly higher scores on Extraversion, Openness and Agreeableness than students and general population. We conclude that personal therapy during education in psychotherapy has a significant effect on trainees' personality, mostly in emotional and interpersonal domain.

Keywords: psychotherapy education, personal psychotherapy, basic personality traits, experiential avoidance

Introduction

Psychotherapist's personality is the important factor in forming the optimal therapeutic relationship, as a base of the psychotherapeutic process (Asay & Lambert, 1999). In order to receive a certificate, all (future) therapists in Serbia and abroad need to have personal therapy, as suggested by a significant number of authors (eg. Freud, 1964; Grimmer & Tribe, 2001; Atkinson, 2006; Dryden & Thorne, 2008).

Researches indicate that therapists indeed have some "healthier" and more adaptive personal profile, when compared with general population (Tremblay, Herron & Schultz, 1986). Majority of the therapists claim that their own therapy made improvements to their behavioral domain/symptoms, cognitive insight and emotional relief (Bike, Norcross & Schatz, 2009). Study conducted in Serbia indicates that certified therapists have lower scores

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on Neuroticism and higher scores on Conscientiousness, when compared with trainees (Milošević, 2013).

Besides the reduction of the dysfunctional emotional states, one of the major goals of the personal psychotherapy is the willingness to remain in contact with distressing thoughts, feelings, memories and other private experiences, for which research data is still scarce. The detrimental effects of the experiential avoidance on mental health are emphasized by wide range of psychotherapeutic schools – psychodynamic theory (Freud, 1966), process-experiential theory (Perls, Hefferline, & Goodman, 1951; Rogers, 1961), behavioral theory (Craighead, Craighead, & Ilardi, 1995), cognitive theories (Clark, 1988) and third-wave behavioral therapies (Hayes, Strosahl, & Wilson, 1999; Linehan, 1993).

This study aimed to examine differences between basic personality traits (defined via Big Five model) (Costa & McCrae, 1992) and experiential avoidance (Gamez, Chimlewski, Kotov, Ruggero & Watson, 2011) between therapists, trainees, students that want to start education in psychotherapy and general population. We tested the hypothesis that the greater involvement in education in psychotherapy (starting with students, trainees and going towards certified therapists) is associated with the lower scores on the scales that indicate emotional distress and with the greater acceptance of the unpleasant personal experiences.

Method

Sample was convenient and consisted of 459 participants, ages 19-63 ($M = 32.5$): 87 males (20,7%) and 362 females (79,3%). It included 126 students, 154 trainees, 77 certified therapists and 105 members of general population with a university degree. There were no differences between therapists and members of general population by age and educational level.

Variables and instruments:

- *Basic personality traits* were measured by NEO PI-R (Costa & McCrae, 1992) which consists of five scales: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness
- *Experiential avoidance* was measured by Multidimensional Experiential Avoidance Questionnaire (MEAQ) and it consists of six scales: Behavioral Avoidance, Distress Aversion, Procrastination, Distraction and Suppression, Repression and Denial, Distress Endurance) (Gamez et al., 2011)

Statistical analysis: Multivariate analysis of variance (MANOVA)

Results

The first level of analysis was conducted using descriptive statistics as shown in the table below.

Table 1
Descriptive statistics for NEO PI-R and MEAQ

		Psychotherapists	Trainees	Students	General population
N	M	66.40	79.98	95.37	93.25
	SD	18.20	20.32	13.17	17.20
E	M	111.14	115.11	104.02	100.97
	SD	18.77	17.057	15.43	19.59
O	M	126.45	128.82	101.08	117.44
	SD	15.21	16.99	11.97	18.41
A	M	121.88	115.87	106.89	112.25
	SD	13.20	11.99	13.14	16.11
C	M	140.33	127.20	106.31	125.16
	SD	16.62	20.55	16.14	21.06
EA	M	159.03	175.90	180.84	200.63
	SD	25.96	30.02	29.88	36.15

Note: EA – Experiential avoidance

Results showed that differences between groups are statistically significant ($\lambda = 0.584$, $F(15,1234) = 17.603$, $p < 0.01$, $\eta_p^2 = 0.164$), however no significant differences emerged between males and females ($\lambda = 0.986$, $F(5,451) = 1.271$, $p > 0.05$). Their interaction was not significant also ($\lambda = 0.954$, $F(15,1234) = 1.425$, $p > 0.05$).

The main finding of this research lies in the results of post hoc tests which indicate existence of statistically significant differences in Neuroticism between the groups – it has a trend of lowering, starting from students and general population, through trainees to certified therapists.

In addition, differences in Extraversion, Openness, Agreeableness and Conscientiousness are also significant – trainees and therapists have higher scores than students, however trainees have significantly lower scores on Agreeableness and Conscientiousness when compared to therapists.

Similar trends emerged when Experiential avoidance was used as dependent variable: there were significant differences between the groups ($\lambda = 0.77$, $F(18,1262) = 6.96$, $p < 0.01$,

$\eta_p^2 = 0.085$), but not between the sexes ($\lambda = 0.98$, $F(6,450) = 0.91$, $p > 0.05$). In addition, their interaction wasn't significant ($\lambda = 0.96$, $F(18,1273) = 1.13$, $p > 0.05$). Post hoc tests showed that Experiential avoidance is significantly weaker in the group of certified therapists when compared with all other groups, and is weaker in students when compared with general population.

When compared with general population, group with similar age and the same level of education, therapists have significantly lower scores on Neuroticism and Experiential avoidance, along with higher scores on Openness and Agreeableness. Differences in the former two are more prominent (over 2 SD for N and 1.5 SD for Experiential avoidance).

Discussion

The main finding indicates significant differences on Neuroticism between the groups – it has a trend of lowering, starting from students and general population, through trainees to certified therapists. In addition, differences in Extraversion, Openness, Agreeableness and Conscientiousness show that trainees and therapists have higher scores than students; however trainees have significantly lower scores on Agreeableness and Conscientiousness when compared with therapists. Experiential avoidance is significantly weaker in the group of certified therapists when compared with all the other groups, and is significantly weaker in students when compared with the general population. These results are in accordance with the findings of other studies (Tremblay et al., 1986; Milošević, 2013).

As it seems, effect of personal therapy appears to weaken the tendency towards experiencing negative emotions and diminish the frequency of the negative emotional spikes, which confirm results of some former studies (Bike et al., 2009). However, when one inevitably experiences negative emotions, those are tolerated in a more functional manner – person is actually processing them, not repressing, avoiding or denying them. These changes apply both to a cognitive and behavioural domain (Gamez et al., 2011). Similar differences occur when general population is compared with trainees and student, but become more transparent when compared with therapists.

Differences are not limited to these two variables and they are also significant for Extraversion, Openness, and Agreeableness – with therapists being more extraverted, open and agreeable. This orientation towards interpersonal domain is a sine qua non for the therapeutic relationship (Asay & Lambert, 1999), so one might assume that specific set of personality traits draws people towards career in psychotherapy, in the first place. However, it's expected of each therapist to work on his own issues that occur in instances that are

operationalized by various facets of Extraversion, Openness, and Agreeableness. Mean differences are indeed more prominent between general population and therapists versus general population and trainees or students – so it appears that levels of involvement in education in psychotherapy are positively correlated with scales that operationalize interpersonal domain.

Conclusions

Differences in the personality traits and experiential avoidance among our respondents appear to be prominent when all of the groups are taken into consideration, even more so when we compare therapists and trainees, on the one side, with psychology students and members of the general population, on the other side. Extent and nature of the differences could indicate that personal psychotherapy during education attributes to the reduction of neuroticism and experiential avoidance of the trainees. However, in order to verify these results, additional research with longitudinal design is needed.

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EFFECTS OF AGGRESSIVENESS DIMENSIONS AND GENDER ON GRANDIOSE AND VULNERABLE NARCISSISM¹

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The aim of this study was to explore effects of aggressiveness dimensions and gender on grandiose and vulnerable narcissism. On a sample of 423 participants (49.2% of man) from general population, Aggressiveness Questionnaire AVDH (anger, vengefulness, dominance and hostility) and Five Factor Narcissism Inventory (FFNI) were administered. Results showed that domination, anger and hostility have an effect on grandiose narcissism, but dominance have the higher and large effect. Anger and hostility have an effect on vulnerable narcissism, with hostility obtained the higher and large effect. Although dominance has the effect on grandiose narcissism, it also has an interaction with gender on vulnerable narcissism, showing stronger relation among man. Results show that tendency toward domination and overt aggression are more related to grandiose narcissism, while cognitive component, which includes hostile attitude towards others and more covert aggression, is more related to vulnerable narcissism.

Keywords: aggressiveness, grandiose narcissism, vulnerable narcissism

Introduction

Narcissism is a complex personality trait that includes a superior view of the self, a relative lack of intimacy and empathy, and self-regulatory strategies that maintain and enhance the self (Campbell & Green, 2008). Two distinct dimensions of narcissism, grandiose and vulnerable, are increasingly accepted (Cain, Pincus, & Ansell, 2008; Wink, 1991). Grandiose narcissism is characterized by high self-esteem, arrogance, self-absorption, exhibitionism and reactivity to criticism. Individuals with grandiose expression of narcissism openly display a sense of entitlement and are preoccupied with a need for admiring attention from others. Vulnerable narcissism is a more covert dimension, associated with lack of self-confidence, fragile self-esteem, hypersensitivity to criticism and tendency to withdraw from social interactions.

Previous studies showed that grandiose narcissism is related to various forms of aggressive behavior (Bradlee & Emmons, 1992; Bushman, Baumeister, Thomaes, Begeer, &

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West, 2009; Rhodewalt & Morf, 1995; Wink, 1991). On the other hand, there is a smaller number of studies which explore correlates of vulnerable narcissism, including aggression, and the results in these studies are not consistent (Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009; Wink, 1991). Furthermore, exploration of relations between trait aggressiveness and narcissism are rare. Aggressiveness is also a multifaceted trait and consists of several components which refer to specific affect (anger), cognition (hostility) and behavior (aggression). Moreover, examinations of the common structure of aggressiveness / agreeableness items from personality inventories resulted in four dimensions of aggressiveness – anger, vengefulness, dominance, and hostility (Dinić, Mitrović, & Smederevac, 2014). Some studies showed that grandiose narcissism is mostly related to tendency towards physical and verbal aggression, following by anger, but no hostility (Okada, 2010; Ruiz, Smith, & Rhodewalt, 2001), while vulnerable narcissism is positively related to anger and hostility, but negatively with verbal aggression (Okada, 2010). Therefore, the aim of this study was to examine the effects of the aggressiveness dimensions on vulnerable and grandiose narcissism. Because aggressiveness is gender-related trait, with males having higher scores (or lower scores on agreeableness, trait with antagonism or aggressiveness on opposite pole, see Costa, Terracciano, & McCrae, 2001), gender is also included in analysis, in order to examine its potential moderation effect.

Method

Participants and procedure

The sample included 423 participants (49.2% men) from general population, age of 18 to 85 years ($M = 31.59$, $SD = 14.24$), with different levels of education and educational profiles (34.3% finished high school, 40% were students and 25.5% had university degree).

Instruments

Aggressiveness Questionnaire AVDH (Dinić-et al., 2014) measures four dimensions of aggressiveness: anger ($\alpha = .76$, $n = 5$), vengefulness ($\alpha = .90$, $n = 6$), dominance ($\alpha = .83$, $n = 7$) and hostility ($\alpha = .69$, $n = 5$).

Five Factor Inventory Narcissism - FFNI (Glover, Miller, Lynam, Crego, & Widiger, 2012) measures grandiose ($\alpha = .93$, $n = 44$) and vulnerable narcissism ($\alpha = .80$, $n = 16$).

Raw scores of proposed scales of both instruments are used in analysis.

Results

The results of multivariate analysis of covariance (Table 1) show that anger has medium, and hostility and dominance have large multivariate effect on narcissism. Besides main effect, dominance obtains also significant interaction with gender, medium effect size.

Table 1
Multivariate effects of aggressiveness facets and gender on narcissism

Multivariate effects	F(2,409)	p	η_p^2
Gender	1.16	.313	.006
Anger	10.02	<.001	.047
Vengefulness	1.60	.204	.008
Dominance	79.92	<.001	.281
Hostility	21.00	<.001	.093
Gender x anger	0.03	.972	<.001
Gender x vengefulness	1.09	.339	.005
Gender x dominance	3.51	.031	.017
Gender x hostility	0.95	.389	.005

Univariate effects (Table 2) show that anger and hostility have effects on both dimensions of narcissism, although anger has somewhat higher effect on grandiose narcissism, but medium size, while hostility has higher and large effect on vulnerable narcissism. Dominance has large effect on grandiose narcissism, but its interaction with gender has medium effect on vulnerable narcissism. Interaction shows that relations between dominance and vulnerable narcissism are positive in both genders, but it's higher in men ($r = .36$), compared to women ($r = .23$).

Table 2
Univariate effects of dimensions of aggressiveness and gender on vulnerable and grandiose narcissism

Univariate effects		F(1,410)	p	η_p^2
Anger	Vulnerable narcissism	7.28	.007	.017
	Grandiose narcissism	11.25	.001	.027
Dominance	Vulnerable narcissism	0.28	.594	.001
	Grandiose narcissism	157.90	<.001	.278
Hostility	Vulnerable narcissism	38.42	<.001	.086
	Grandiose narcissism	5.78	.017	.017
Gender x dominance	Vulnerable narcissism	5.50	.020	.013
	Grandiose narcissism	1.11	.293	.003

Discussion

The results show that domination, affective (anger) and cognitive (hostility) components of aggressiveness are closely linked to grandiose narcissism. However, regarding the effect sizes, domination is the key aggressiveness component for expression of grandiose narcissism. It is related to the inability to resist quarrelsome behavior, aimed to obtain the power over others. It could be concluded that people with tendency towards social domination, which is related to overt aggression, are more likely to express grandiose narcissism.

Both cognitive and affective dimensions of aggressiveness had an effects on vulnerable narcissism, but cognitive component obtained higher and large effect. Hostility refers to bigotry towards others and tendency towards passive and more covert aggression. Therefore, the main predictor of vulnerable narcissism is negative attitude towards others and expectation that others would judge us. This attitude, however, is related to implicit self-view as a superior person.

Obtained results are in line with previous studies showing that grandiose narcissism is more related to tendency towards open aggression, and vulnerable narcissism to tendency towards covert aggression, including hostility (Okada, 2010; Ruiz, Smith, & Rhodewalt, 2001). The results generally show that different aspects of antagonism and dysfunctional

social relations are linked to different dimensions of narcissism.

There is one interesting result regarding gender moderation role. Namely, domination is more related to vulnerable narcissism or fragile self-esteem in males. A person's self-esteem might well be tied to the evaluation accorded to that person's gender role (Zuckerman, Li, & Hall, 2016). Considering that, obtained interaction result could indicate that men's need to exert power and domination over others, which are expectations of their gender role (Eagly & Wood, 2012), is related to fragile self-esteem. Because this study is the cross-sectional, it could be also hypothesize that expression of domination is the mechanism for achieving a positive self-image in males with more vulnerable narcissism. This effect should be further examined by using the measures of identification with gender role in order to gain a better insight into obtained interaction.

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PERSONALITY TRAITS, SELF-CONCEPT AND LIFE SATISFACTION IN THE CONTEXT OF FACEBOOK USE

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The main goal of this study was to examine the relations between compensatory Facebook use and Facebook addiction on the one hand, and life satisfaction, personality traits and self-concept on the other. The study had 372 participants (88.4% female; M (age) = 24.38). The study used the Life Satisfaction Scale (Diener et al., 1985), the Self-Concept Scale (Bezinović, 1988), the Psycho-Social Aspects of Facebook Use Scale (Bodroža & Jovanović, 2016) and the Six Major Dimensions of Personality Scale (Lee & Ashton, 2016). The results show that the compensatory Facebook use and Facebook addiction correlate positively with negative and negatively with positive self-concept dimensions. Personality traits such as emotionality correlate positively with compensatory use, but honest-humility, extroversion, agreeableness, conscientiousness and openness to experience correlate negatively with compensatory Facebook use and Facebook addiction. Excessive use contributed to the low life satisfaction of users of this social network. Some of the above were also found to be good predictors of the compensatory use of Facebook and Facebook addiction. The expected correlations have been confirmed.

Keywords: social networks, Facebook, addiction, compensatory use

Introduction

An increase in the number of Facebook users in the world to 1.86 billion (Facebook, 2016) has a negative influence on users' psychical life, which is pointed by the large number of previous research studies (Caplan, 2003; Milošević-Đorđević & Žeželj, 2014; Pantić, 2014; Saphira et al., 2000). In Serbia there are about 3.4 million users (Internet World Stats – Usage and population statistics, 2016). According to *compensatory Internet use theory* (Kardefelt-Winther, 2014) people go online to escape real life problems, alleviate depressive symptoms that occur offline. This is how some people can perceive their social identity (Bargh & McKenna, 2004; Spears et al., 2002). Moreover, spending too much time on the Internet can have some harmful effects on life quality and life satisfaction (Blachnio et al., 2016; Stepanikova et al., 2010), self-concept, (Quinones & Kakabadse, 2015; Rohall, 2002) or lead to the development of symptoms related to the excessive use of this social network (Tonioni et al, 2012). First operationalization given by Young (1998), although it does not

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refer to a psychiatric category but rather abuse, describes *Facebook addiction* through the symptoms of excessive Internet use, loss of control over time spent online, and consequently, diverse problematic outcomes that can have a negative effect on users' real life.

Based on the previous research review, the main purpose of this study was to confirm the existing relation and examine new relations between compensatory Facebook use and Facebook addiction, on the one hand, and life satisfaction and self-concept on the other, as well as to explore the role of personality traits in those relations.

Method

Participants

We used a convenient sample that comprised of 372 respondents – 43 male and 329 female subjects, from 18 to 40 years old ($M = 24.38$, $SD = 5.03$). Most of the respondents were graduated and non graduated students (75%), while the other 25% graduated from primary school or high school. The data was collected by the users of Facebook, and the questionnaire was filled in online.

Measures

Self-Concept Scale (Bezinović, 1988). For the operationalization of this construct we used six scales: perception of personal incompetence (PPI), self-esteem (SE), loneliness (UCLA), fear of negative social evaluation (FNSE), overall satisfaction (OS) and externality, or external locus of control (EXTER). All subscales have relatively good internal consistency reliability for this sample from .88 on Externality to .91 on Loneliness.

Psycho-Social Aspects of Facebook Use Scale (PSAFU; Bodroža & Jovanović, 2016). For the operationalization of Facebook addiction and compensatory Facebook use the Internal consistency reliability was $\alpha = .82$ on addiction, and $\alpha = .90$ on compensatory use.

