

## The relation of humor structure appreciation with sensation seeking and judgments of complex-abstract art and sophisticated music

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The aim of the present study is two-fold. Firstly, the relation between sensation seeking and humor structure appreciation has been investigated (Carretero-Dios & Ruch, 2010), and also the association between humor structure appreciation and complex-abstract art has been reported (Ruch & Hehl, 1998). In that sense, this study aims to replicate previously reported findings. Second, the association between humor structure appreciation and sophisticated music (Rentfrow, Goldberg, & Levitin, 2011) was explored. Results obtained from 77 participants partially supported the predictions. Sensation seeking was negatively related with the aversiveness ratings of Nonsense humor, while pleasantness of complex-abstract art was negatively associated with funniness of Incongruity–Resolution humor and positively with the structure preference index. Aversiveness of Incongruity–Resolution humor correlated negatively with sophisticated music ratings. Finally, ratings on the abstract-art paintings and sophisticated musical excerpts were positively associated. Implications of the findings, limitations of this study and avenues for further research are examined.

**Key words:** humor structure appreciation, sensation seeking, abstract art, sophisticated music

### Highlights:

- Sensation seeking was negatively correlated with aversiveness of Nonsense humor.
- The SPI was positively associated with complex-abstract art.
- Aversiveness of INC-RES humor correlated negatively with sophisticated music.

The distinction between content and structural properties of humorous stimuli has been well established (Carretero-Dios, Pèrez, & Buéla-Casal, 2009, 2010; Ruch, 1992; Ruch & Hehl, 1998; Ruch & Platt, 2012). Structural

properties are related to the cognitive processes that are triggered when a humorous material is perceived, and are labeled as Incongruity–Resolution (INC-RES) and Nonsense (NON) humor (Carretero-Dios et al., 2009). “In INC-RES humor, a two-stage process can be observed: the perception of an incongruity and its resolution. In this type of humor, an incongruity is discovered and then resolved using the information available elsewhere in the joke or cartoon” (Carretero-Dios et al., 2009, p. 774). The conceptualized definition of NON acknowledges that the humor stimuli has an incongruous punch line, but “the punch line may: 1) provide no resolution at all; 2) provide a partial resolution (leaving an essential part of the incongruity unresolved); 3) or actually create new incongruities” (McGhee, Ruch, & Hehl, 1990, p. 124, as cited in Carretero-Dios et al., 2009). In the appreciation of INC-RES humor stimuli, individuals have a sense of having “gotten the point” or understood the joke once they have identified the information that provides full resolution. On the other hand, the enjoyment of NON humor comes from a play with absurd ideas or the contrast of sense and nonsense (Ruch & Hehl, 1998). The separation between INC-RES and NON humor has been established from a series of factor-analytic studies (for review see Ruch, 1992). It should be added that a third factor as well emerged, comprised of jokes and cartoons containing sexual themes, which was labeled Sexual (SEX) humor.

The response mode, based also on factor-analytic studies (Ruch, 1981; Ruch, Rath, & Hehl, 1988; for review see Ruch, 1992) comprises of two orthogonal components: funniness (f) and aversiveness (a). In other words, it has been shown that positive and negative responses to humor are best represented by ratings of “funniness” and “aversiveness” (Ruch, 1992). Positive responses to humor are comprised of cognitive (clever, original) and affective (funny, amused) evaluations, while negative responses are related to aversive reactions to humor (indignation, embarrassment, boredom) (Weber, Ruch, Riemann, Spinath, & Angleitner, 2014). Although this two response dimensions are kept in the 3WD test (see Ruch, 1992), together with the three humor stimuli factors of INC-RES, NON, and Sexual humor (which is a content category), Ruch and Rath (1993) showed that the negative responses can be separated into two clusters (“offensive/indignation” and “simple/boredom”). Additionally, there were some differences of loading patterns of rating scales across humor types. For example, being puzzled was a clear marker for positive responses for NON humor, but it was also related with negative affects in response to INC-RES humor.