HEXACO Personality Assessment Inventory (Lee & Ashton, 2016). This model proposes the existence of six personality dimensions – Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C) and Openness (O).

Life Satisfaction Scale (SWLS; Diener et al, 1985). This scale consists of 5 items. Internal consistency reliability for this sample was $\alpha = .85$.

Results

Table 1 shows Spearman correlations between Facebook addiction and Compensatory Facebook use with self-concept, personality traits, and life satisfaction. Bonferroni's correction for multiple correlations was also conducted.

Table 1
Spearman correlation between aspects of Facebook use with self-concept, personality traits, and life satisfaction

	PPI	SE	UCLA	FNSE	OS	EXTER	H	E	X	A	C	O	LS
Addict.	.312***	-.257***	.170*	.282*	-.161*	.208**	-.192**	.309**	-.150	-.217**	-.221***	-.167*	-.120
Compe.	.422***	-.393***	.455***	.390***	-.353***	.294**	-.342**	.108	-.344***	-.191**	-.283**	-.170*	-.260***

Note: PPI – perception of personal incompetence, SE – self-esteem, UCLA – loneliness, FNSE – fear of negative social evaluation, OS – overall satisfaction EXTER – externality, H – honesty-humility, E – emotionality, X – extraversion, A – agreeableness, C – conscientiousness, O – openness to experience, LS – life satisfaction

***p<.001; **p<.01; *p<.05

Table 1 shows that perception of personal incompetence, loneliness, fear of negative social evaluation, and externality correlate positively with Facebook addiction and compensatory Internet use, but self-esteem and overall satisfaction correlate negatively. All personality traits, except emotionality which correlates positively only with compensatory use, correlate negatively with addiction and compensatory use. Satisfaction with life correlates negatively with compensatory use.

A hierarchical regression analysis was conducted with three sets of predictors: the first set was self-concept, the second set included personality traits, and satisfaction with life was introduced as the third set of predictors. Dependent variables were Facebook addiction and compensatory Facebook use.

Table 2
Results of hierarchical regression analysis

DEPENDENT VARIABLE	SET	R ²	F	ΔR ²	ΔF
Facebook addiction	1	.13	8.90***		
	2	.21	7.90***	.08	6.15***
	3	.21	7.29***	.00	.14
Compensatory Facebook use	1	.31	27.39***		
	2	.36	16.8***	.05	4.62***
	3	.37	15.8***	.01	2.77

***p<0.001

The results show that all three models are significant, but the third set of predictors, or life satisfaction variable, does not make a significant contribution (Table 2). The partial contribution of the predictors is shown in Table 3. The variance inflation factor does not indicate that one of the predictor variables should be excluded from the model.

Table 3
Partial contribution of the predictors

	b*	r _(DV)	r _{a(b,c)}
FACEBOOK ADDICTION			
EXTER	.100*	.208	.098
E	.171**	.309	.141
A	-.158*	-.217	-.140
C	-.128*	-.221	-.106
COMPENSATORY FACEBOOK USE			
PPI	.185*	.422	.096
FNSE	.130*	.390	.091
EXTER	.225**	.294	.207
H	-.194**	-.342	-.168
E	-.117**	.108	.096

Note: PPI – perception of personal incompetence, FNSE – fear of negative social evaluation, EXTER – externality, H – honesty-humility, E – emotionality, A – agreeableness, C – conscientiousness.

**p<.01; *p<.05

b* - standardized regression coefficient, r_(DV) – correlation with dependent variable, r_{a(b,c)} – semipartial correlation

Discussion

Previous research of personality and behavior, similar to the one presented in this paper, find correlation with low extraversion (Amichai-Hamburger et al., 2002; Milošević-Dorđević & Žeželj, 2014; Moore & McElory, 2012), low level of openness (Ross et al., 2009), agreeableness (Andreassen, 2013; Saini et al., 2016), conscientiousness (Andreassen et al., 2013; Andreassen et al., 2012), low scores on honesty-humility (Gnisci et al., 2010) and high emotionality (Corea et al., 2010). Such results are consistent with the results of the correlation and regression analysis carried out in this study. Similar to some other research studies, it is found that both aspects of Facebook use correlate positively with the negative aspects of self-concept as perception personal incompetence, loneliness, and fear of negative social evaluation (Caplan, 2007; Murphy & Tasker, 2011; Ryan & Xenos, 2011), but correlate negatively with positive aspects such as self-esteem and overall satisfaction (Blachnio et al., 2016; Tazghini & Siedlecki, 2013; Wilson et al., 2010). Externality has a positive correlation with these constructs, which can be understood in the context of attempting to justify personal dissatisfaction and failure (Andreou & Svoli, 2013; Chak & Leung, 2004; Iskender & Akin, 2010) where the Internet provides a perfect place to escape from reality (Kardefelt-Winther, 2014), but this distance and alienation from the real world, as the results show, have a negative relation with life satisfaction. However, mostly low correlations, the percentage of explained variance ranging from almost 20% to 40%, as well as the unevenness of the sample by gender, should impose additional caution while analyzing these data, since the results cannot refer to only one gender in general.

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IMPULSE BUYING TENDENCY AND SENSATION SEEKING

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The aim of this paper was to investigate the relation between the impulse buying tendency and the trait of sensation seeking. The research included 354 respondents. We used the Impulse Buying Tendency Scale and the Sensation Seeking Scale which contains four subscales: Thrill and Adventure Seeking, Experience Seeking, Disinhibition and Boredom Susceptibility. The results of hierarchical regression analysis showed that the demographic characteristics gender, age and level of education, included in the first step, explained 4.9% of the variance of impulsive buying tendency. After entering the Sensation Seeking Scale in the following phase, the model as a whole explained the 14.8% of the total variance of impulsive buying tendency. In the final model, significant partial contribution to the explanation of impulsive buying tendency was given by gender and disinhibition. The results showed that women and the persons high on disinhibition are most prone to impulsive buying.

Keywords: impulse buying tendency, sensation seeking, consumers

Introduction

Sensation seeking is a personality dimension marked by the need to seek the excitement and new, various, complex and intense stimuli from the environment, and it includes a certain level of risk in physical, social and financial areas, mainly due to the experience itself (Zuckerman, 1994). People with the prominent trait of sensation seeking evaluate the activities less risky than evaluated by the persons who have less prominent sensation seeking trait, and that makes them more prone to engaging in such activities (Horvath & Zuckerman, 1993). Scientists believe that sensation seeking is biologically based. Zuckerman's theory about the optimal level of arousal indicates that there is an optimal level of needed for the best functioning of an individual, and the individual shall seek the situations and experiences that would enable her/him to achieve and maintain the level of stimulation that suits her/him the best (Zuckerman, 1994).

Impulsivity can be defined as a predisposition to sudden and unplanned behaviour with the lack of awareness about the negative consequences that such impulse behaviour may have for an individual or the others (Moeller, Barratt, Dougherty, Schmitz & Swann, 2001).

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Conceptually, impulsivity is similar to sensation seeking. However, impulsivity deals with the personal control over his/her thoughts and behaviour, while sensation seeking refers to the preferences of a person in regard to new experience and willingness to take risks (Dahlen, Martin, Ragan & Kuhlman, 2005).

Impulse buying has been described as a sudden, compelling, hedonically complex purchase behaviour in which the rapidity of the impulse purchase decision precludes any thoughtful, deliberate consideration of alternatives or future implications (Rook, 1987). Impulse buying has also an element of risk because it involves little or no pre-purchase evaluation of alternatives or possible post-purchase outcomes (Rook & Hoch 1985). Consumers also report feeling out of control and thrown into a stage of psychological disequilibrium by their sudden impulsive urges (Rook, 1987). Moreover, many consumers report feeling good or “high” after buying impulsively, suggesting an increase in their level of arousal during the purchase process (Rook & Gardner 1993). Therefore, just like sensation seeking, impulse buying also appears to be an exploratory purchase behaviour that provides consumers at low arousal level with an opportunity to seek stimulation from their environment by taking risks and experiencing excitement, a change of pace and relief from boredom.

The aim of this paper was to investigate the relation between the impulse buying tendency and the sensation seeking trait. Impulsivity trait, characterized as reckless action (Eysenck, Pearson, Easting & Allsopp, 1985), is in a significant correlation with sensation seeking and psychological need to maintain relatively high level of stimulation (Gerbing, Ahadi & Patton, 1987). It is therefore to be assumed that individuals with prominent sensation seeking trait are more likely involved into impulse buying.

Method

Participants and procedure

Participants were 364 people (77.5% female). Age of participants ranged from 18 to 68 years ($M = 29.08$, $SD = 11.92$). Participants' level of education ranged from high school degree (76.3%), through the college degree (4.7%) to a university degree (19%).

Data collection was performed since March to May 2016, through the paper/pencil method. Completing questionnaire was conducted individually, and it lasted for about 10 minutes, in the shopping malls where the respondents were doing their shopping. Participation was on voluntary and anonymous basis.

Instruments

Impulse Buying Tendency Scale (Verplanken & Herabadi, 2001). The scale consisted of 20 5-point Likert-type items. The scale has two factors: Impulse Buying Tendency Cognitive Factor and Impulse Buying Tendency Affective Factor. Cronbach's Alpha was .88. for the complete scale, .84 for the Impulse Buying Tendency Cognitive Factor and .83 for the Impulse Buying Tendency Affective Factor.

Sensation Seeking Scale (Zuckerman, Eysenck & Eysenck, 1978). The scale consisted of 40 5-point Likert-type items grouped into four subscales: Thrill and Adventure Seeking, Experience Seeking, Disinhibition and Boredom Susceptibility. Cronbach's Alpha was .70 for the Adventure Seeking Scale, .62 for the Experience Seeking Scale, .67 for the Disinhibition Scale and .62 for the Boredom Susceptibility Scale.

Results

Table 1 shows descriptive statistical measures and correlations between variables. Means and standard deviations, skewness and kurtosis for all of the used variables (Table 1), do not indicate major distribution deviations compared to normal distribution (Tenjović, 2000). Analysis of correlations between the impulse buying tendency and sensation seeking (Table 1), shows that disinhibition is in the most intensive positive relation to impulse buying tendency (complete scale $r = .30, p < 0.01$; i.e., impulse buying tendency cognitive factor $r = .33, p < 0.01$ and impulse buying tendency affective factor $r = .22, p < 0.01$), while the thrill and adventure seeking is not significantly correlated with impulse buying tendency.

Table 1
Descriptive statistical measures and correlations between variables

	M	SD	Sk	Ku	Correlations		
					IBT-C	IBT-A	IBT-T
IBT-C	35.69	10.79	.13	-.28	1.00		
IBT-A	35.22	10.45	-.20	-.32	.50**	1.00	
IBT-T	70.90	18.39	-.02	-.27	.87**	.86**	1.00
TAS	5.10	2.86	.22	.43	.12	.01	.06
ES	4.69	2.06	.05	-.56	.17**	.07	.13*
DIS	3.69	2.34	.26	-.77	.33**	.22**	.30**
BS	3.20	2.15	.33	-.69	.24**	.12*	.21**

Legend. IBT-C Impulse Buying Tendency Cognitive Factor; IBT-A Impulse Buying Tendency Affective Factor; IBT-T = Impulse Buying Tendency complete scale; TAS = Thrill and Adventure Seeking; ES = Experience Seeking; DIS = Disinhibition; BS = Boredom Susceptibility.

* $p < .05$. ** $p < .01$.

Hierarchical regression analysis was used to evaluate the possibility of sensation seeking trait to predict the impulse buying tendency, after having removed the influence of demographic variables.

Table 2
Results of hierarchical regression analysis

Criterion	IBT-C		IBT-A		IBT-T	
	Model		Model		Model	
	1	2	1	2	1	2
Predictor	β	β	β	β	β	β
Gender	.135*	.178**	.145*	.169*	.168*	.204*
Age	-.152*	-.073	-.075	-.047	-.114*	-.057
Education	.062	.049	-.029	-.045	.011	-.005
TAS		-.010		-.073		-.056
ES		-.017		-.055		-.034
DIS		.276**		.247**		.291**
BS		.115		.032		.091
R ²	.050	.159	.034	.089	.049	.148
F	6.168**	9.286**	4.069*	4.794**	6.012**	8.545**
Δ R ²		.109		.055		.099
Δ F		11.089**		5.192**		9.980**

Legend. IBT-C Impulse Buying Tendency Cognitive Factor; IBT-A Impulse Buying Tendency Affective Factor; IBT-T = Impulse Buying Tendency complete scale; TAS = Thrill and Adventure Seeking; ES = Experience Seeking; DIS = Disinhibition; BS = Boredom Susceptibility.

* $p < .05$. ** $p < .01$.

Demographic variables age, gender (dummy variable coded as 0 = male, 1 = female) and level of education (dummy variable coded as 0 = high school degree, 1 = college degree or higher), included in the first phase, explained 4.9% of variance impulse buying tendency (i.e., 5% of variance impulse buying tendency cognitive factor and 3.4% of variance impulse buying tendency affective factor). By introducing sensation seeking in the second level, model as a whole, explained 14.8% of variance impulse buying tendency (i.e., 15.9% of variance impulse buying tendency cognitive factor and 8.9% of variance impulse buying tendency affective factor). Sensation seeking explained additional 9.9% of variance impulse buying tendency (i.e., 10.9% of variance impulse buying tendency cognitive factor and 5.5% of variance impulse buying tendency affective factor), after having removed the influence of demographic variables. In the final model, the variables gender and disinhibition were emphasized as significant predictors of impulse buying tendency (i.e., impulse buying tendency cognitive factor and impulse buying tendency affective factor) (Table 2).

Discussion and conclusion

The aim of this paper was to investigate the relation between the trait of sensation seeking and the impulse buying tendency, i.e. to determine if there is a possibility of predicting impulse buying based on sensation seeking trait. It could be expected, on the basis of the previous research (Eysenck et. al., 1985; Gerbing, Ahadi & Patton, 1987), that the individuals with more prominent sensation seeking traits would be more prone to impulse buying.

Correlation analysis results have shown that there is a significant positive relation between sensation seeking and impulse buying tendency. Results of hierarchical regression analysis indicated that sensation seeking, after the impact of demographic variables is removed, can explain about 10% of variance preference to impulse buying, while disinhibition proved to be significant partial predictor. The obtained findings are consistent with the results of the previous researches (Greene, Krcmar, Walters, Rubin & Hale, 2000) which showed that disinhibition was a good predictor of risky behaviour. Also, the results of earlier studies proved that high level of excitement reduces the ability to think about your own behaviour (Leith & Baumeister, 1996), that higher level of excitement in commercial surrounding enhances the loss of self-control (Baumeister, 2002) and that persons with prominent sensation seeking trait are more prone to financial risk (Wong & Carducci, 1991).

The obtained findings support the conclusion that impulse buying behaviour is related to sensation seeking. The need for unique experiences as well as the willingness to take risks so as to fulfill these experiences is some of the reasons for impulse buying.

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SOCIAL PSYCHOLOGY

ATTITUDES TOWARDS OBESITY IN SERBIA MEASURED BY FAT PHOBIA SCALE

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The persons who suffer from obesity are often stigmatized by the general public; this can even lead to the development of depression. The aim of this study was to explore attitudes towards obesity. A total of 184 participants (34.6% male), age ranging from 15 to 83 years ($M = 31.41$) were participated in the study. Total of 7.7% participants were underweight, normal weight had 61.5% participants, overweight were 22.5% participants, and obese were 6% participants. In the first part of the study vignette with a description of the women who suffers from obesity and vignette with a description of the women with an average weight were presented. Participants attitudes towards obesity were assessed via a short version of Fat Phobia Scale. The participants displayed more negative attitudes towards actor presented in the obesity vignette than for actor in the normal weight vignette. Participants of normal body weight and overweight expressed more negative attitudes towards actor in obesity vignette than underweight participants. Further, the male participants expressed more negative attitudes towards actor in obesity vignette than female participants. The results indicate that participants overall, male participants and with normal body weight held negative attitudes towards obesity. These findings indicate necessity for developing anti-stigma programs, with specific focus on male population and population with normal BMI.

Keywords: obesity, attitudes, Fat Phobia Scale, BMI

Introduction

Obesity presents one of the most challenging medical and social conditions in society. People who suffer from obesity are often stigmatized by general public (Puhl & Heuer, 2009), which in some cases can even lead to the development of depression (Stunkard et al., 2003). Oftentimes, obesity is viewed as a consequence of personal choice and lifestyle of the person who suffers from it (Crandall, 1994). For example, a lack of physical exercise and poor nutritive habit were factors marked as most important for obesity development (Čolić & Milačić Vidojević, 2016). Stigma towards obesity is expressed in personal (Puhl & Brownell, 2006) and professional relationships (Pingitore, et al., 1994). According to a report from Institute of Public Health of Serbia, 36.2% of population in Serbia was overweight and 18.3% was obese in 2011, while rate of obesity was 4.66 per 1000 adults, and 4.29 per 1000 children

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in 2015. To date, in Serbia there is only one study that addressed high school student's attitudes towards obesity using Fat Phobia Scale (FPS). This is the first study to examine Serbian adults' attitudes towards obesity.

Method

Sample

The students of Faculty of Special Education and Rehabilitation were trained to administrate instrument assessing convenience sample from several cities in Serbia. A total of 182 participants (34.6% (63) male) participated in the study. Participants' age span was from 15 to 82 years ($M = 31.41$, $SD = 13.33$).

The participant's body mass index was calculated using WHO guidelines: underweight $<18.5 \text{ kg/m}^2$ (total of 14 (7.7%) participants), normal weight $18.5\text{--}24.9 \text{ kg/m}^2$ (total of 112 (61.5%) participants), overweight $25.0\text{--}29.9 \text{ kg/m}^2$ (total of 41 (22.5%) participants), and obese $>30 \text{ kg/m}^2$ (total of 11 (6%) participants). Four (2.2%) did not provide information regarding their weight and height.

Procedure and instrument

All participants were exposed to two vignettes, adopted from Pantenburg's et al. study (2012). In both vignettes is presented 42-year-old woman, along with her weight and height. In obese condition vignette, a woman has difficulties finding clothes that fit her. In a vignette with normal weight actor, a woman did not have these difficulties. An obese vignette condition was presented first, followed by FPS and scale of causal attribution (results from causal attribution scale will not be presented in this paper). Then, a normal weight vignette condition was presented, followed by the scales. This order of vignettes and scales presentation was used in other studies related to attitudes towards people who suffer from obesity (Pantenburg et al., 2012; Sikorski et al., 2012).

Participants' attitudes toward obesity were assessed via a short version of FPS (Bacon et al., 2001). FPS is a semantic differential scale (ranging from 1 to 5) consists of 14 pairs of adjectives, where higher scores represent more negative attitudes. The cut-off score of FPS was 2.5; scores bellow 2.49 were marked as neutral or positive attitudes and scores greater than 2.5 were marked as negative attitudes. Cronbach's alpha in the previous study was .791 (Stein et al., 2014) and in our study, was .852., which indicate the good reliability of the FPS.

Results

Cut-off scores analysis was performed. A total of 5% (9 participants) of participants expressed neutral or positive attitudes for the actor in obese vignette and 95% (173 participants) showed negative attitudes. In contrast, to the actor with normal weight vignette, 50% (91 participants) of participants expressed negative attitudes and 50% (91 participants) of the sample showed neutral or positive attitudes.

A two-way 4 (BMI) x 2 (condition) mixed ANOVA showed that there was a significant main effect of condition ($F(1,174) = 83.349, p < .001, \eta_p^2 = 0.34$) and a significant BMI and condition interaction ($F(3,174) = 4.181, p < .01, \eta_p^2 = 0.067$). The mean scores on FPS showed that participants displayed more negative attitudes for the actor in obese vignette ($M = 3.6, SD = .61$) than for actor in the normal weight vignette ($M = 2.48, SD = .61$). Further, participants who were underweight ($M = 3.13, SD = .67$) held more positive attitudes towards actor in obese vignette than participants of normal body weight ($M = 3.61, SD = .56$), participants who were overweight ($M = 3.62, SD = .60$), and participants who were obese ($M = 3.31, SD = .68$). In contrast, participants who were underweight ($M = 2.79, SD = .5$) held more negative attitudes towards actor in normal weight vignette than participants of normal body weight ($M = 2.47, SD = .61$), participants who were overweight ($M = 2.39, SD = .54$), and participants who were obese ($M = 2.4, SD = .61$).

A two-way 2 (gender) x 2 (condition) mixed ANOVA showed that there was a significant main effect of condition ($F(1,180) = 264.281, p < .001, \eta_p^2 = 0.59$) and a significant gender and condition interaction ($F(1,180) = 5.689, p < .01, \eta_p^2 = 0.031$). Male participants ($M = 3.74, SD = .62$) expressed more negative attitudes for the actor who was obese than female participants did ($M = 3.53, SD = .59$). On the other hand, female participants ($M = 2.58, SD = .56$) expressed more negative attitudes towards actor in normal weight vignette than male participants did ($M = 2.39, SD = .68$).

An analysis didn't reveal significant interaction between condition and participant's level of education.

Discussion and conclusion

The aim of this study was to examine Serbian adults' attitudes towards obesity using FPS scale. The results indicated that participants expressed more negative attitudes for the actor in obese vignette than for the actor in normal weight vignette. These results are in accordance with previous studies who examined attitudes of German adults (Sikorski et al.,

2012; Stein et al., 2012), medical students (Patenburg et al., 2012) and high school students (Jakšić, Bodroža, & Jošić, 2015). A total of 95% of the sample expressed negative attitudes towards the actor in obese vignette condition which was similar to Stein's et al. study (99.1%).

Our study also showed that underweight participants held the most positive attitudes toward an obese person. This result is partially in contrast with Robinson, Bacon, and O'Reilly (1993) and Sikorski et al., (2012), where they found normal weight and underweight participants held negative attitudes, whereas overweight participants held positive attitudes. Further research is needed to examine factors along with BMI influence attitudes towards obesity.

In addition, male participants expressed more negative attitudes towards the actor in obese vignette condition than female participants did, whereas female participants held more negative attitudes towards the normal weight actor than male participants did. This finding is consistent with Crandall (1994), but not with Stein et al., (2014) who did not find gender difference or Robinson et al., (1993) who found that female participants expressed more negative attitudes. Further research is needed to examine the role of gender in expressing attitudes.

Furthermore, the results should be taken with caution, as it is not clear if non-balanced order of vignette influenced results. Although previous studies used the same design as in this study, future research should take them into consideration.

In our study, participants held negative attitudes towards actor in obese vignette conditions, especially male respondents. Further, BMI was related to expressed attitudes. These findings indicate necessity for developing programs in Serbia which will educate population about obese development. Programs should have specific focus on male population and population with normal and overweight BMI.

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PSYCHOLOGICAL MOTIVES FOR ART FESTIVAL ATTENDANCE¹

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Motives for art festival attendance are typically examined in the framework of escape–seeking model which proposes a dialectical interplay between two motivational forces: escaping (i.e. the desire to leave the everyday environment) and seeking (i.e. the desire to obtain psychological rewards through visiting contrasting environment). Following that paradigm, this study aims to explore: 1. the motivational structure for attending art festivals, 2. whether the perceived relevance of motives varies depending on the type of festival (music, theater, visual arts, film). The survey included a random sample of visitors of Belgrade festivals ($N = 2319$). Participants estimated their agreement with a list of motives to attend festivals. Factor analysis revealed four latent dimensions: learning, equilibrium recovery, excitement, and socializing. The perceived relevance of motives varied among festivals, but the motivational structure for attending each festival was similar, with learning perceived as the most relevant motive. Results do not support escape–seeking dichotomy, i.e. equilibrium recovery includes mixed seeking and escape items, while clear escape component is missing. Further research should test other models of motivation and examine motives for festival attendance in relation to other types of leisure activities and experiential consumption.

Keywords: festival visitors, motivation, escape–seeking, leisure, experiential consumption

Introduction

Studying psychological motives for attending festivals is highly relevant in the light of findings that well-being and happiness are related to the quality of leisure activities (Newman, Tay & Diener, 2014), and experiential purchases (primary intention is acquiring a life experience, Gilovich, Kumar & Jampol, 2015). Past studies about the motives for attending festivals were mostly designed without clear theoretical background (Getz, 2010; Manolika, Baltzis & Tsigilis, 2015). The minority who applied theoretical models usually followed escape–seeking dichotomy which assumed two motivational forces in a dialectical interplay: 1. *escape*, defined as the desire to leave the everyday environment (personal

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problems or interpersonal world), and 2. *seeking*, defined as the desire to obtain psychological rewards (personal such as relaxation, or interpersonal such as interaction) through visiting contrasting environment (Iso-Ahola, 2010).

Results obtained from various contexts (e.g. different types of festivals, tourists vs. local audience, etc.) were not always explainable from the perspective of the escape–seeking model (e.g. mixed dimensions were reported instead of the clear escape one). There were also some consistent findings: several motives were most often reported emphasizing more seeking (e.g. cultural exploration; novelty, socializing, excitement) than escape force (e.g. escape the daily routine), which was expected due to notion that people who primarily wanted to escape everyday environment would choose to do something else instead of going to festivals (Crompton & McKay, 1997; Maeng, Jang & Li, 2016).

Following escape–seeking paradigm, the present study aims to explore: 1. the motivational structure for attending art festivals, which attract mainly urban local audience and take place in the same town (Belgrade) during the same season (autumn), 2. whether the perceived relevance of motives varies depending on the festival’s type (i.e. field of art): theater (BITEF), music (BEMUS), visual arts (October Salon, OS), film (Auteur film festival, AFF). Selecting festivals which attract a similar audience, while offering different types of aesthetic experience, it was possible to examine the role of specific art content in explaining motives for festival attendance: whether festivals differed in motivational structure or motivational structure was similar regardless of specific field of art.

Method

Participants and procedure

The sample included 2319 participants ($M_{\text{age}} = 35.71$, $SD_{\text{age}} = 13.51$; 61.2% female) of four Belgrade festivals: BITEF ($N = 564$), BEMUS ($N = 578$), October Salon ($N = 592$), and Auteur film festival ($N = 585$). Participants were selected by random choice procedure before each event (theater play / concert / exhibition / film) and were offered either to self-fulfill the questionnaire or that interviewer did it for them (more than 90% of participants chose the self-fulfillment; more details in: Jokic & Mrdja, 2014).

Instrument

The questionnaire included modified list of 28 statements from past research reported to represent latent dimensions basically in line with dichotomy: seeking (e.g. *I like to find*

myself in situations where I can explore new things; I go to festival to be with others who enjoy the same things I do) and escape: (e.g. *I have to go to events like this one from time to time to avoid getting in a rut; I go to festivals to relieve boredom*; Crompton & McKay, 1997). Using the Likert scale (1-*strongly disagree*, 5-*strongly agree*), participants estimated in what extent each statement described their motivation to attend the particular festival.

Results

In order to explore the motivational structure for attending festivals, EFA was applied (*Method of principal components, Varimax rotation*). Four components were extracted explaining 53.07% of the total variance (Table 1). All items had loadings $>.40$ (23 had $>.50$).

Table 1
Latent structure of motivation for festival attendance

Motive / component	% of explained variance	Chronbach's alpha
Learning	34.53	.82
Equilibrium recovery	8.23	.85
Excitement	5.71	.80
Socializing	4.60	.81

Extracted components were not completely in line with those reported in past research (Maeng, Jang & Li, 2016): learning included items that past studies reported to load to two components: cultural exploration (e.g. *This is the opportunity to experience customs of cultures different from those in my usual environment*) and novelty (e.g. *I want to experience something new and different*). More importantly, equilibrium recovery included both escape (e.g. *I have to go to events like this one from time to time to avoid getting in a rut*) and seeking items (e.g. *This is a chance to rest and relax*). Finally, excitement (e.g. *I am looking for adventure*) and socializing (e.g. *I like coming here with a group of friends*) were similar to those previously reported.

ANOVA (*Post hoc Tuckey*) was applied to examine whether motivational structure differed depending on festival (art) type. Results showed statistically significant differences between festival visitors in perceived relevance of motives: learning $F(3,2175) = 22.25$, $p < .001$, $\eta_p^2 = .03$ (BEMUS differs from all others); equilibrium recovery $F(3,2081) = 2.99$, $p < .05$, $\eta_p^2 = .004$ (AAF differs from OS); excitement $F(3,2155) = 4.03$, $p < .05$, $\eta_p^2 = .006$

(BITEF differs from BEMUS and OS); socializing $F(3,2150) = 15.64, p < .001, \eta_p^2 = .021$ (OS differs from all others) (Figure 1).

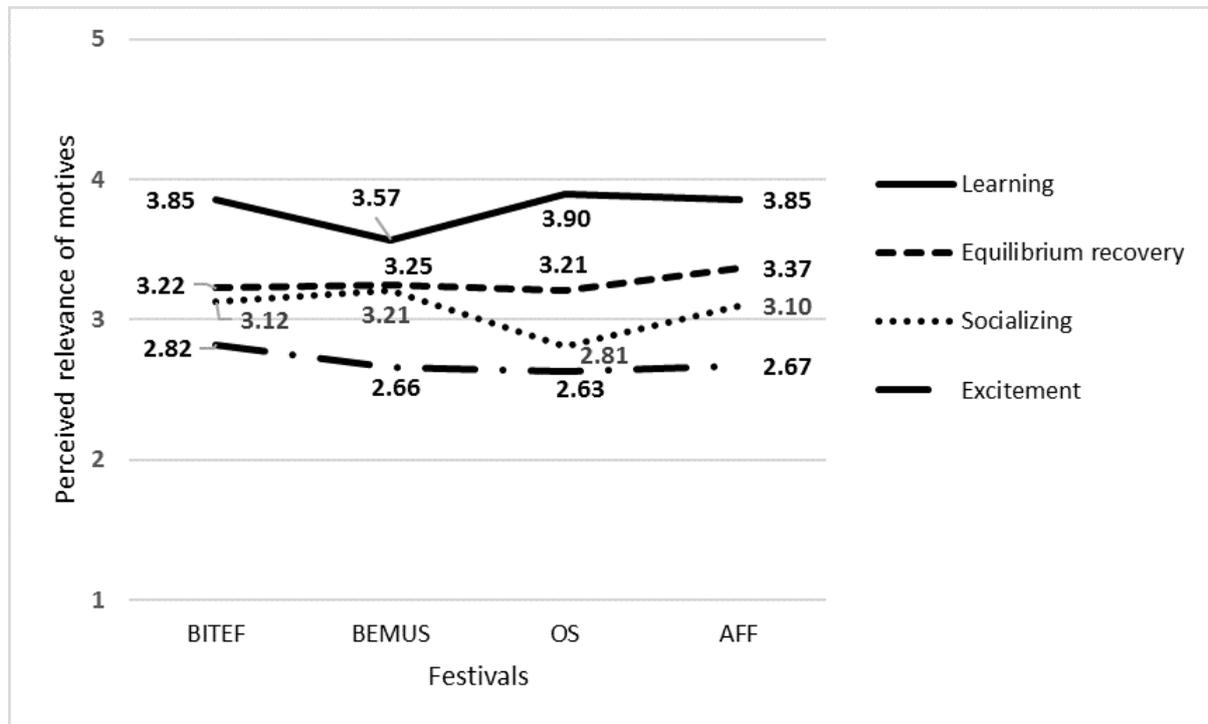


Figure 1. Perceived relevance of motives across festivals (mean scores are presented)

Discussion and conclusion

In line with past research, this study revealed that motives which could be related to the seeking force explained a large amount of total variance, while learning was represented by group of items past studies had reported manifesting two components: novelty and cultural exploration (Crompton & McKay, 1997; Maeng, Jang & Li, 2016). Past research reported higher relevance of social components than it has been found in the present study, which might be related to a specific festival atmosphere. We also revealed differences in perceived relevance of socializing between visual art festival and all the others, so it could be assumed that the variation would be more pronounced if we included festivals that even more emphasized socializing (e.g. Museum Night). However, although perceived relevance of motives varied depending on the festival type, the motivational structure was basically similar across different events with learning component as the most relevant at each one of them. Therefore, it could be concluded that regardless of all varieties of festivals – in the present studies and majority previously reported – dominant motives for festival attendance are related to learning, exploring art and cultural field, and experiencing something new.

From the theoretical perspective it is important to note that the escape-seeking model does not provide a satisfying framework for understanding why people attend festivals, i.e. results do not support the escape-seeking dichotomy (Iso-Ahola, 2010). Studying motivation for art festival attendance is a relatively new line of research, developed mostly beyond the clear theoretical frameworks. Further research should accumulate knowledge either by testing other models of motivation or by relating the specific domain of attending festivals to broader paradigms. Specifically, dominant motives discussed above, together with those related to emotions and socializing in festival context seem to reflect the benefits of leisure activities and experiential consumption for well-being and happiness (Gilovich, Kumar & Jampol, 2015; Newman, Tay & Diener, 2014). Through connections of those fields, it would not only be clearer why people attend festivals, but accumulated knowledge from the specific domain of festival attendance could also contribute to better understanding of other forms of leisure activities or experiential consumption, their similarities and distinctiveness.

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GENDER DIFFERENCES IN AFFECTIVE AND COGNITIVE WELL-BEING IN SERBIA¹

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This paper examines the gender differences in affective and cognitive component of subjective well-being in the case of Serbia. Subjective well-being is defined as the sum of positive and negative affect and the overall life satisfaction. On a nationally-representative sample of the Serbian population, consisting of 17,187 respondents, aged 15 to 96 years ($M = 48.88$; $SD = 18.77$) with 51.2% of females and 48.8% males, interviewed within the Survey on Income and Living Conditions in 2013, we examined the gender differences in frequency of experiencing (during the past four weeks) of two positive (feeling calm and peaceful, and being happy) and three negative (being very nervous, feeling down in the dumps, and feeling downhearted or depressed) affects, and the overall life satisfaction. In accordance with most previous research, we expected no gender differences in life satisfaction, and greater positive and negative affectivity among females. The results showed that, first, there are no gender differences in feeling very nervous, and calm and peaceful, but that females significantly more feel downhearted or depressed, down in the dumps, and happy. Second, there are no significant gender differences in overall life satisfaction. Greater affectivity among females may be explained by gender roles.

Keywords: gender, subjective well-being, Serbia

Introduction

Gender is one of the most frequently studied variables in terms of association with subjective well-being. Subjective well-being is most commonly defined the affective and cognitive evaluation of life (Diener et al., 2003), i.e. affective (experiencing of positive and negative affect) and cognitive (general life satisfaction) well-being.

Most of the previous research suggest that the gender differences in life satisfaction are very small or non-existent (WHR, 2015; Di Tella et al., 2003); regarding affective well-being, the picture is somewhat less consistent. Some studies suggest no gender differences in experiencing affect also (e.g., Charles et al., 2001), however more numerous ones found that females experience both positive and negative affect more frequently (Lucas & Gohm, 2000, in: Diener et al., 2002; Fujita et al., 1991), so that the overall subjective well-being is not to a

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great extent different between males and females. Some other studies show that females experience negative affects more frequently, though they experience the positive affects in equal degree (e.g. OECD 2013). Many researches indicated a positive correlation between affective and cognitive well-being (Diener et al., 2009; Diener & Suh, 1999), although this relationship is unlikely to have one set value and it depends on numerous factors (Diener, 2009; Busseri and Sadava, 2011).

Affective and cognitive well-being have already been examined in Serbia (e.g. Jovanović & Novović, 2008; Novović et al. 2008), however not in the context of the gender differences, and not by using nationally representative samples. Further, comparing to countries where previous researches were conducted, Serbia has relatively large gender unemployment gap (World Bank, 2015). Therefore, the subject of this research is gender association to affective and cognitive components of subjective well-being in case of Serbia. The aim of the research is to determine whether males and females in Serbia differ regarding these components of well-being, and to what extent.

Method

For the purpose of this research, we used nationally representative sample of the Serbian population consisting of 17,187 respondents, aged between 15 and 96 years ($M = 48.88$; $SD = 18.77$), with 51.2% females and 48.8% males. Respondents were interviewed in 2013 within European Union Statistics on Income and Living Conditions, by the Statistical Office of the Republic of Serbia.

We examined the relationship between the frequency of experience (during the past four weeks) of two positive (feeling calm and peaceful, and being happy) and three negative (being very nervous, feeling down in the dumps, and feeling downhearted or depressed) affects, and the overall life satisfaction on one side, with gender, on the other side.

Having in mind the results of the largest number of the previous research from other countries, we expected no significant gender differences in overall life satisfaction, and greater positive and negative affectivity among females.

Data on the experiencing of affects are obtained using the questions: “How much of the time, during the past four weeks have you: been very nervous; felt so down in the dumps that nothing could cheer you up; felt calm and peaceful; felt down-hearted and depressed; been happy?” Answers were given on a five-point scale, where 1 meant “*All the time*” and 5 “*None of the time*”. Data on life satisfaction were obtained using the question: “All things

considered, how satisfied are you with your life as a whole these days? 0 means not at all satisfied and 10 means you are completely satisfied”.