Since the creation of the 3-WD test, studies have been primarily focused on personality and individual differences issues. Regarding appreciation of the structural dimensions, it has been confirmed that personality correlates are related to the possibility of complete resolution or unresolvable/residual incongruities (Ruch, 2001). More precisely, individuals appreciating INC-RES humor are “characterized by intolerance of ambiguity, conservatism and closedness to new experience”, while individuals appreciating NON humor are “higher in

experience seeking, imaginativeness and openness to experience” (Ruch & Platt, 2012, p. 27). Comparing to the vast number of studies that investigated the relation of personality variables and humor structure appreciation, until now only a few studies expanded this relation to aesthetic judgment (Ruch & Hehl, 1998; Ruch & Malcherek, 2009; Savary, 2010, as cited in Ruch & Platt, 2012). It should be stressed that the use of the term aesthetic judgment in this investigation is understood in a narrow sense as ratings of pleasantness. Although this is in line with some previous studies (Rawlings, Barrantes, Vidal, & Furnham, 2000; Ruch & Hehl, 1998), there is evidence that such equalization has limitations (Leder, Belke, Oeberst, & Augustin, 2004; Marković, 2012) which will be outlined in the discussion.

### **Humor structure appreciation, sensation seeking and aesthetic judgment**

The phenomenon of humor structure appreciation is related to other aesthetic domains, like preference for visual art and music (Berlyne, 1972; Ruch & Platt, 2012). Some authors (e.g., Frijada, 1986) even consider the humor response as an aesthetical emotion. Previous studies, which will be reviewed below, have more or less separately examined the relationship between the phenomena included in this investigation.

The role of sensation seeking in predicting appreciation of both humor structure and content has been thoroughly investigated (Carretero-Dios & Ruch, 2010; Forabosco & Ruch 1994; Ruch, 1988; Ruch & Malcherek, 2009). Carretero-Dios and Ruch (2010) used two different measures of sensation seeking – Sensation Seeking Scale (Zuckerman, 1979, 1994), and Arnett Inventory of Sensation Seeking (Arnett, 1994), and two different measures of humor appreciation – 3-WD humor test (Ruch, 1992), and the EAHU humor test (Carretero-Dios et al., 2010) for examining the association between the constructs. Focusing on the relation between sensation seeking and humor structure appreciation, they report that the component of experience seeking and the component of novelty were predictive of low appreciation of INC-RES humor and high appreciation of NON humor.

As it was pointed out, until now only a few studies have investigated the association of humor appreciation and different fields of the aesthetic. In summary, higher appreciation of INC-RES humor has been shown that it was related to liking of “photographs of art paintings rated as simple and representational, simple hand drawing (e.g., a square or a rectangle)” (Ruch & Hehl, 1998), and “sound clips of music of the categories R & B, country, and pop” (Savary, 2010, as cited in Ruch & Platt, 2012). On the other hand, “individuals appreciating NON humor liked, for example, photographs of art paintings rated by experts as complex and fantastic, liked complex hand drawing, complex polygons (Ruch & Hehl, 1998), literature classified as high in grotesqueness (Ruch & Malcherek, 2009), and liked music clips of the categories of jazz, progressive rock, Indie-

rock and new music” (Ruch & Platt, 2012, p. 27). Additionally, preference of NON over INC-RES was positively associated with preferring complexity over simplicity in music (Savary, 2010, as cited in Ruch & Platt, 2012).

The question of the structure of musical preferences, independently of humor appreciation, has been popular in recent years (Knowles, 2013; Livosky, Stevens, Hoff, & Surawski, 2012; Rentfrow et al., 2011). Rentfrow et al. (2011) identified five music-preference dimensions, which were labeled as: Mellow, Unpretentious, Sophisticated, Intense, and Contemporary. Of interest to this study is the sophisticated music dimension, where most of the excerpts with high loadings on this factor included classical, jazz and world music genres. However, the authors also differentiate the effects of genre preferences, musical and psychological attributes. The musical excerpts that comprised the sophisticated factor, regarding the psychological attributes, were perceived as complex, intelligent and inspiring.

Rawlings et al. (2000) have shown that the personality variable of sensation seeking does account for individual differences in liking for paintings and music. As sensation seeking is one of the most potent predictors of humor structure appreciation, this study encompasses the phenomena of humor, preference for visual art and music, and sensation seeking.