Results

The significance of differences of these components of subjective well-being between males and females is tested by t-tests for independent samples. As it is shown in table 1, t-tests show that there are no significant gender differences in being very nervous, and feeling calm and peaceful, and that females feel downhearted or depressed, down in the dumps, and happy significantly more. Regarding cognitive well-being, there are no significant gender differences in overall life satisfaction.

Both males and females most frequently feel calm and peaceful, and happy. Of the remaining, negative affects, both genders most frequently feel very nervous, than, down in the dumps, and the least frequently downhearted or depressed.

Table 1
Results of t-tests for gender differences in affective and cognitive well-being

	Gender	M	SD	t	df	p
Being very nervous	M	3.62	1.148	1.444	12240	0.149
	F	3.59	1.123			
Feeling down in the dumps	M	4.35	.980	2.328	11923.460	0.020
	F	4.30	1.006			
Feeling calm and peaceful	M	2.56	1.012	-1.544	12250	0.123
	F	2.59	.994			
Feeling downhearted or depressed	M	4.41	.941	4.179	11930.580	< 0.001
	F	4.34	.973			
Being happy	M	2.75	1.058	3.455	12194	0.001
	F	2.68	1.048			
Overall life satisfaction	M	4.92	2.427	-.477	12275	0.634
	F	4.94	2.444			

Discussion

In Serbia there are no gender differences in life satisfaction. Further, females more frequently experience some of positive and negative affects (feeling down in the dumps, feeling downhearted or depressed, and being happy), while other (being very nervous, and

feeling calm and peaceful) experience in equal degree as males. These findings are consistent with a large number of previous researches, so the case of Serbia is not different from cases of numerous other countries. That is especially referred to paradoxical findings that females experience both depression and happiness more than males (in: Fujita et al., 1991).

The explanation for such results may be in different social standards of suitable and desirable behavior for males and females, which may lead to the fact that females experience and express affects relatively more (Diener et al., 1999; Fujita et al., 1991). In this regard, the female roles consider them to be emotionally expressive and unstable, and sensitive to the needs of others. Women's traditional role involves greater responsibility as caregiver, which may encourage more emotional responses. The male roles, on the other hand, consider them to be non-expressive and emotionally stable, and less emotionally responsive (e.g. Nolen-Hoeksema & Rusting, 1999).

Given that the data used in this survey provide an opportunity to examine the differences in experiencing only five types of affects, it would be useful within further research to raise this number. Also, it would be useful to examine the moderating variables (such as age or income) effects on this relationship, in case of Serbia.

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WORK PSYCHOLOGY

TYPE OF WORK ENVIRONMENT, FERTILITY AND FERTILITY INTENTIONS¹

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The goal of the current study was to explore if and how are the properties of a person's work environment related to fertility and fertility intentions. These relations were explored on a sample of 1398 residents of Serbia, who constituted a subsample of the geographical cluster sample of 2023 participants of the Study of diversity of family and job relations in Serbia. Work environment was assessed using the responses to HOL-H, administered as a part of the PORPOS battery. Other data used includes the answers about fertility and fertility intentions. The results show that on the male subsample, the extent to which a person's job corresponds to Investigative environment type correlates negatively with fertility, while the extent to which a person's job includes properties of Social and Artistic environment types correlates positively with fertility intentions. On the female subsample all work environments have negative correlations with the number of children, but the statistical significance threshold is only reached by correlations with Enterprising and Investigative environment types. Relative to fertility intentions, on the female subsample positive correlations are obtained with Artistic and Enterprising environments, but not with the Social environment type. We can conclude that both fertility and planned fertility are correlated with certain job environment types, and the correlations differ for the two genders.

Keywords: job environment, Holland, fertility, fertility intentions, gender

Introduction

Some decades ago, John Holland formulated a theory stating that there exist six types of personalities explaining individual differences in preferences for activities and vocations. (Hogan & Blake, 1999; Holland, 1959). These six types of personalities were named Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E) and Conventional (C) and each predisposed a person to prefer certain types of activities and hence certain types of vocations. Holland's theory proposed that there also exist six types of work environment corresponding to the six types of personalities. These personality types are in such interrelations that they form a hexagon in two-dimensional space with each type located at one of the bases of the

¹ The study was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia, through the national science project 179002.

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hexagon, thus creating a circumplex (Gupta, Tracey, & Gore, 2008; Prediger & Vansickle, 1992; T. J. Tracey & Rounds, 1992). This proposition has so far been empirically confirmed in many countries across the globe including the Balkans region (Hedrih, 2008; Hedrih, Stošić, Simić, & Ilieva, 2016; Long & Tracey, 2006; Šverko & Hedrih, 2010; T. J. G. Tracey & Robbins, 2005). Later authors tend to refer to these types as types of vocational interests, and name them the RIASEC vocational interest types. Search of the literature reveals a large volume of studies dealing with RIASEC types, but a comparatively low number of studies dealing with the types of work environment, in spite of the fact that many studies conducted across the globe have demonstrated that the job a person does and hence the environment a person works in can have profound effects on many other aspects of that person's life (Fritzsche, McIntire, & Yost, 2002; Karabay, Akyüz, & Elçi, 2016; Mauno, Ruokolainen, & Kinnunen, 2015).

With the rapid increase of the world population in the past several centuries and especially with the opposite phenomenon of fertility rates in Europe reaching a historical low point and in many cases becoming negative, a phenomenon that is sometimes referred to as the Second demographic transition (Lesthaeghe, 2010), study of fertility and fertility related factors has become a matter of prime scientific importance. According to the Theory of planned behavior (Dommermuth, Klobas, & Lappegård, 2011; Mencarini, Vignoli, & Gottard, 2015), achieved fertility is, to a great extent, the result of planned fertility i.e. having children is the result of planning to have children. For this reason, fertility and fertility intentions are variables that should be studied together. Studies conducted so far have clearly demonstrated that both of these variables are influenced by a wide range of situational factors of various scope, from broad cultural to microenvironmental ones (Berrington & Pattaro, 2014; Caplescu, 2014; Kuhnt & Trappe, 2016; Mencarini et al., 2015; Proposes, 2006), aside from dispositional ones. As the work environment is an environment in which one spends a large part of his/her life, in studying fertility it is important to explore if and how fertility is related to aspects of the work environment. Although many people tend to change jobs during their lifetime, work environment type in the Holland's sense tends to remain more stable as it is dependent on person's qualifications and vocation, which tend to remain relatively constant during lifetime for most.

The goal of the current study was to explore if and how are the properties of a person's work environment i.e. its similarity to work environment types proposed by Holland, related to the number of children a person has and the number of children a person plans to have i.e. fertility and fertility intentions.

Method

Sample. The study was conducted on a sample of 1398 residents of Serbia, who reported being employed full time, either legally or without regulated legal status. These participants were a subsample of the geographical cluster sample of 2023 participants of the Study of diversity of family and job relations in Serbia (Hedrih, Todorović, & Ristić, 2013). Of all the participants 621 were male and 777 were female.

Variables and instruments. The participants were asked to complete the PORPOS battery, a compilation of short scales and marker questions created for the purpose of this study (Hedrih et al., 2013). Elements of the battery used in the current study were the HOL-H scale, and the two questions about fertility and fertility intentions, and the data about gender.

Work environment was assessed using the HOL-H (Hedrih & Pedović, 2016; Hedrih et al., 2013), a six-item scale administered as part of the PORPOS battery that asks the participant to evaluate the extent to which activities typical of each of the six Holland RIASEC types are important for his/her job. Each item corresponds to one of the Holland's types and describes general activities typical for that type. For example, the item assessing the likeness of the work environment to the Realistic type asks the participant to evaluate to what extent is "manipulating objects, repairing and building machines, using tools, driving and controlling machines and vehicles" important for his job. The item assessing the likeness of the work environment to the Artistic type asks the participant to evaluate to what extent is "artistic expression, personal expression and creativity" important in his/her job. The scale uses a five-point Likert type scale for registering responses ranging from "Not at all" to "Very much".

Fertility was assessed through a question asking the person how many children he/she currently has.

Fertility intentions were assessed through a question asking the person how many children he/she plans to have.

Results

Correlations between the job environment types, fertility and fertility intentions on male and female subsamples are presented in tables 1 and 2 respectively.

Table 1
Correlation between job environment type, fertility and fertility intentions on the male subsample

Spearman correlation coefficients	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Number of children	,014	-,093*	-,037	,015	-,056	-,024
Planned number of children	,021	,093	,117*	,144**	,066	-,003

* p<.05; ** p<.01

The results show that on the male subsample, the extent to which a person's job corresponds to the Investigative environment type correlates negatively with fertility, while the extent to which a person's job includes properties of the Social and Artistic environment types correlates positively with fertility intentions.

Table 2
Correlations between job environment type, fertility and fertility intentions on the female subsample

Spearman correlation coefficients	Realistic	Investigative	Artistic	Social	Enterprising	Conventional
Number of children	-,028	-,085*	-,072	-,007	-,098*	-,069
Planned number of children	-,069	-,011	,103*	,033	,126**	,040

* p<.05; ** p<.01

On the female subsample, all work environments have negative correlations with the number of children, but the statistical significance threshold is only reached by correlations with the Enterprising and the Investigative environment types. Relative to fertility intentions on the female subsample positive correlations are obtained with the Artistic and the Enterprising environment types. In order to find a possible explanation for these results, relations of work environment type and fertility intentions with age of participants were examined. These showed that the Enterprising environment type correlates negatively with age ($Rho = -.223, p < .001$), as do the fertility intentions ($Rho = -.436, p < .001$).

Discussion and conclusion

One possible explanation for the negative correlation between the Investigative type and fertility is that this type typically represents jobs that involve longer and more demanding education, thus resulting in lower achieved fertility, as was reported by previous authors (Berrington & Pattaro, 2014). Relative to negative correlation with the Enterprising type on the female subsample, analysis show that the level of reported likeness of job environment to the Enterprising type in the current study decreases with age in females. Younger female participants tend to report their jobs as more Enterprising than older female participants. These same younger female participants have less children than older ones because they are still in their reproductive life period, so have yet to achieve the planned fertility i.e. they are yet to have children they wish to have. This then creates the negative correlation. The same explanation is valid for the correlation between the Enterprising type on females and their planned fertility. Planned number of children decreases with age, while the reported Enterprising type of job also decreases with age in females in our sample, thus creating a positive correlation. A possible explanation for correlations between planned fertility and the Artistic type jobs is that these work environments are by definition more open to personal expression, and thus also for expression in the area of family formation. Relative to correlation with reported Social type environment, people with Social type interests tend to be more extroverted (Larson, Rottinghaus, & Borgen, 2002), and extraversion is a known correlate of planned pregnancies (Berg, Rotkirch, Väisänen, & Jokela, 2013).

We can conclude that both fertility and planned fertility were found to be correlated with certain job environment types, and the job environment types correlating with these two variables were not the same for males and females. This points to the fact that job environment type should be taken into consideration in a more systematic way when studying work-family balance issues, and also that type of job environment should be a factor systematically considered in family counseling practice.

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WORKPLACE CYBERBULLYING AND EMPLOYEE EMOTIONAL WELL-BEING: THE MODERATING EFFECT OF PERCEIVED ORGANISATIONAL SUPPORT

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This study investigated the moderating role of perceived organizational support (POS) in the relationship of workplace cyberbullying and employee emotional well-being. The instruments used were the adapted versions of the Workplace Cyberbullying Measure (WCM), Survey of Perceived Organizational Support (SPOS), and the Job-Affected Well-Being Scale (JAWS). The sample consisted of 183 respondents, aged 18-65, employed in various industries in Serbia. The results revealed that 20% of respondents could be classified as cyberbullying victims and the most frequent negative cyberbullying act was found to be receiving unclear and inconsistent information. It was shown that there were negative correlations between workplace cyberbullying and emotional well-being, workplace cyberbullying and perceived organizational support and, finally, a positive correlation between perceived organizational support and emotional well-being. It was also demonstrated that POS moderates the effect of workplace cyberbullying on employee emotional well-being. These results emphasize the important role organization plays in regulating cyberbullying and have practical implications for managers and organizations, in terms of developing interventions based on creating a work atmosphere of respect and support.

Keywords: Workplace cyberbullying, workplace bullying, perceived organizational support, employee well-being, Serbia

Introduction

Reflecting wider societal fears and worries (Coyne et al., 2016) cyberbullying has mostly been studied in school context, where it was shown to have detrimental effects on mental health and well-being of its victims (Hinduja & Patchin, 2010). More recently, there has been an increasing interest in cyberbullying in work context (*e.g.* Coyne et al., 2016; Farley, Coyne, Axtell & Sprigg, 2016; Farley, Coyne, Sprigg, Axtell & Subramanian, 2015). This topic is even more significant given the fact that digital technologies are a necessity in today's workplace. Nowadays employees prefer to communicate via social networks and e-mails, rather than talk to their colleagues directly (Coyne et al., 2016). Workplace cyberbullying is defined as a situation in which an individual is repeatedly, over an extended period of time, exposed to work-related negative acts conducted through technology (Farley et al., 2016). The potential victim is unable to defend him or herself from these attacks.

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Closely related to workplace cyberbullying, previous studies on workplace bullying have shown that it has various negative outcomes on employee well-being (e.g. Nielsen & Einarsen, 2012). Considering the nature of cyberworld, there are some indications that workplace cyberbullying may have even more striking outcomes than 'traditional' bullying since it can invade personal space more easily (Coyne et al., 2016). Workplace cyberbullying exposure has a stronger negative correlation with job satisfaction when compared to traditional bullying (Coyne et al., 2016). Apart from that, research conducted by Farley and colleagues (2016) showed that workplace cyberbullying accounted for a significant amount of incremental variance in emotional exhaustion after traditional workplace bullying has been controlled for.

By this time, it is well-known that organizational support compensates the negative effects of workplace bullying (e.g. Djurkovic, McCormack & Casimir, 2008; Vukelić, Čizmić & Petrovic, 2013). By supporting employees and protecting them against the bullying, the organizations directly save their potential financial expenses and their reputation. The organizational concerns and following actions to reduce cyberbullying and cyber incivility may be primarily motivated with the fact that some negative comments about their employees on different websites could damage the reputation of the organization.

The aim of this study was to examine the relationship between workplace cyberbullying with emotional well-being and perceived organizational support, as well as to inspect the moderating role of perceived organizational support in the relationship of workplace cyberbullying and emotional well-being. Therefore, we examined the following hypotheses:

Hypothesis 1. Exposure to workplace cyberbullying acts will have a negative relationship with employee emotional well-being.

Hypothesis 2. Exposure to workplace cyberbullying acts will have a negative relationship with perceived organizational support.

Hypothesis 3. Employee emotional well-being will have a positive relationship with perceived organizational support.

Hypothesis 4. Perceived organizational support will have a moderating role in the relationship between workplace cyberbullying acts and employee emotional well-being.

Method

Procedure and participants

The sample consisted of 183 respondents (54% females), aged 18-65, employed in various industries in Serbia. Most of the respondents (95%) filled out an online version of the test. All participants were informed that research participation was voluntary and anonymous.

Instruments

The instruments used in this study were following: *The Workplace Cyberbullying Measure* (WCM; Farley et al., 2016) comprised of 17 behavioural items that assess exposure to negative work-related acts experienced *through technology*, each item followed by 5 point frequency scale; *The Survey of Perceived Organizational Support* (SPOS, Eisenberger,

Huntington, Hutchison & Sowa, 1986), shortened 8-item version, each item followed by 7 point Likert scale, and *The Job-related Affective Well-Being Scale* (JAWS, Van Katwyk and colleagues), short 20 items version (each item followed by 5-point Likert scale).

Results

The results revealed that 20% of the respondents could be classified as workplace cyberbullying victims by applying criteria of at least one negative act weekly, over the least six months (Leyman, 1996). The most frequent negative acts were found to be the following: *receiving unclear and inconsistent information* (14.2%), *getting unreasonable workload* (8.2%), *being bypassed in work-relevant group communication* (7.1%), and *being a target of gossip and rumours* (6%).

As it was presumed in the first three hypotheses, it was shown that there were negative correlations between workplace cyberbullying and emotional well-being, workplace cyberbullying and perceived organizational support, and, finally, positive correlation between perceived organizational support and emotional well-being (Table 1).

Table 1
Mean, standard deviation, Pearson's product-moment correlations and Cronbach's alpha (in bold) for all the variables included in the study

	M	SD	<i>Workplace cyberbullying</i>	<i>Emotional well-being</i>	<i>Organizational support</i>
<i>Workplace cyberbullying</i>	25.46	7.64	(0.91)		
<i>Emotional well-being</i>	68.56	12.84	-.546**	(0.93)	
<i>Organizational support</i>	30.60	11.11	-.496**	.620**	(0.96)

**p<.01 (two-tailed)

In support of Hypotheses 4, it was demonstrated that perceived organizational support moderates the effect of workplace cyberbullying on employee emotional well-being by diminishing its negative effect on employees and acting as a buffer, $\Delta R^2 = .014$, $F(1,179) = 3.62$, $p = .05$, $b = 0.11$, $t = 2.14$, $p = .05$, BCa CI [0.042, 0.233] (Figure 1).

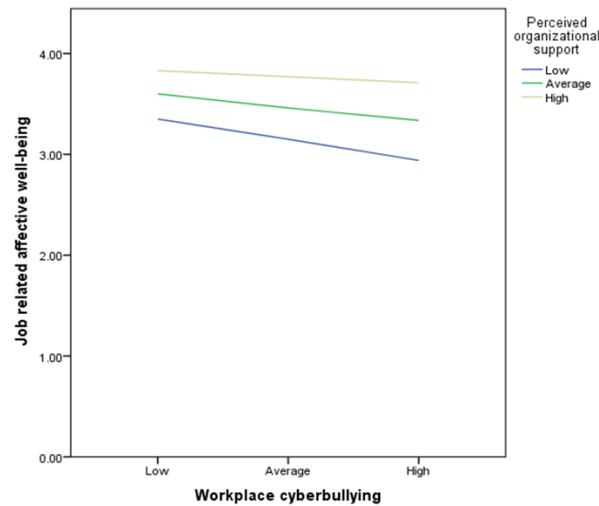


Figure 1. Interaction between perceived organizational support and workplace cyberbullying with regard to job related emotional well-being

There were no significant statistical differences with regards to demographic variables and time spent using digital technologies at the workplace.

Discussion and Conclusions

This study is a valuable contribution to understanding of workplace cyberbullying in our national context. The results in our study are consistent with the results found in the previous studies abroad, in which the frequency of workplace cyberbullying falls into the range between 3% and 28% (Gardner et al., 2016; Keappock, 2013) depending on the applied criteria, and it provides further validation concerning the most frequently encountered negative cyberbullying behaviours (Coyne et al., 2016).

Workplace cyberbullying was found to be related with negative effects on employee well-being, while perceived organisational support was shown to moderate this relationship. These results indicate a small but significant role an organization has in regulating cyberbullying effects. The findings suggest that organizations should focus on developing measures for preventing and neutralizing the effects of workplace cyberbullying. The organization can develop interventions based on creating a work atmosphere of respect, support and care for employee well-being. Presenting the cyber communication rules and ethics during on-boarding activities could save organizational reputation and sustain employees' well-being. On the other hand, by punishing the perpetrators properly, the organization can help the cyberbullying cycle to stop, and support the victim in the process of psychological detachment from the negative event. By supporting employees, an organization could encourage their perception of being backed up and protected.

In future research, some other variables could be taken into account, such as electronic literacy of employees, specific media of abuse, and other organizationally relevant variables, such as organisational climate and culture.

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PSYCHOLOGY OF EDUCATION

ASSESSMENT OF SOCIAL BEHAVIOUR USING THE SSBS-2: RELIABILITY AND VALIDITY EVIDENCE GATHERED IN SERBIAN STUDENT SAMPLES¹

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Negative effects of social competence deficits and pronounced antisocial behavior in children and youth are well documented. Interventions promoting positive social development rely on adequate tools for assessment and screening of social behavior. The School Social Behavior Scale-2 (SSBS-2; Merrell, 2003) has been among the best validated instruments of the kind. This study sought to investigate psychometric properties of its Serbian version. Teacher ratings ($N = 22$) on the SSBS-2 were available for 516 elementary and high school students. The 64-item SSBS-2 comprises Social Competence and Antisocial Behavior scales, with Peer Relations, Self-management, and Academic behavior as subscales of the former, and Hostile/Irritable, Antisocial/Aggressive, and Defiant/Disruptive as subscales of the latter. The peer status score, available for $N = 222$, was equal to the mean rating of social attractiveness judged by classmates on a 5-point scale. Study results confirm the Serbian SSBS-2 to be a psychometrically sound measure with high internal consistency, stable structural properties, predictive validity against relevant criteria, and sensitivity to theoretically-based gender differences. While additional SSBS-2 validation studies are required, the current findings undoubtedly spur its use in practical and research settings.

Keywords: social behavior, school, SSBS-2 (Serbian version), psychometric properties, peer status

Introduction

Social competence is a multidimensional construct (Merrell, 2002) that includes cognitive, emotional-motivational, and behavioral aspects. It is assumed that socially competent individuals possess social skills, know when/how to use these skills, and rely on them to attain socially desirable goals. A lack or a failure to demonstrate these skills is often linked to antisocial behavior that impedes socialization, is destructive or harmful to others, and produces unfavorable social outcomes (Merrell, 2002). Empirical data confirm that social

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competence deficits and pronounced antisocial behavior in children result in negative outcomes such as peer rejection and school failure/dropout, and various maladaptive behaviors, including juvenile delinquency, substance abuse, and mental health problems (Cummings, Kaminski, & Merrell, 2008; Merrell, 2003; Patterson, DeBaryshe, & Ramsey, 1989). Early recognition of social behavior problems, as the key to prevention of their detrimental effects (Cummings et al. 2008), typically relies on a combined use of direct observations and behavior rating scales completed by parents and/or teachers (Merrell, 1996). Thus, it is essential that screening and evaluation of social behavior is performed using appropriate and effective measures (Crowley & Merrell, 2003).

Merrell (2000) suggests that ecologically valid and clinically useful social behavior assessment methods include direct observation, interviewing, sociometric techniques, and rating scales. Among these, behavior rating scales have proven as the most time- and cost-efficient: in a single session, they provide estimates of behavior based on daily observations in natural environment over a period of time by well informed raters. During the years, a number of measures of the kind have been proposed (see Demaray et al., 1995 for a review). The School Social Behavior Scale-2 (SSBS-2; Merrell, 2002) is one of the best validated among them.

The SSBS-2 is a rating scale used by teachers and school personnel in evaluation of social behavior of students ages 6 to 18. It comprises two scales: the Social Competence scale assessing positive social skills and traits typical for well-adjusted and socially skilled students, and the Antisocial Behavior scale tapping diverse problems in social behavior that are either other-directed or likely to provoke negative social consequences (Crowley & Merrell, 2003; Merrell, 2002). Findings on the SSBS-2's psychometric features are quite affirmative: both scales display satisfactory internal consistency, score stability over time, and interrater reliability, adequate structural properties, convergent and discriminant validity with other behavior rating scales, predictive potential (e.g., peer status), and sensitivity to theoretically-based group differences (e.g., gender, at-risk students) (Merrell, 2002).

Thus far, the SSBS-2 has been adapted for use in several countries (Raimundo et al., 2012). Data for versions in Turkish (Yukai-Yüksel, 2009) and Portuguese (only for the Social Competence Scale; Raimundo et al., 2012) confirm that psychometric properties of the original measure are quite robust and replicable in different countries. However, in both cases, some difficulties were encountered in the verification of the SSBS-2's factor structure.

Starting from these promising findings on the SSBS-2's features in different countries, the present study sought to provide information on descriptive properties, internal consistency, as well as structural and predictive validity, of its Serbian version.

Method

Sample

Teacher ratings of social behavior were available for 516 elementary and grammar school students from Belgrade. Gender distribution was fairly even, with 295 (57.17%) teacher assessments for girls and 221 (42.83%) for boys. The SSBS-2 forms were completed by 22 teachers.

Measures

The SSBS-2 was used to rate students' social behavior. It is a 64-item measure comprised of two scales assessing positive and negative social behavior that regularly occurs in school. Items are rated on a 5-point scale with anchors ranging from 1–*never* to 5–*frequently*. Each scale has three subscales: Peer Relations (14 items, e.g., “*Offers help to other students when needed*”), Self-Management (10 items, e.g., “*Shows self-restraint*”), and Academic Behavior (8 items, e.g., “*Completes assigned activities on time*”) for social competence, and Hostile/Irritable (14 items, e.g., “*Will not share with other students*”), Antisocial/Aggressive (10 items, e.g., “*Gets into fights*”), and Defiant/Disruptive (8 items, e.g., “*Is difficult to control*”) for antisocial behavior. As said, both scales have good psychometric properties.

The peer status score was available for N=222. It was equal to the mean rating of social attractiveness received by classmates on a 5-point scale with anchors ranging from 1 (“*I would not at all like to be friends with him/her*”) to 5 (“*I would very much like to be friends with him/her*”).

Results

Serbian teachers generally perceived their students as high on social competence and low on antisocial behavior (Table 1). To add, mean ratings of social competence for this sample were higher ($d = .65$), while average scores of antisocial behavior were lower ($d = -.48$) from those established in the American sample.

Table 1
Descriptives with ANOVA results for gender differences

Scales	<i>M (SD), N=504</i>	Descriptives by gender		ANOVA and effect sizes	
		<i>M (SD), N=221</i>	<i>M (SD), N=283</i>	<i>F</i> (1, 502)	<i>d</i>
Peer Relations	54.70 (11.29)	51.23 (12.01)	57.40 (9.90)	39.84**	-.56
Self-Management	41.70 (7.38)	38.78 (8.10)	43.98 (5.83)	70.32**	-.74
Academic Behavior	32.79 (6.25)	30.48 (6.78)	34.59 (5.14)	59.95**	-.68
Social Competence	129.19 (23.04)	120.50 (24.90)	135.98 (18.92)	62.89**	-.70
Hostile/Irritable	21.35 (8.78)	23.83 (10.06)	19.40 (7.07)	33.54**	.51
Antisocial/Agressive	11.62 (4.26)	12.90 (5.46)	10.61 (2.61)	38.59**	.53
Defiant/Disruptive	11.83 (4.80)	13.23 (5.63)	10.74 (3.70)	35.75**	.52
Antisocial Behavior	44.80 (16.78)	49.97 (19.86)	40.76 (12.54)	40.32**	.55

** $p \leq .01$

Significant gender differences were revealed on all subscales: boys were rated as lower on social competence and higher on antisocial behavior than girls (Table 1).

Table 2
Correlations between SSBS-2 scores, with Cronbach α 's on the diagonal

	1	2	3	4	5	6	7	8
Peer Relations (1)	.95	.78**	.74**	.94**	-.51**	-.36**	-.46**	-.49**
Self-Management (2)		.93	.83**	.93**	-.73**	-.60**	-.70**	-.73**
Academic Behavior (3)			.92	.90**	-.51**	-.48**	-.57**	-.55**
Social Competence (4)				.97	-.62**	-.49**	-.60**	-.62**
Hostile/Irritable (5)					.94	.79**	.86**	.97**
Antisocial/Agressive (6)						.89	.76**	.89**
Defiant/Disruptive (7)							.89	.93**
Antisocial Behavior (8)								.96

** $p \leq .01$

Cronbach α 's were very high at all scale levels (Table 2). Intercorrelations among subscores of Social Competence were positive and as high as expected; the same holds for intercorrelations among subscores of Antisocial Behavior. Structural stability of two major scales was tested via the CFA, using the *Amos for the SPSS* software. Analyses were conducted following the procedure suggested by Crowley and Merrell (2003): we tested final models proposed for each scale with item packs as observed variables. Results show that final models (Figure 1 and Figure 2) had good-to-excellent fit to current data, with $\chi^2(29, N = 516) = 220.57$, $TLI = .94$, $CFI = .96$, $RMSEA = .11$, and $SRMR = .04$ for the Social Competence,

and $\chi^2(28, N = 516) = 272.25$, $TLI = .92$, $CFI = .95$, $RMSEA = .13$, and $SRMR = .03$ for the Antisocial Behavior.

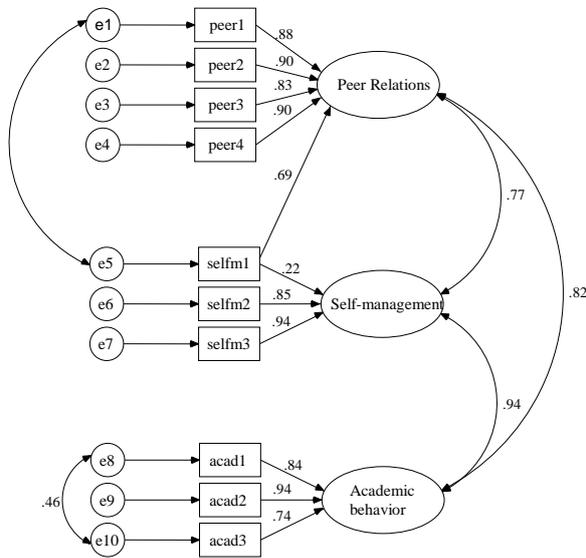


Figure 1. The final model tested for Social Competence

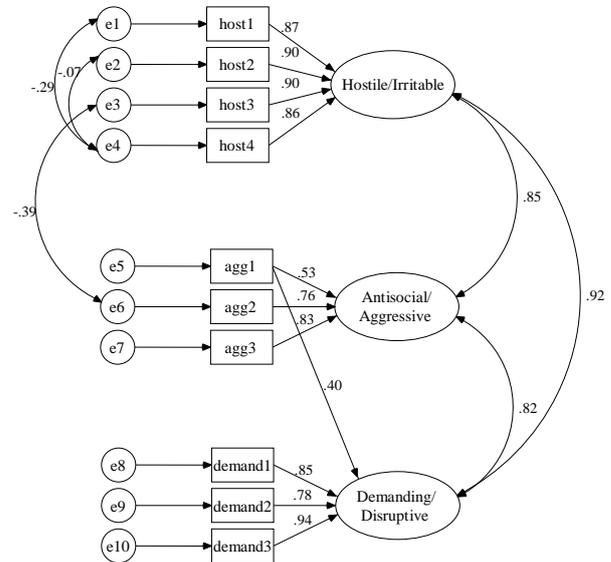


Figure 2. The final model tested for Antisocial Behaviour

Finally, the regression model with SSBS-2 subscale scores (Table 3) as independents turned statistically significant ($F(1,215) = 11.10$, $p < .001$), explaining 21% of the peer status variance. Peer relations was the most significant predictor of criterion; independent contribution was also attributed to Self-Management, Academic Behaviour, and Antisocial/Aggressive.

Table 3
Regression coefficients for SBSS-2 subscales predicting the peer status

Scales	Beta	t
Peer Relations	.68	6.16**
Self-Management	-.36	-2.32*
Academic Behaviour	-.26	-2.02*
Hostile/Irritable	-.26	-1.67
Antisocial/Aggressive	-.25	-2.66**
Defiant/Disruptive	.15	1.06

** $p \leq .01$; * $p \leq .05$

Discussion and conclusions

The current study sought to inform on the psychometric properties of the Serbian SSBS-2. Study results are in line with previous findings and confirm that this version of the instrument shows adequate psychometric properties. To start with, high internal consistencies were revealed at all scale levels. Secondly, the current findings suggest that the SSBS-2 structural properties are robust and remain stable across samples and countries, thus vouching its measurement invariance. Further, the SSBS-2 subscales showed substantial predictive capacity by explaining more than 20% of variance in peer ratings of popularity. Finally, ANOVAs revealed significant theoretically-based gender differences in teacher ratings, with girls being higher on Social Competence and boys on Antisocial Behaviour. It should be noted that Serbian teachers tended to rate their students higher on Social Competence and lower on Antisocial Behavior than their American colleagues, which is an issue that needs further attention. Finally, certain constraints to the current findings are bound to sample size and structure, which both in part digress from instrument standardization standards.

To sum, while additional studies with the Serbian SSBS-2 are surely required, especially those inspecting its diagnostic value, the current findings bluntly speak in favour of the instrument's validity and spur its use for both research and practical purposes.

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DO EDUCATED PEOPLE TEND TO HAVE LESS CHILDREN? FERTILITY AND FERTILITY INTENTIONS ACROSS AGE AND GENDER IN SERBIA¹

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The goal of the current study was to examine the relationship between fertility, fertility intentions and education in Serbia. These relationships were explored on a geographical cluster sample of 2023 residents of Serbia participating in the Study of diversity of family and job relations in Serbia. The participants were asked to complete the PORPOS battery, a compilation of short scales and marker questions created for this study. Data used in the current study included the number of children a person has (fertility), the number of children a person plans to have (fertility intentions), education level, gender and age. The results showed that in the female subsample education was negatively correlated with the number of children a person has, and positively with the number of children a person plans to have, and that correlation between fertility intentions and education gradually rises with age. Correlations between these variables on the male subsamples were practically zero and statistically insignificant in spite of the sample size. The results obtained on the examined Serbian sample mirror the trend obtained in previous studies abroad with more educated women having less children but planning a larger family.

Keywords: fertility, fertility intentions, education

Introduction

While in the past several centuries global human population saw a rapid increase, the past several decades in Europe have been marked by fertility levels reaching a historical low and even being negative in a number of countries. The phenomenon is now referred to by researchers as the Second demographic transition (Lesthaeghe, 2010). As this trend creates and is expected to create significant societal changes, study of fertility and fertility related factors became a topic of prominent scientific importance. One of the factors most related to achieved fertility, according to the Theory of planned behavior (Dommermuth, Klobas, & Lappegård, 2011; Mencarini, Vignoli, & Gottard, 2015), is planned fertility and for this reason these two factors are typically studied together. In other words, the number of children

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a person has is largely influenced by the number of children he/she plans to have. Previous studies coming from various scientific areas have shown that both fertility and fertility intentions are influenced by a wide array of factors, both dispositional and situational (Berrington & Pattaro, 2014; Kreyenfeld & Andersson, 2014; Kuhnt & Trappe, 2016; Miller, 2004; Ter Keurst, Boivin, & Gameiro, 2015; Testa, 2014; Tienda, 1984). Of these factors, one shown to be very consistently linked with both fertility and fertility intentions, and also of great social importance, turned to be education. A number of studies conducted across the globe explored the relationship between fertility and fertility intentions on one side and level of education on the other (Berrington & Pattaro, 2014; Castro Martin, 1976; Elisha & Renne, 2004; Testa, 2014; Tienda, 1984) Results of previous studies in the western countries indicate that people with higher education tend to plan to have more children than people with less education, but they ultimately end up having fewer children (Berrington & Pattaro, 2014; Castro Martin, 1976; Testa, 2014). Highly educated women demonstrate a tendency to revise their birth intentions downwards more frequently than less educated women especially when they are near the end of their fertile years (Liefbroer, 2009).

The goal of the current study was to examine the relationship between fertility, fertility intentions and education in Serbia.

Method

Sample

This study was conducted on a geographical cluster sample of 2023 residents of Serbia of working age, participating in the Study of diversity of family and job relations in Serbia. Of the total sample, 42,8% were male and 57,2% were female. 71,4% declared themselves as being employed either officially or unofficially, and 28,6% declared themselves as being unemployed and/or earning their sustenance through means other than employment. The sample was divided into four age cohorts: up to 25 years of age (19.1%), 26-35 (25.7%), 36-45 (21.5%) and over 45 (33.7%) .

Variables and instruments

The participants were asked to complete the PORPOS battery (Hedrih, Todorović, & Ristić, 2013), a compilation of short scales and marker questions created for the purposes of the Study of diversity of family and job relations in Serbia. assessing a number of different psychological constructs, environmental factors and sociodemographic properties of

participants. Data used in the current study included the number of children a person has (fertility), the number of children a person plans to have (fertility intentions), education level, gender and age.

Results

Average number of children (fertility) and planned number of children across age groups are presented in table 1.

Table 1
Fertility and planned fertility across age groups on subsamples by gender

Age group	Males		Females	
	N of children	Planned N of children	N of children	Planned N of children
Up to 25 y.	.18	2.73	.22	2.39
26-35 y. of age	.61	2.74	.86	2.16
36-45 y. of age	1.39	1.98	1.69	1.51
Over 45	1.79	1.12	1.78	.99
Total	1.17	2.17	1.35	1.78

Correlations between fertility, fertility intentions and education are presented in table 2 for the female subsample of participants and in table 3 for the male subsample. Results are presented for the total subsamples and by studied age cohorts.