### **Aim of the present study**

The aim of the present study is two-fold. First, we aim to replicate previously reported findings (Carretero-Dios & Ruch, 2010; Ruch & Hehl, 1998), using a different measure for humor structure appreciation (Humor Structure Appreciation Scale; Sulejmanov, Spasovski, & Platt, 2017), and Macedonian sample. Here, we focus on the relation between sensation seeking (as conceptualized by Arnett, 1994) and complex-abstract art with humor structure appreciation. Second, it was hypothesized that preference for NON over INC RES humor will be related to higher pleasantness ratings on the sophisticated musical excerpts. Although humor structure appreciation hasn't been yet related to judgment of sophisticated music, the prediction is in line with previous studies (Savary, 2010, as cited in Ruch & Platt, 2012; Rentfrow et al., 2011). Specifically, preference for NON over INC-RES was positively correlated with preferring complexity over simplicity in music (Savary, 2010, as cited in Ruch & Platt, 2012), and Rentfrow et al. (2011) showed that sophisticated music was perceived as complex. In that sense, preference for unresolvable or residual incongruities in humor should be associated with high pleasantness of sophisticated music.

## **Method**

### **Participants**

The sample consisted of 77 participants (9 males, 68 females) aged between 18 and 24 years ( $M = 18.92$ ,  $SD = 0.90$ ). All of the participants were first year psychology students at the Ss. Cyril and Methodius University in Skopje.

## Instruments

**Arnett Sensation Seeking Inventory** (AISS; Arnett, 1994; Haynes, Miles, & Clements, 2000) – The Macedonian translation of the instrument (Sulejmanov et al., 2017) was used which consists of 11 items (6 from the Intensity subscale, and 5 from the Novelty subscale). Participants indicate which response best applies to them for each item, from A (*describes me very well*), to D (*does not describe me at all*). In a previous study (Sulejmanov et al., 2017) the scale showed adequate psychometric properties. Parallel analysis (PA), carried out based on Patil, Singh, Mishra, and Donovan (2007) engine, led to an estimate of two components to retain. All of the items had loadings in the expected direction and above .40, with an exception of one intensity item which had high secondary loading. Furthermore, Cronbach alpha was .75 (Total scale), .65 (Intensity subscale), and .70 (Novelty subscale).

**Humor Structure Appreciation Scale** (HSAS; Sulejmanov et al., 2017) consists of 10 items (5 INC-RES and 5 NON) and 4 “warm-up” items. Participants rate each item on 2 unipolar 7 point scales for “funniness” (f) – from 0 (*not at all funny*), to 6 (*very funny*), and “aversiveness” (a) – from 0 (*not at all aversive*), to 6 (*very aversive*). INC-RES items have factor loadings above .40 on the first factor (range between .53 to .78) and no secondary loadings that are higher than .30. NON humor items also have high factor loadings above .40 (range between .55 to .73) on the second factor and none of the items have high secondary loadings on the first factor. The two factor solution was also confirmed with PA analysis. Cronbach alpha was .73, .71, .72, and .78 for INC-RESf, INC-RESa, NONf, and NONa (Sulejmanov et al., 2017).

## Stimuli

**Complex-abstract art paintings:** Seven complex-abstract paintings were rated on a seven point scale of pleasantness (-3 = *extremely displeasing*, +3 = *extremely pleasing*). The paintings that correlated with appreciation of humor structure (see Ruch and Hehl, 1998, Table 4) were used with an exception of one painting<sup>1</sup>. In their study, the paintings were classified as complex-abstract by a group of eight art students. Below is a list of the paintings: Max Ernst (1937, “Triumph der Liebe”); Dokupil/Dahn (1982, “Kotzer III”); Hanny Lüthi (1973, “Maskentreiben”); Salvador Dali (1936, “Femmes aux têtes de fleurs retrouvant sur la plage la peau d’un piano à queue”); Salvador Dali (1931, “Hallucination partielle”); Max Ernst (1936, “Landschaft mit keimendem Korn”); Max Beckmann (1918/19, “Die Nacht”).