Table 2
Correlation between education and fertility and fertility intentions on the female subsample, total and across age groups

Education/	Fertility	Fertility intentions
-25 yrs.	-.243**	-.054
26-35 yrs.	-.272**	.119
36-45 yrs.	-.231**	.144
45+ yrs.	-.044	-.031
Total	-.172**	.085**

** p < 0.01

Table 3
Correlation between education and fertility and fertility intentions on the male subsample, total and across age groups

Education/	Fertility	Fertility intentions
-25 yrs.	-.019	-.074
26-35 yrs.	-.117	.018
36-45 yrs.	-.086	.079
45+ yrs.	-.012	-.044
Total	-.038	.002

Discussion and conclusion

The results show that fertility increases across age groups, which is expected, as older participants have had longer time to achieve desired fertility. On the other hand, planned fertility decreases across age groups. This means either that older people decrease their fertility plans or that, given that this is a cross-sectional study, there exists a substantial difference between the studied generations relative to the planned number of children in both males and females. Of these two possibilities, previous studies tend to support the first explanation i.e. that people tend to adjust their fertility intentions downward as they age (Liefbroer, 2009)

Relative to the relations between fertility, fertility intentions and education, two important groups of results were obtained. The results show that relation of fertility and fertility intentions with education is profoundly different for males and females. While, in females, education level is a significant factor of both planned and achieved fertility, no such relationship exists for males. This might be the result of different gender roles males and females play in our society. Given that previous studies have already shown that differences in gender roles are related to family planning variables (Mills, Mencarini, Tanturri, & Begall, 2008; Scanzoni, 1976), this may be one more example of their effect of family planning behavior.

Results obtained on the current female subsample mirror the trend of previous studies abroad with women of higher education planning a larger family but ultimately having less children (Berrington & Pattaro, 2014; Testa, 2014). One possible explanation of these results, lies in the characteristics of the education process in our society. In order to obtain a higher education level, a person needs to spend longer years in the education system (school, university), with the highest education levels typically being reached when a person is well

into his/her reproductive years. On the other hand, the nature of the current education system is such that active participation in it is largely incongruent with childbirth and childcare. For this reason, people tend to postpone childbirth until the finish of their planned education. This results in people aiming at higher education levels postponing childbirth for longer, as achieving higher education levels takes longer (Schytt, Nilsen, & Bernhardt, 2014). Given that the reproductive years of females are limited and that having children is in itself dependent on a number of other factors, for many females, catch-up with family forming plans after years of postponement turns out to be impossible, thus lower fertility levels. On the other hand, gaining higher educational levels generally leads to higher income expectations and with it the expectation of a better ability to provide for the family meaning also the ability to provide for more children, and this might explain the positive correlation between fertility intentions and education.

It can be concluded that the results obtained on the studied Serbian sample mirror the results of previous studies abroad with negative correlation between fertility and education, but a positive one with fertility intentions and education in females. No correlations were obtained on the male sample.

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A PRELIMINARY EXAMINATION OF THE ICAR PROGRESSIVE MATRICES TEST OF INTELLIGENCE

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The goal of this research was to conduct a preliminary psychometric validation of a non-commercial ICAR progressive matrices (PM) intelligence test in a high school setting of the Republic of Srpska. The sample comprised 762 high school students. Using a confirmatory factor analysis (CFA) it was determined that a single-factor model had good fit and internal consistency. However, some items had low factor loadings and were locally dependent, thus they were omitted. This led to a further fit and internal consistency increase. Following this, item response theory (IRT) analysis was conducted. 2PL had better fit than 1PL, but in both cases over half of the items showed indications of misfit with the IRT models. Item discriminations were mostly moderate or high. Most of the test information was evenly distributed in the -3 to 3 logit range, with slightly higher concentrations just below the mean. Correlation of the ICAR PM score with the general school achievement was in line with typical values reported in the literature, albeit slightly lower. In conclusion, the ICAR PM test appears to be a promising intelligence test, even though a pronounced non-conformity to IRT models can be viewed as a potential shortcoming and its utility should be examined in other school settings besides the high school.

Keywords: International Cognitive Ability Resource ("ICAR"), progressive matrices, general school achievement, confirmatory factor analysis (CFA), item response theory (IRT)

Introduction

Intelligence is a good predictor of a wide spectrum of life outcomes, including academic and professional achievement and efficacy (Kuncel, Hezlett, & Ones, 2004; Roth et al., 2015; Salgado et al., 2003). Meta-analytic findings (Roth et al., 2015) suggest that a correlation between general intelligence (g) and school grades is moderate to high (i.e., $\rho = .45$ in elementary school, $\rho = .54$ in middle school, and $\rho = .58$ in high school).

Intelligence tests are typically under a copyright, often with considerable royalty fees (Condon & Revelle, 2014). This inspired several authors to make a case for a development of public domain cognitive ability measures, which would provide researchers with cheaper, more varied, and flexible options for cognitive abilities assessment (i.e., greater control over

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test content, a potential for more nuanced understanding of the correlations between constructs, etc.; Condon & Revelle, 2014). One such initiative gave birth to the International Cognitive Ability Resource (“ICAR”; <https://icar-project.com/>), which is a collaborative effort of several psychometricians from reputable universities. ICAR’s main goal is to encourage an assessment of cognitive abilities (mainly intelligence) in research and practice, by providing “free of charge” tests and items to researchers (only an approval by the project team is required).

Many of ICAR measures have already been demonstrated as viable, non-commercial cognitive assessment alternatives and the public-domain status does not seem to compromise their validity (Condon & Revelle, 2014). ICAR project currently contains many measures, including the progressive matrices intelligence test (PM) “clone” (i.e., ICAR PM), which is directly inspired by the famous Raven’s Progressive Matrices Test. The goal of this research was to conduct a preliminary psychometric validation of the ICAR PM test in a high school setting of the Republic of Srpska. This specific ICAR test has not yet been subjected to comprehensive external validations. The justification for our research goal is twofold. First, it contributes to the ongoing ICAR measures validation effort. Second, despite intelligence being a strong correlate of school achievement (Roth et al., 2015), it is currently a completely neglected variable in educational psychology and pedagogical research in the Republic of Srpska and Bosnia and Herzegovina, mainly due to the lack of affordable intelligence tests. The availability of valid and cheap alternatives to popular commercial intelligence tests would provide researchers with adequate tools, which could hopefully facilitate better and more comprehensive educational research.

Method

Sample and procedure

The sample comprised 762 students (65.1% females, 2.9% non-disclosed) from three large high schools (grades II and III): gymnasium, economy school, and civil engineering school. ICAR PM was administered during regular school classes, using pen & paper procedure.

Instruments and variables

ICAR PM. It is a test inspired by the original Raven’s Progressive Matrices Test and it currently consists of 30 “select the missing piece” items with 8 answer choices each.

According to the ICAR resource file's data, item difficulties range from -2.54 to 1.81, with 10 items having difficulties in a range of -1 to 1 logits (with no info for the last four items).

General school achievement (GSA). Students self-reported their average grade from a previous school year (with a two-decimal point precision). On a whole sample level, the average GSA was 3.96 out of 5 ($SD = 0.66$).

Results

Using a confirmatory factor analysis (CFA), conducted in “lavaan” program (Rosseel, 2012) it was determined that a single-factor model had good fit (Hooper, Coughlan, & Mullen, 2008): $\chi^2_{(405)} = 688.40$, $p < .001$; CFI = .951; TLI = .947; RMSEA = .030, 90% CI [.026, .034]. Internal consistency was also good: $\alpha = .89$, $\omega = .84$ (McDonald, 1999; Zinbarg, Revelle, Yovel, & Li, 2005). However, 7 items (no. 4, 9, 23, 24, 26, 27, and 30) had low factor loadings (i.e., $\Lambda < .32$; Tabachnick & Fidell, 2013), thus we omitted them from the model. One item (no. 1) was also removed due to local dependency (LD) violations with two other items (no. 2 and 17). LD means that standardized residual correlations between items are $\geq |0.2|$ (Reise & Revicki, 2014). Note that we deleted item 1, rather than correlated its residuals, since the lack of LD is a requirement of the IRT analysis (Reise & Revicki, 2014). After the deletion of these low-loading and LD items, item loadings of the retained 22 items were in .34 to .77 range (individual Λ s are not reported due to space constraints). Internal consistency slightly improved: $\alpha = .92$, $\omega = .86$ (McDonald, 1999; Zinbarg et al., 2005). The fit also improved to overall excellent values (Hooper et al., 2008): $\chi^2_{(209)} = 403.97$, $p < .001$; CFI = .965; TLI = .962; RMSEA = .035, 90% CI [.030, .040]).

Following this, item response theory (IRT) analysis was conducted in “ltm” program (Rizopoulos, 2006). 2PL model had better fit than 1PL ($LRT(20) = 254.72$, $p < .001$), but in both cases over half of the items (i.e., 15 for 1PL and 13 for 2PL) showed indications of misfit with the IRT models. Item difficulties were in -2.75 to 2.02 range (with 11 items having difficulties in -1 to 1 logit range) and most items had moderate or high discrimination values, as per typical conventions (Baker, 2001). The highest discrimination was observed for item 3 ($a = 5.59$) and the lowest for item 22 ($a = 0.63$). Most of the ICAR PM test information (i.e., 91.75%) was evenly distributed in the -3 to 3 logit range, with slightly higher concentrations just below the mean (see Figure 1).

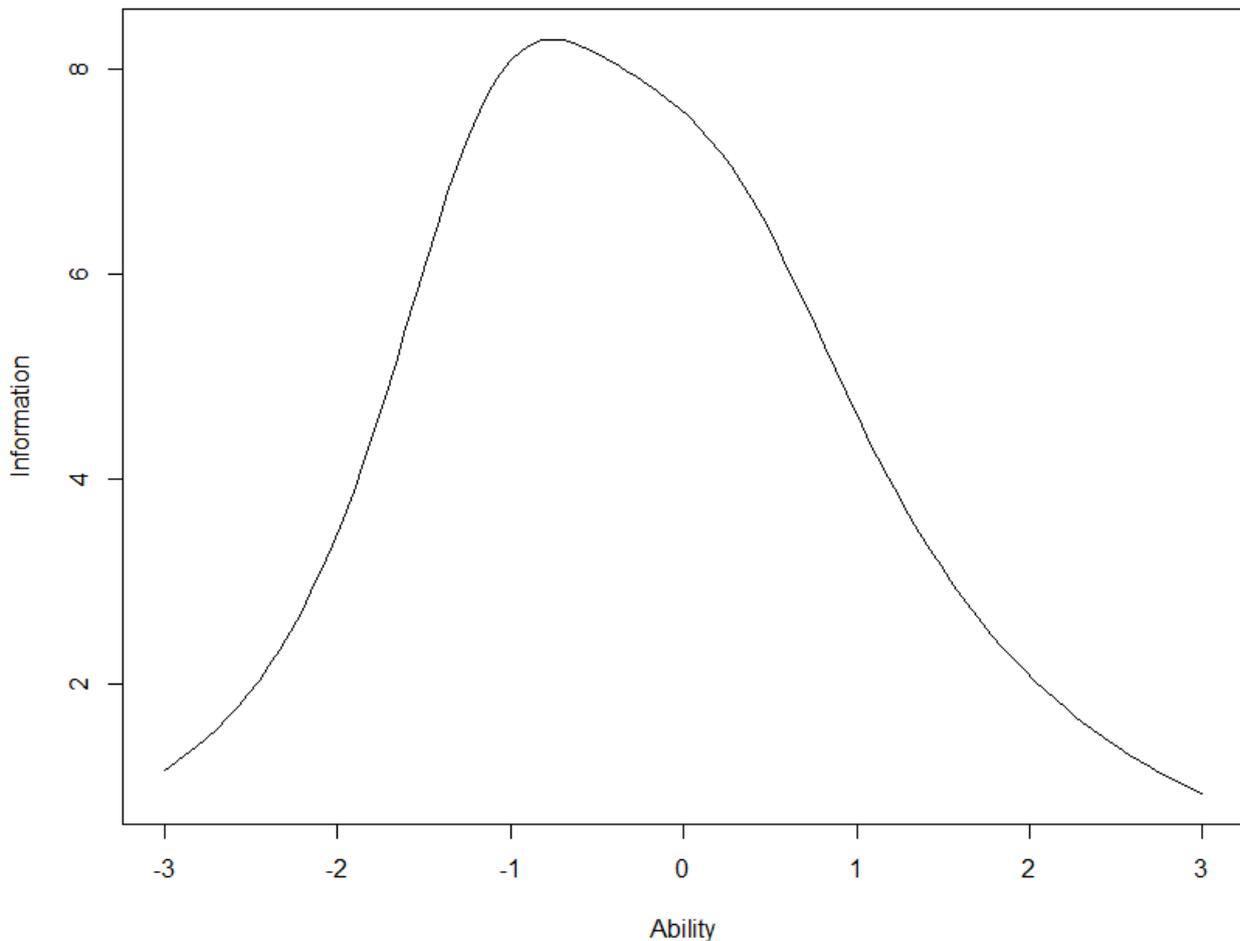


Figure 1. ICAR PM Test information function

Reduced 22-item ICAR PM score had a mean value of 11.67 ($SD = 4.76$), while a non-reduced 30-item mean score was 14.61 ($SD = 5.22$), with no gender differences ($d_{22} = 0.05$, $d_{30} = 0.08$; Cohen, 1992). A 22-item score correlated only slightly higher with the GSA ($r = .396$, 95% CI [.334, .455], $p < .001$) in comparison to a 30-item score ($r = .372$, 95% CI [.307, .433], $p < .001$).

Discussion and conclusion

This preliminary examination of the non-commercial ICAR PM intelligence test (Condon & Revelle, 2014) was inspired by the lack of cheap, readily available intelligence tests to be used for research purposes in educational settings of Republic of Srpska and Bosnia and Herzegovina (with the same arguably being true for other neighboring countries).

Our preliminary examination was conducted on a high school sample in which the test exhibits good psychometric properties, with a single factor having good fit and internal consistency. We established that the test can be shortened from a 30- to a 22-item version, by

omitting several problematic items, which further boosts its fit and internal consistency. Both the original and a reduced test score moderately correlated (Cohen, 1992) with the high school grades. This is in line with the values typically reported in the literature (Roth et al., 2015), albeit, the correlation obtained on our sample is slightly lower, but note that we were not able to control for a potential variable range restriction (Wiberg & Sundström, 2009), which is accounted for in slightly larger meta-analytic correlations (Roth et al., 2015). The test has even information spread across the ability range, with mostly moderate or highly discriminative items, even though they do not conform well with the IRT model expectations, suggesting that some further reconsideration or “tweaking” of the retained items is desirable. The ICAR PM should also be examined in elementary school and college settings, and its predictivity in regards to a wider range of outcomes should also be explored before a vocal recommendation could be given. For now, however, the results are promising.

The ICAR PM test appears to be a promising intelligence test, but several items are problematic in a high school student sample and a pronounced non-conformity to IRT models can be viewed as a potential shortcoming.

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THE USE OF THE SELECTION TASK AS AN INSTRUMENT FOR TEACHER EDUCATION: A PRELIMINARY EXPERIMENTAL RESEARCH

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This paper presents a pilot experiment using the selection task in order to explore its potential to favour deductive reasoning learning. For this purpose, a teaching sequence has been designed as follows: in pre- and post-tests, pre-service teachers (students in education) were asked to solve both abstract and thematic versions of the selection task. In the control training, a video has been used to explain the expected solutions according to classical logics, while in the experimental training the video also illustrates the potential consequences in the school context. Furthermore, a questionnaire has been addressed to participants in order to detect their expectations about the sequence and their perception of the methodology courses offered at university. Results indicate that most participants of both conditions have developed correct solutions in the post-test. Students of the experimental condition have judged more positively the teaching sequence and have expressed a stronger interest for methodology courses. An additional semi-structured interview has been conducted in order to collect further suggestions about the implemented teaching activity. The study indicates different epistemological perspectives in using the selection task as a useful tool for teaching and reasoning, as well as implications for the university methodology courses.

Keywords: learning contexts, meanings, teacher education, selection task, logical reasoning

Introduction

The selection task (Wason, 1966) can be used to study psychological processes with diverse epistemological perspectives (Boissonnade, Tartas & Guidetti, 2014), such as: (a) defining general patterns of reasoning performances (e.g., dual process theory); (b) identifying social and material conditions of reasoning performances; and (c) recognizing the participants' pragmatic strategies to regulate reasoning processes meaningfully (e.g., using analogies).

The task invites to reason about cards knowing that all the cards have one letter on one side, and a number on the other side. The participants have to identify which cards they need to turn over in order to determine whether a conditional rule ("If one card has a vowel,

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then it has an even number on the other side”) is true or false. Although the task aims at informing about deductive reasoning, very few research has been undertaken about its possibilities as a teaching tool (e.g. Leighton, 2006; Nickerson, 2003).

In the present paper, we intend to use this task within the teacher education field, in order to introduce it in methodology courses offered to pre-service teachers. Our hypothesis is that the use of the task, by giving some quick analogical examples about teachers’ reasoning, could foster the students to adopt a positive attitude toward research in education and to develop a meaningful view of this task: could the selection task be considered as a tool for thinking about teaching practice?

Method

A pilot experiment has been designed through the construction of an online teaching sequence addressed to pre-service secondary teachers (MA students in education) during the academic year 2014-2015 and 2015-2016. Within a group of thirty-five students, twenty-six have been involved in the present study. The other students have not been included in the experiment either because they: (a) ever knew the selection task, (b) gave a correct answer to the first abstract task, (c) did not watch the video. Two comparable conditions have been composed depending on the video randomly chosen by the student’s web browser: a control condition ($N = 13$; $M_{\text{age}} = 26.2$) and an experimental one ($N = 13$; $M_{\text{age}} = 29.6$). In pre- and post-test phases, participants have been asked to solve both abstract (“If a card has a vowel on his face then it has an odd number on the other side”) and thematic versions of the task inspired by other elements related to the educational context (e.g., “If a pupil is good in math, then s/he has good marks in general”). All the cards were randomly displayed. A final thematic version has been added in the post-test, complicated by the presence of two negations in the stated rule (“If pedagogy is not un-individualized, then the class is not heterogeneous”). As a training phase, students have been exposed to a short video explaining the expected solutions following classical logic. Brief illustrations of the potential consequences in the school context (e.g., the Pygmalion effect) have been provided in the experimental condition. A final questionnaire based on a Likert-scale has been addressed to participants in order to detect their evaluation about the training (quality of the video, comprehensibility, instructiveness), its utility (identifying reasoning bias, justifying research courses in education, understanding teachers’ thoughts). The final evaluation also enabled to collect free comments and suggestions about the participants’ learning experience.

The following exploratory hypotheses were developed: (H1) the teaching sequence implies a general progression in the acceptance of p –q responses; (H2) the use of illustrative analogies with the participants' professional experience will support more p –q responses in the experimental group; (H3) the teaching sequence will favour the appropriation of the selection task as a useful tool for professional thinking.

Results

A general progression of the p not-q correct response has been observed for the abstract version of the task ($N_{pre-test} = 3$; $N_{post-test} = 15$) and for the thematic versions ($N_{pre-test} = 6$; $N_{post-test} = 17$). This finding suggests that most participants in both conditions have learned how to reason about the proposed task. The result is confirmed by the high proportion of participants who succeeded to solve the final complicated selection task ($N_{post-test} = 15$). The logical performances were comparable from one condition to the other. The questionnaire's responses seem to vary on the fifth question measured on a 100 points scale between the control condition ($M = 45.8$; $SD = 27.9$) and the experimental one ($M = 60.4$; $SD = 30.0$). This means that a pragmatic sense of the task has been strengthened, as it has been considered more "useful" when examples about teachers' thinking were offered.

The results of this study have relevant implications both at the level of the pre-service teachers' attitudes towards research in education and about the design's implementation of university methodology courses. In order to enrich these avenues and to complete this pilot study, we have administered the final part of the questionnaire and added a semi-structured interview to a participant. These students have confirmed possible positive learning effects: in fact, during the experiment several participants have interpreted the task as a mean to take a distance with their own reasoning intuitions.

Discussion and conclusion

This pilot study can contribute to reflect about the use of typical reasoning tasks in specific contexts and for pragmatic purposes, even though a theoretical background taking into account the ecology of mind would be necessary. Inspired by a sociocultural approach, the selection task can be considered as a tool for teaching and reasoning, rather than a purely external context where reasoning is applied (Boissonnade, Tartas & Guidetti, 2014; Vygotskij, 1978). This task can be implied as a semiotic tool in order to mediate professional knowledge and reflections about teachers' reasoning. The task can also mediate reasoning processes, because "mediational means reshape and redefine the tasks and the mental

functioning involved” (Wertsch, 1989, p. 18). This aspect highlights the fact that the selection task can be considered as a pragmatic strategy in using analogies to meaningfully regulate reasoning processes.

These elements open up the possibility to consider reasoning performances from a different perspective: rather than measuring individual and decontextualized reasoning abilities, assuming a nomothetic orientation in order to explain the roots of cognition, we can also question the educability of the logical mind: in fact, this research objective is totally compatible with other research agendas and this pragmatic orientation can enable one to imagine many methodological possibilities, notably using action research in education. For this reason, it will be useful to implement a similar study on a large scale, in order to strengthen the reflection and to identify further avenues within the actual debate related to the potential of the selection task.

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FACTOR VALIDITY OF THE MERIDEN SCHOOL CLIMATE SURVEY-STUDENT VERSION (MSCS-SV)

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The goal of this research was a factor validation of the BCS translation of the Meriden School Climate Survey–Student Version (MSCS-SV). The sample comprised 1036 students (63.1% females) from four Republic of Srpska high schools. An initial confirmatory factor analysis (CFA) revealed that a proposed correlated 7-factor model had poor fit. The main reason of bad fit was the School Safety subscale, which had generally poor psychometric properties, including very pronounced local dependency between its items. Because of this, this subscale had to be removed, which resulted in a reduced 23-item, 6-factor model, which had decent fit, but mostly poor internal consistencies. The model had the same factor structure, equivalent loadings and thresholds for boys and girls, with only slight differences in factor means on 3 factors. This means that the questionnaire is largely gender invariant and there is likely no need for the separate gender norms. The removal of the School Safety subscale is a notable limitation, given that feeling safe at school is thought of as being an important protective factor for student wellbeing. Thus, we can only give a reserved recommendation for the use of MSCS-SV in the BCS speaking area. The questionnaire should be improved, namely by expanding the existing item base with newly written items, including the whole new set of the School Safety items.

Keywords: school climate, the Meriden school climate survey–student version (MSCS-SV), questionnaire validation, factor validity, confirmatory factor analysis (CFA)

Introduction

Although there is plenty of research on the topic of school climate, there is still no consensus between the authors in regards to defining and measuring this construct (Cohen, McCabe, Michelli, & Pickeral, 2009; Gage, Larson, & Chafouleas, 2016; Kantarová, 2009; Thapa, Cohen, Guffez, & Higgins-D'Alessandro, 2013). There were several efforts to precisely explain and investigate the school climate, but it turned out to be a very complicated job (Thapa, et al., 2013; Zullig, Koopman, Patton, & Ubbes, 2010). Zullig and colleagues (2010) summarize the attempts to define the school climate, concluding that researchers usually investigated these five domains: order; safety and discipline; academic achievement; social networks and support; school environment and commitment to school. While there is

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no universally agreed upon definition of school climate, some authors (e.g., Cohen et al., 2009; Thapa et al., 2013) do provide a comprehensive attempt of defining it, such as that school climate refers to the way that students experience the quality and type of the school life, norms, values, goals that prevail in school, interpersonal relationships with peers, teachers and parents, and attitude towards learning.

Research shows the importance of warm, positive, supportive, and tolerant school climate in predicting better academic achievement (Cohen et al., 2009; Gage et al., 2016; Peterson & Skiba, 2001; Wentzel, 1991), higher student motivation (Wentzel, 1991), mental health (Adelman & Taylor, 2012; Cohen et al., 2009; Lester & Cross, 2015), self-respect (Adelman & Taylor, 2012) and so on.

In light of a potential value of a school climate as a construct, but also keeping in mind the lack of a universal theoretical model, the aim of this research was to investigate the factor validity of one of the newest additions to the school climate models/instruments – The Meriden School Climate Survey–Student Version (MSCS-SV; Gage et al., 2016) for the purpose of adapting it to Slavic (BCS) languages.

Method

Sample and procedure

The sample comprised 1036 students (63.1% females) from the 4 Republic of Srpska high schools (grades I through IV): gymnasium, economy school, civil engineering school, and a mixed/trade school. The students completed an anonymous paper-and-pen questionnaire during their regular school classes.

Instruments

MSCS-SV: The Meriden School Climate Survey-Student Version (Gage et al., 2016). It was developed as a measure of the quality and character of school life as experienced by students. It has 38 items (5-point Likert type) and 7 subscales: Adult Support at School, School Safety, Respect for Differences, Adult Support at Home, Academic Support at Home, Aggression Towards Others, and Peer Support. The referenced fit (Gage et al., 2016, p. 6) was: $\chi^2_{(585)} = 5862.4$, $p < .001$, CFI = .900, TLI = .880, RMSEA = .048, SRMR = .069. The questionnaire was translated for the purpose of this research.

Results

Factor structure and internal consistency

A 7-factor model comprising all 38 MSCS-SV (Gage et al., 2016) items² was tested using a WLSMV/DWLS based confirmatory factor analysis (CFA) in “lavaan” program for R (Rosseel, 2012). The initial MSCS-SV fit was poor (Hooper, Coughlan, & Mullen, 2008): $\chi^2_{(644)} = 3020.86$, $p < .001$; CFI = .819, TLI = .802, RMSEA = .060, 90% CI [.058, .062]. Two items were removed due to low factor loadings (Λ) on their targeted factors: $\Lambda_{22}=.01$ and $\Lambda_{12}=.26$. Amongst the rest of the items, there were 19 locally dependent (LD) item pairs. LD means that there are substantial partial correlations between items after accounting for the main latent factor (i.e., standardized residual correlations $\geq |0.2|$; Reise & Revicki, 2014). Especially worrisome was the fact that all but one (23) School Safety subscale items were involved in at least one LD pair. This subscale also had poor internal consistencies ($\alpha = .69$, $\omega_H = .64$; McDonald, 1999; Zinbarg, Revelle, Yovel, & Li, 2005) and low average variance extracted (AVE = .30), suggesting that the variance due to measurement error was much larger than the variance accounted for by the construct itself (Fornell & Larcker, 1981). Due to such poor properties and a lack of a good reason to correlate so many error terms (e.g., Brown, 2015; Hermida, 2015), the whole subscale was removed, which led to an improvement in fit: $\chi^2_{(390)} = 1574.38$, $p < .001$; CFI = .892, TLI = .880, RMSEA = .054, 90% CI [.051, .057].

After the School Safety removal, 7 LD item pairs still remained. Items with lower Λ s from each pair were removed, i.e.: 39, 3, 41, 37, 9, 42, and 21. This resulted in the final 23-item, 6-factor model, which had decent fit (Hooper et al., 2008): $\chi^2_{(215)} = 627.32$, $p < .001$; CFI = .941, TLI = .931, RMSEA = .043, 90% CI [.039, .047]. Model parameters are shown in Figure 1.

We established that this model had the same factor structure, equivalent loadings and thresholds for boys and girls, i.e., it exhibits a “strong” invariance (Chen, 2007; Hirschfeld & von Brachel, 2014; Vandenberg & Lance, 2000; Wu, Li, & Zumbo, 2007) in regards to gender. Partial non-invariance was only detected in regards to the factor means (Δ CFI was .009, i.e., a rounding error away from the .01 value, which is used as a cutoff for non-

² For easier comparisons, we kept the item numeration in accordance to the original numbering as reported by Gage and colleagues (2016), where initial 47-item scale was used (out of which 38-item version was derived).

invariance; Chen, 2007; Hirschfeld & von Brachel, 2014; Wu et al., 2007). Girls self-reported trivially higher Academic Support at Home ($t(777.79) = 2.69, p = .02, d = 0.17$), and slightly higher Peer Support ($t(770.92) = 6.19, p < .001, d = 0.40$) than boys. Boys self-reported slightly higher Aggression Toward Others ($t(713.36) = -5.58, p < .001, d = 0.37$).

Discussion and conclusion

Our results have shown that the original 38-item MSCS-SV scale (Gage et al., 2016) had poor psychometric properties, with many items that had to be removed, mostly due to extensive LD issues. This was the most obvious for the School Safety subscale, which was “beyond repair” and had to be removed entirely. Given that feeling safe at school is an important protective factor for student wellbeing (e.g., Lester & Cross, 2015), this is potentially a large limitation. Regardless, we ended up with the reduced 23-item 6-factor MSCS-SV revision, which has a decent fit (Hooper et al., 2008), that is better than the referenced fit of the 38-item 7-factor model reported by Gage and colleagues (2016), while the factor loadings were generally similar. However, internal consistencies are noticeably lower in this research. This might partly be due to the smaller number of items, but it does not change the fact that the scale suffers from the poor precision of measurement. This is also evident from the low AVE values, 4 of which are below the recommended cutoff of .50 (Fornell & Larcker, 1981), even in the reduced model. Thus, while the model fit in this research is better than the referenced one (Gage et al., 2016, p. 6), precision of measurement is worse. Note, however, that the questionnaire is largely gender invariant, meaning that there is likely no need for the separate gender norms and that girls and boys can be compared directly.

In conclusion, we obtained a better fitting, but less internally consistent shorter version of the original MSCS-SV. The removal of the School Safety subscale is a notable limitation. Thus, we can only give a reserved recommendation for the use of MSCS-SV in the BCS speaking area. The questionnaire should be improved, namely by expanding the existing item base with newly written items, including the whole new set of the School Safety items.

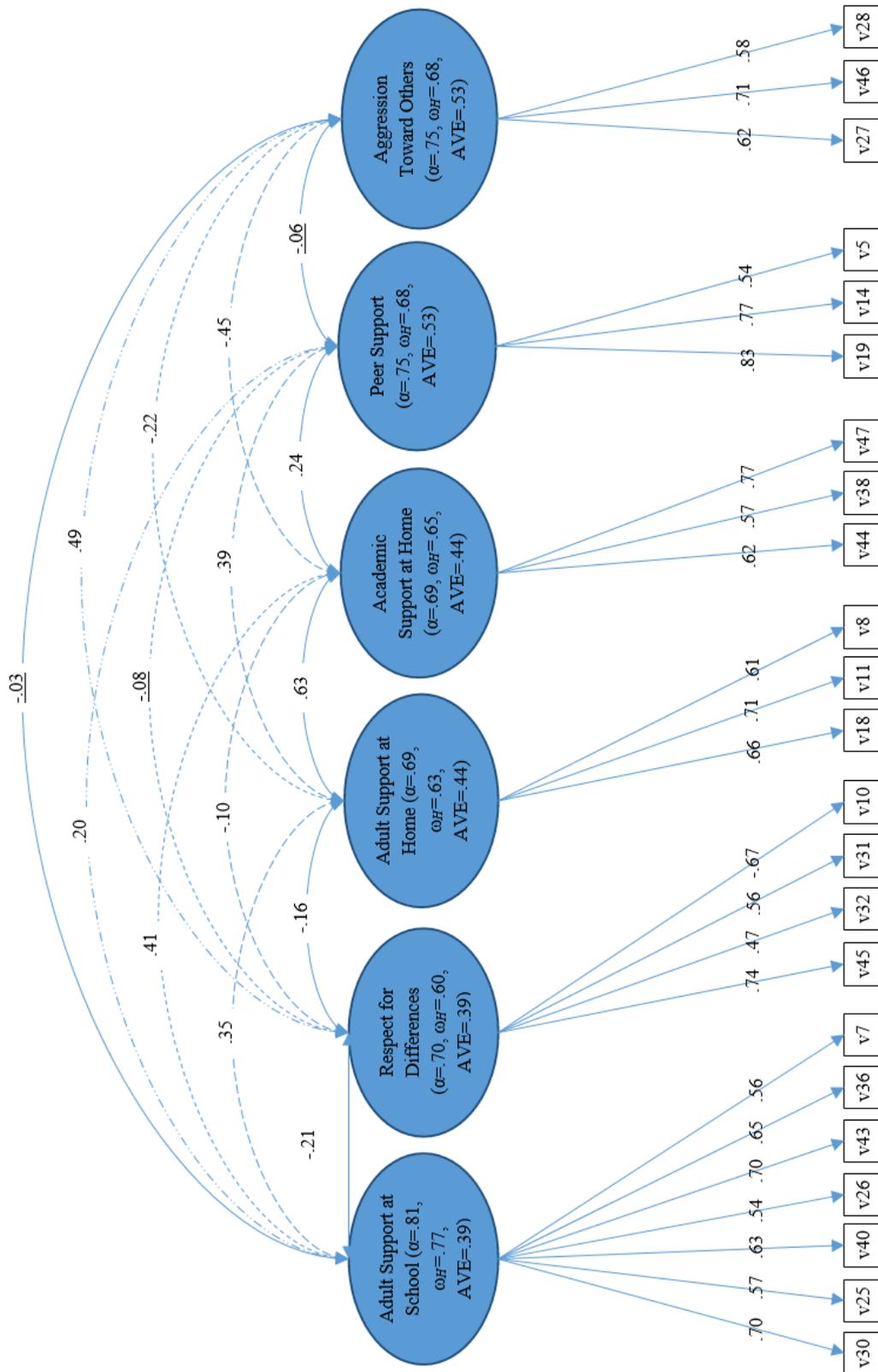


Figure 1. CFA results for the reduced 23-item 6-factor MSCS-SV model. All λ s are standardized and significant at $p < .001$. Nonsignificant factor correlations are underline

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DEVELOPMENTAL PSYCHOLOGY

PARENTAL PERCEPTIONS OF SOCIO-EMOTIONAL RESPONSIVENESS OF CHILDREN WITH ASD AND CHILDREN'S IMPACT ON THE FAMILY AS FACTORS OF PARENTAL STRESS

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Literature reports that families of children with autism spectrum disorder (ASD) experience more parental stress than other families. Parental stress is a state of exhaustion which arises from attempts to adapt to the demands of parenthood. The research aimed at exploring relation between parental stress and both parental perception of socio-emotional responsiveness of their child with ASD and the impact of a child with ASD on the family. The sample consisted of 44 mothers of children with ASD, members of Serbian Society of Autism. The results show that there is a significant negative correlation between parental stress and parental perception of socio-emotional responsiveness of child with ASD and positive correlation with parental perception of child's impact on the family. This means that the more parental stress parents experience, they will perceive their child with ASD as less socio-emotionally responsive and will find the child's impact on the family as bigger. The practical implications of the results within the psycho-social support to the parents and consequently to the children with ASD are also mentioned.

Keywords: parental stress, autism, socio-emotional responsiveness, impact on family

Introduction

It has been shown that the parental stress in families with a child with autism spectrum disorder (ASD) is higher than in families with children with other developmental disorders (Abbeduto et al., 2004; Pisula, 2007). Parental stress is state of exhaustion which is caused by demands and responsibilities related to the parenthood (Deater-Deckard, 1998).

ASD is characterized with problems in emotional expression and socioemotional reciprocity (APA, 2013). Since the lack of reciprocity in social and emotional domains among children with ASD is related to parental stress (Richman, Belmont, Kim, Slavin&Hayner, 2009), we will examine the relationship between parental perception of socio-emotional responsiveness in their child with ASD and parental stress. Children with developmental disorders impacts not only parents but the whole family (Mitić, 1997). Family members frequently change their lives and sacrifice many satisfying activities in order to dedicate themselves completely to the child's developmental problems.

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Since the constructs the family makeabout child and his disorder depend on personal experience and perception (Davis, 1995), we can suppose that the stress is related to the way a person perceives the problem. For thatreason the goal of this study is to examine the relation of the parental stress with the parental perceptions of socio-emotional responsiveness of child with ASD and their perceptions of child's impact on family.

Hypotheses

The first hypothesis is that the lower socio-emotional responsiveness parents perceive in their child with ASD, the higher level of stress they will report. The second hypothesis is that the stronger influence parents think their child with ASD has on different aspects of their family (parents' social life, their feelings about child, finances, marital relationship and siblings) the higher level of parental stress they will report.

Method

Participants

The sample included 44 mothers of children diagnosed with ASD, who are members of the Serbian Society of Autism.

Instruments

The measure of Parental Stress was obtained through the questionnaire Parenting Stress Index-ShortForm (PSI-SF), consisting of three subscales: Parental Distress (PD), Parent-Child Dysfunctional Interaction (PCDI) and Difficult Child (DC)(Abidin, 1995). PDmeasures parenting competence, conflict with child's other parent and social support.PCDI measures the extent to which parent believes that the child doesn't meet his expectations andDC refers to parents' evaluation of child's characteristics, such as stubbornness.

The perception of child's impact on family and its different aspects is measured with the Family Impact Questionnaire-Revised (IFQ-R) (Donenberg & Baker, 1993).These aspects are Positive Feelings about Child, Negative Feelings about the Child, Impact on Social Life, Financial Impact, Impact on the Marital Relationship and Impact on Siblings. On every item parent estimates the impact of his child on certain family aspect, comparing it with the impact children of the same age have on their families.