**Sophisticated music excerpts:** Seven musical excerpts were used for measurement of the sophisticated music dimension. The excerpts that were chosen were the ones with the highest factor loadings on this dimension in the study by Rentfrow et al. (2011). The excerpts were rated on a seven point scale of pleasantness (-3 = *extremely displeasing*, +3 = *extremely pleasing*). The artists and pieces are given below: Philip Glass (“Symphony No. 3”); Louise Farrenc (“Piano Quintet No. 1 in A Minor”); The Americus Brass Band (“Coronation March”); William Boyce (“Symphony No.1 in B Flat Major”); Ruben Gonzalez (“Easy Zancudo”); Oscar Peterson (“The Way You Look Tonight”); Charles Lloyd (“Jumping the Creek”).

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<sup>1</sup> The painting from Erich Brauer (1969, “Zwischen Gestern und Heute”) was not used, since the author could not find it on the internet.

**Procedure**

The study was done at Ss Cyril and Methodius University in Skopje at the beginning of psychology of perception course. First, the paintings were shown on a power point presentation. The slides that contain each of the paintings were shown for 10 seconds, following by a blank slide (5 seconds) to rate the painting. Afterwards, the musical excerpts were played for 30 seconds (from the beginning), and between each piece the participants were given 5 seconds for making the rating. Finally, subjects were asked to proceed to fill in the booklets that also contained the HSAS and AISS.

**Results**

**Descriptive statistics and intercorrelations**

Descriptive statistics (Means, Standard Deviation, Skewness and Kurtosis) as well as reliability estimates (Cronbach’s alpha) were computed for the AISS, HSAS, complex-abstract art paintings and sophisticated music excerpts. The results are given in Table 1.

Table 1  
*Descriptive statistics and Cronbach’s alphas for the measures used*

	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Ku</i>	<i>α</i>
AISS					
Intensity	2.50	0.50	0.10	-0.20	.34
Novelty	3.21	0.45	-0.56	0.03	.30
Total AISS	2.83	0.40	-0.14	-0.73	.52
HSAS					
INC-RESf	3.48	1.43	-0.27	-1.16	.79
NONf	2.49	1.42	0.19	-1.00	.69
INC-RESa	1.23	1.04	1.08	0.99	.64
NONa	1.44	1.58	0.89	-0.52	.84
SPI	0.99	1.66	-0.41	0.53	/
Complex-abstract art	0.47	0.83	-0.19	0.58	.47
Sophisticated music	0.91	1.02	-0.71	0.51	.73

*Note.* *N* = 77.

Table 1 shows that the internal consistency was rather low for the AISS (total score and subscales) and complex-abstract art paintings. Three measures (Intensity, AISS total score, and Complex-abstract art) deviated from normality.

A paired-samples *t* test was conducted to evaluate whether INC-RESf scores and NONf scores were related. There was a significant difference between INC-RESf scores (*M* = 3.48, *SD* = 1.43) and NONf scores (*M* = 2.49, *SD* = 1.42); *t*(76) = 5.22, *p* = .000. The standardized effect size index, *d*, was .06. This is in line with Carretero-Dios and Ruch (2010) findings when the 3-WD test and the EAHU were employed. Additionally, low mean scores for aversiveness on both humor structure dimensions, are in accordance with previous studies (Ruch, 1992).

Next the correlations between humor structure appreciation, sensation seeking, complex-abstract art and sophisticated music were computed. The results are presented in Table 2.

Table 2  
*Intercorrelation between humor structure appreciation, sensation seeking, complex-abstract art and sophisticated music*

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
AISS									
(1) Intensity	.41**	.89**	.03	.17	-.01	-.17	.12	.09	-.02
(2) Novelty		.79**	-.01	.12	-.09	-.27*	.11	.16	.01
(3) Total AISS			.01	.17	-.05	-.25*	.14	.14	-.01
HSAS									
(4) INC-RESf				.32**	-.22	.13	-.59**	-.23*	-.04
(5) NONf					-.09	-.37**	.58**	.14	.05
(6) INC-RESa						.53**	.11	.03	-.26*
(7) NONa							-.43**	-.14	-.16
(8) SPI								.32**	.08
(9) Complex-abstract art									.37**
(10) Sophisticated music									

Note.  $N = 77$ ; SPI = Structure Preference Index (NONf – INC-RESf); \*  $p < .05$ ; \*\*  $p < .01$ .