After conducting a semi-structured interview with six mothers of children with ASD about child's socio-emotional responsiveness, the Socio-emotional Responsiveness

Questionnaire (SRQ) was constructed. It consists of 5 categories of child's behaviour: communication, attachment, empathy, social estimation, social reaction and social relations. Responses are given through 4-point Likert scale and it is proved to be highly reliable ($\alpha = 0.92$).

Results

Parental stress in families with child with ASD

Table 1
Descriptive statistics of PSI-SF scale and its subscales

	Minimum	Maximum	<i>M</i>	<i>SD</i>
Parenting Stress	54	131	96.77	17.58
Parental Distress	15	47	30.59	8.32
Parent-Child Dysfunctional Interaction	19	48	32.18	6.86
Difficult Child	16	51	34.00	8.95

In Table 1 is shown that the mean on the overall scale is higher than the upper limit of clinically significant level of stress, which is 90 (Abidin, 1995). Thus, 76% of parents have the score above the normal and 11% of parents experience clinically significant level of stress.

Parental perception of socio-emotional responsiveness of child with ASD

The observed score on the SRQ ($M = 150.84$; $SD = 21.61$) is close to the scale's mean which is 152.5 for the whole scale.

Parental perception of child with ASD impact on family

Table 2
Descriptive statistics for Impact of child with ASD on family

Impact of child with ASD on...	<i>M</i> within items	<i>SD</i> within items
Family	2.60	0.52
Positive Feelings about Child	1.90	0.35
Negative Feelings about Child	2.13	0.58
Parent's Social Life	2.24	0.76
Finances	2.73	0.89
Marital Relationship	2.11	0.47
Siblings	2.25	0.47

Except in subscale Finances and overall scale, the mean of all other subscales is around 2 on a 4-point Likert scale, meaning that parents evaluate *somewhat bigger* the impact of their child on their family comparing to the impact other children have on their families.

Relation between parental stress and perceived socio-emotional responsiveness of child with ASD

Table 3
Pearson correlation between SRQ and PSI-SF

	Parenting Stress	Parental Distress	Parent-Child Dysfunctional Interaction	Difficult Child
Socio-emotional responsiveness	-0.59**	-0.20	-0.62**	-0.49**

Note. * $p < 0.05$; ** $p < 0.01$

It is observed a high negative correlation between overall parental stress and socio-emotional responsiveness of child with ASD the parents perceive. Thus, parents who find that their child with ASD is lacking of socio-emotional responsiveness will experience more

parental stress, so these findings support the first hypothesis. There is no observed correlation with subscale PD, probably because this subscale refers to emotions related to the parental role and not to child's characteristics, like PCDI and CD.

Relation between parental stress and parental perception of impact on family by child with ASD

Table 4
Pearson correlations between PSI-SF and IFQ-R

	Impact of child with ASD on....						
	Family	Positive Feelings about Child	Negative Feelings about Child	Parent's Social Life	Finances	Marital Relationship	Siblings
Parenting Stress	0.63**	-0.45**	0.62**	0.70**	0.34*	0.32*	0.27
Parental Distress	0.31	-0.08	0.24	0.45**	0.31*	0.26	0.13
Parent-Child Dysfunctional Interaction	0.32	-0.45**	0.47**	0.48**	-0.03	0.26	0.14
Difficult Child	0.36*	-0.35*	0.53**	0.55**	0.225	0.18	0.43*

Note. * $p < 0.05$; ** $p < 0.01$

The child's impact on family perceived by parents positively correlates with overall parental stress, which supports the second hypothesis. The highest correlation is observed between overall parental stress and subscale Parent's Social Life, and this is only subscale on IFQ-R which significantly correlates with all PSI-SF subscales. Thus, parents think that their child with ASD influences even more their social life than overall family functioning.

Discussion and concluding remarks

Findings in this study have shown correlation between parental stress and the parents' perception of their child's characteristics and impact on family. Hence, a change on their perception about parenting, marriage and sibling's role is a key in the process of coping with stress.

Since parental stress is highly related to unsatisfactory parents' social life, this indicates that the social life is what parents sacrifice most when they struggle with stress. Thus, parents must rely on other people such as professional assistants, family, friends, etc. who can support them on taking care of the child in a way they can dedicate to the other life roles and relieve high parental stress. Since the behaviour depends on attitudes and constructs, parents should begin working on identifying and changing their dysfunctional constructs, in order to accept the need for support and the importance of balance between personal and parental life.

Only when parents change their perception and adapt their expectations from the child and themselves to the reality, they will more efficiently use the strategies of stress management and finally more efficiently take part in the child's treatment.

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IS THERE A RELATIONSHIP BETWEEN ADOLESCENTS' HOBBIES AND IDOL PREFERENCES?¹

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This paper is based on the concept of positive youth development and the formative role of leisure activities on identity formation and youngsters' growth. The aim is to investigate if there is a relationship between adolescents' hobbies and role models important for particular interests' appearance but also for cognitive and social development. Students (N=1404 from primary and secondary school) estimated, in a form of questionnaire, how often in their leisure time they are engaged in 9 hobbies (e.g. blog writing; drawing/painting; graphic design; computer programming). They also answered the name of the public person they admire and why. Those answers are classified into 6 idol types within different domains: show business; sport; politics; science and art; entrepreneurship and fiction. This research has revealed the relationship showing that students practicing hobbies differ from those who do not regarding idol preferences. The most salient finding shows that adolescents admiring sportsmen do not incline to hobby practicing. Adolescents who take up hobbies prefer idols from show business, science/art and politics. Besides there are differences in number of hobbies regarding idol type preferences and differences in idol type preferences regarding how often adolescents practice hobbies.

Keywords: adolescents, hobbies, idols, leisure time

Introduction

The concept of positive youth development and the formative role of leisure activities on identity formation and youngsters' growth (Hunter & Csikszentmihalyi, 2003; Larson, 2000) represent theoretical foundation for this work. Research show that young people's activities during spare time can be dominantly described as passive and "consuming" or receptive (Cvetičanin, 2007; De Bruyn & Cillessen, 2008; Krnjaić, Stepanović & Pavlović Babić, 2011; Larson, 2000; Pešić, Videnović & Plut, 2012; Stepanović, Videnović & Plut, 2009). According to Larson (2000) the lack of activities directed towards the positive life trajectories in young people is a significant scientific problem as well as practical issue

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related to the conceptualization of youth policy measures. Since hobbies could be considered as mentally active, organized, well structured and creative activities (Krnjaić & Stepanović Ilić, 2013; Renzulli, 2005; Zick, 2010) their presence in adolescents' spare time should be treated as important for positive development.

Problem

Although carrier choices were frequently associated with role models influences (Bosma et al., 2012; Fluori & Buchanan, 2002; Karimi et al., 2013) hobbies are rarely investigated in that context. In the literature idols are usually labelled as role models with whom one has no direct relationship (Stepanović, Pavlović Babić & Krnjaić, 2009). Role models could be rather important for particular interests' appearance but also for cognitive and social development (Bandura, 1989, 1996). Although there is no agreement regarding the strength of their influence on behavior and values it can be concluded that their role in adolescent's life cannot be neglected (Engle and Kasser, 2005).

This work is an exploratory study dealing with relationship between adolescents' idols preferences and hobby practicing. In this study we investigated differences in idols preferences between adolescent who have hobbies and those who do not. Besides we examined the relationship of number of hobbies adolescents are engaged in, as well as their practice frequency, with worship of the particular idol type. Since this is an exploratory investigation we did not formulate particular hypotheses. However we do expect a certain concordance between domain of idols' profession and adolescents' hobbies.

Method

The research is a part of broader study investigated adolescents' leisure activities. The sample included 1404 adolescents from primary school (7th grade) and secondary school (2nd grade) from 5 Serbian towns. Apart from the rest of the questions regarding various behaviors and habits related to spare time, adolescents estimated how often they are engaged (never, occasionally, often) in 9 hobbies: blog writing; creative writing i.e. poetry, short stories; drawing/painting; graphic design; composing and playing music; making clothing items, jewelry and decorative objects; computer programming; collecting postcards, stickers, stamps etc; photography. They also provided answer on the following question regarding idols' admiration: "The next question is related to your role models. Think about persons who are public figures, regardless of whether they are alive or not, as well as about their important features. Please finish the following sentence: I would like to be like ... (name the person),

because... (provide a reason why)". Those answers are classified into 6 idol types within different domains: show business (actors, musicians, TV personalities - TV presenters, fashion models, reality stars, You tubers and bloggers); sport; politics (politicians and rulers); science and art; entrepreneurship and fiction (see Stepanović Ilić, Blažanin & Mojović, 2017). The relationship between idol types and hobbies was tested by crosstabs and one way ANOVA.

Results

Students practicing hobbies differ from those who do not regarding idol type they prefer ($\chi^2_{(5)} = 26.998, p < 0.001$). Adolescents who take up hobbies adore more idols from show business, science/art and politics. Those who do not have hobbies respect mostly sportsmen.

Besides, students admiring different idols types can be distinguished regarding number of hobbies they are practicing ($F(550,5) = 58.615, p < 0.001$). Post-hoc tests reveal that students who love sportsmen are engaged in less hobbies than those preferring show business stars and scientists/artists.

Crosstabs analysis was used to compare students who often practice each of nine hobbies and those who never do that. The differences are statistically significant for five out of nine hobbies: writing ($\chi^2_{(5)} = 13.17, ; p = 0.022$), drawing ($\chi^2_{(5)} = 33.101, p < 0.001$), playing music ($\chi^2_{(5)} = 26.472, p < 0.001$), programming ($\chi^2_{(5)} = 73.322, p < 0.001$) and photography ($\chi^2_{(5)} = 19.680, p=0.001$). Adolescents who frequently take up these hobbies admire sportsmen significantly less than those who have never practice it and admire show business celebrities except those practicing programming hobby who appreciate entrepreneurs more. Students who often practice painting admire scientists/artists beside show business idols.

Discussion and conclusions

This research has revealed that relationship between hobby practicing and admiring particular idol types exists. Adolescents engaged in hobbies differ from those who do not practice hobbies regarding type of idol preferences and there are differences in number of hobbies regarding idol type preferences and differences in idol type preferences regarding how often adolescents practice hobbies. The most salient finding shows that adolescents admiring sportsmen do not incline to hobby practicing. Unlike those who love sportsmen, youngsters appreciating show business celebrities or scientist/artists usually practice several

such activities. These result has to be further explored but it can be associated with the fact that girls prefer show business individuals over sportsmen and that they are more often engaged in hobby activities (Davidović, Vuletić & Krnjaić, 2016). Adolescents frequently engaged in writing, drawing, playing music, and photography admire show business stars but not sportsmen. Adolescents who enjoy painting do not follow sportsmen as well. Their inclination towards painters is understandable, but they also, like most of other students practicing hobbies, honor celebrities from show business. Adolescents who do programming during spare time admire people like Mark Zuckerberg, Steve Jobs and Bill Gates who are entrepreneurs and made success in computer business. The findings regarding relation between adolescents who practice hobbies and admire painters and entrepreneurs we consider as the relevant indicator for their positive development since such interests and accompanied hobbies can be connected with Stebbins' (1997) concept of serious leisure and Larson's (2000) activities directed towards positive life trajectories. The fact that most of students engaging in various hobbies honor show business star is not that simple to interpret. Namely, celebrities from show business and sportsmen are the most appreciated idol types among adolescents, far more than the others (Stepanović Ilić, Blažanin & Mojović, 2017), so it is possible that obtained relations result from that phenomenon and the gender variable which is obviously connected to readiness to engage in some sort of hobby during spare time. Besides, blog writing, graphic design, making clothing items, jewelry and decorative objects as well as making various collections seem to be less developmentally influential hobbies since adolescents practicing those hobbies do not appreciate specific idol types.

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CONCEPTUAL DEVELOPMENT: A CASE OF THEMATIC PREFERENCE IN 7-YEARS OLD SERBIAN CHILDREN¹

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Knowledge about objects can be organized taxonomically on the basis of shared features (lion-mammals), or thematically on the basis of participation in events or scenarios (lion-savanna). Findings about developmental trends in conceptual organization and the age when the shift from thematic to taxonomic reasoning occurs are mixed and inconsistent. The main goal of our study was to examine what is the preferred type of conceptual organization at the age of seven: taxonomic or thematic? Sample of 52 first grade students, gave one association per each of the 120 stimuli-words. The results show that seven years old children are capable for both taxonomic and thematic reasoning, but thematic type of relations are dominant: 80% percent of all associations are thematic. This finding is opposite of the results typically reported in the Anglo-Saxon studies, suggesting that conceptual preference may be culturally and contextually determined, and that developmental determinants of conceptual organization should be found in culture, educational system and linguistic structures.

Keywords: conceptual development, thematic processing, taxonomic processing, children

Introduction

Taxonomically related objects are those that share a large number of characteristics, while thematically related objects are typically the ones that complement each other, by definition. However, it would be more correct to state that objects are in a certain way both thematically and taxonomically related. Sometimes such a demarcation is relatively simple (e.g. apple and worm are taxonomically linked to the category of living beings, but there is a clear dominance of the thematic relationship), and sometimes very problematic (e.g. dog-cat).

Numerous studies in developmental psychology suggest that the taxonomic thinking is cognitively more demanding and advanced in relation to the thematic reasoning. Such

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assumptions about the development of concepts from primitive thematic to complex, abstract taxonomic structures can be found in various forms even in works by classics, Piaget and Vigotsky⁶ (Vygotsky, 1962; Inhelder & Piaget, 1964), and later confirmed by a series of studies that indicate the existence “thematic-to-taxonomic shift”: children of pre-school age express a clear thematic preference that fades in time and gives way to the taxonomic way of thinking (Ceci & Howe, 1978; Davis, 1976; Denney & Ziobrowski, 1972; Scott, Serchuk & Mundy, 1982). Taxonomic organization is seen as an ultimate developmental achievement, typical for the healthy adults. This understanding of the taxonomic organization lies in the core of all the dominant theories of the semantic organization.

Interestingly, besides the developmental ones, there are also cultural differences in the preferences of the thematic and taxonomic way of reasoning. The idea of the east against the western style of thinking comes from the Chiu research (1972), which reported that Chinese children prefer to create thematic categories (cows and herbs are grouped together because the cow eats the grass), while American children mainly group objects in a taxonomic way (cows and chickens are animals) (Nisbett, 2003).

Preference to thematic or taxonomic way of thinking is most often examined in a matching task (for example, in Estes, Golonka & Jones, 2011). In the standard task of pairing, the subject is exposed to three objects (e.g. cow, hen and grass); one stimulus is a target, and the other two are elective stimuli. The participants task is to decide which of the stimuli they want to group with the target. Triads of objects are chosen so that one choice clearly expresses - taxonomic and the other - thematic relationship. If there is no bias in the instruction given to the participant, it is considered that this task reflects well the preference of the respondents towards one of the two types of reasoning. There are several instructions that seem to be encouraging thematic (“which option goes with the base?”; “find the things that go together”) or taxonomic reasoning („is the same kind“; word association task; Lucariello et al., 1992). Therefore, it is recommended that the instructions to the respondents should be as neutral as possible, and not to encourage either integration or comparison.

⁶ The terms thematic and taxonomic reasoning were not used in the Vygotsky' and Piaget' theoretical framework, but the idea of searching for complementarity (in the grouping task for instance when instructed to build the house), or relating objects based on their characteristics (for instance, square and pyramid) is the same one on which the distinction between thematic and taxonomic reasoning in the nowadays literature is based.

Using a neutral task consisting of collecting just first associates for any given word we wanted to examine which type of reasoning is dominant at the age of 7 (which is usually marked as a critical period of a change of cognitive style: a qualitative shift from thematic to taxonomic reasoning, or from more basic or primitive to more complex type of reasoning).

Method

In the present research we used a free association task in order to examine conceptual organisation in 7-years old children. More precisely, we wanted to examine the dominant way of semantic reasoning at this critical period. In the literature, this period is marked as crucial for shifting from thematic to taxonomic way of reasoning. Participants, 52 children from a primary school from Belgrade, filled in a questionnaire with 120 stimuli-words, next to which they were asked to give a first associate, i.e. first word that comes to their mind, upon reading a prime-word. After collecting norms, associates were classified in 5 categories: thematic, taxonomic, attributive, idiosyncratic and introspective. Attributive associates were those ones which marked perceptual characteristics of the given concept, or its content, what it is used for etc. Idiosyncratic answers were those which relationship with the prime-word was unclear. Finally, introspective were those answers which reflected personal/emotional relationship to a given prime. Every answer could have been allocated to more than one of these five categories. It is noteworthy, that children were tested at the end of the first grade, when they all have mastered their writing skills in Cyrillic.

Results

The pattern of answers collected from first-grade children showed that at the age of 7 children are capable of both thematic and taxonomic reasoning, but there is a clear dominance of thematic way of conceptual thinking. Namely, over 80% of all responses belonged to thematic category ($\chi^2_{(1,1)} = 87.14$, $p < 0.001$).

Table 1
Number of thematic vs. taxonomic responses in 7-years-old children

	Thematic	Taxonomic
Number of answers	198	50

Discussion and conclusions

Conceptual knowledge can be organised taxonomically, based on common characteristics (lion-mammal) or thematic, encompassing objects that are interacting within the same scene or event (lion-savannah). The pioneering research on conceptual development pointed to the existence of a shift from the thematic to taxonomic structures at preschool age. However, subsequent experiments suggest that shift does not constitute a fundamental change in the way of organizing knowledge, but a change in the preferences.

The well documented thematic-to-taxonomic shift suggests that by the age of 7, children should be preferring taxonomic rather than thematic responses. Thus, here we tested the presence of taxonomic responses at the critical age of 7 with Serbian first grade children. In the matching task, typically used in this paradigm (like for instance in: Smiley and Brown, 1979; Chiu, 1972) it was documented that preschool children (4-6 years) dominantly express thematic reasoning, while older children (10 years) and students (19-20 years) typically express taxonomic reasoning. However, the main objections to the task of pairing are that it encourages a strategic reasoning and does not talk much about the way in which knowledge is really organized. Answers from the same respondents can vary depending on the instruction, context, or nature of the stimulus. Regardless of the shortcomings of the task of pairing, it remains the most widely used and interpreted method of testing the tendency to the thematic or the taxonomic way of reasoning. Thus, here we used a task-neutral paradigm and simply asked children to write a first association that comes to mind and we found a strong thematic dominance in 7 years old children. The pronounced thematic dominance at this age could be either culturally or contextually determined. Either way, and in accordance with these results, thematic structures cannot be seen as primitive in comparison to taxonomic. We would rather conclude that both types of reasoning are cognitively relevant and the factors that shape the developmental trend in this context could be cultural, educational or linguistic in nature. The further studies are needed for more complete picture.

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