Table 2 shows that the expected pattern of correlations between sensation seeking and humor structure appreciation was only confirmed for the aversiveness ratings of NON humor. Scores on the Novelty subscale and total AISS were significantly negatively related with NONa. Carretero-Dios and Ruch (2010), found that INC-RESf was related with Intensity subscale ( $r = -.16, p < .01$ ), and AISS total ( $r = -.13, p < .05$ ), while NONf was related with Novelty subscale ( $r = .17, p < .01$ ) and AISS total ( $r = .12, p < .05$ ). As for the relation with aversiveness ratings, the results are in accordance with their findings. They report significant negative correlations between Novelty subscale and NONa ( $r = -.21, p < 0.1$ ), and AISS total and NONa ( $r = -.17, p < .01$ ).

The hypothesis that aesthetic judgment of complex-abstract art is related to humor structure was also partially confirmed compared to the findings reported by Ruch and Hehl (1998). Table 2 shows that mean ratings of complex-abstract paintings were significantly negatively related with INC-RESf and SPI. In Ruch and Hehl (1998) study, INC-RESf wasn't significantly related with complex-abstract art, and they additionally report significant relation between complex-abstract art with NONf ( $r = .38, p < .01$ ), NONa ( $r = -.37, p < .01$ ), INC-RESa ( $r = -.21, p < .01$ ; one-tailed), and SPI ( $r = .27, p < .05$ ).

The results in Table 2, did not confirm the hypothesis that preference for NON over INC-RES (for the funniness ratings) will be related to higher pleasantness of sophisticated music. However, there was a significant negative relation between INC-RESa and scores on the sophisticated music factor. Although this relation doesn't confirm the general hypothesis, it is in line with the expectations for the relation between aversiveness ratings and sophisticated music, at least for INC-RES humor. Additionally, there was a significant positive correlation between complex-abstract art and sophisticated music.

Finally, the correlations between INC-RES<sub>f</sub> and NON<sub>f</sub>, and also, between INC-RES<sub>a</sub> and NON<sub>a</sub>, are in accordance with previous studies with the 3WD test (Ruch, 1992) and the EAHU (Carretero-Dios et al., 2009, 2010).

The results given in Table 3 are focused on pleasantness ratings of individual items (complex-abstract art paintings) and their correlation with appreciation of humor structure. Only significant correlations are given.

Table 3  
*Paintings correlated with appreciation of humor structure*

Paintings (incl. year and artist)
INC-RES <sub>f</sub>
-.30** Max Ernst (1937, "Triumph der Liebe")
INC-RES <sub>a</sub>
.24* Salvador Dali (1936, "Femmes aux têtes de fleurs retrouvant sur la plage la peau d'un piano à queue")
NON <sub>a</sub>
-.27* Hanny Lüthi (1973, "Maskentreiben")
.25* Salvador Dali (1936, "Femmes aux têtes de fleurs retrouvant sur la plage la peau d'un piano à queue")
SPI <sub>f</sub>
-.26* Hanny Lüthi (1973, "Maskentreiben")
-.23* Salvador Dali (1931, "Hallucination partielle")

Note.  $N = 77$ ; \*  $p < .05$ ; \*\*  $p < .01$ .

Table 3 shows that pleasantness ratings of four paintings were significantly correlated with appreciation of humor structure (INC-RES<sub>f</sub>, INC-RES<sub>a</sub>, NON<sub>a</sub>, and, SPI<sub>f</sub>). The results are in line with the findings reported in Ruch and Hehl (1998), except for one painting by Salvador Dali ("Femmes aux têtes de fleurs retrouvant sur la plage la peau d'un piano à queue"). The correlation between pleasantness of this painting with NON<sub>a</sub> is contrary to the expectations.

### Predicting sensation seeking from aesthetic measures

To address the question of which aesthetic measures are predictors of sensation seeking, stepwise regression analysis was conducted with sensation seeking as dependent variable and the SPI, INC-RES<sub>a</sub>, NON<sub>a</sub>, complex-abstract scores and sophisticated music scores as predictors. The results are depicted in Table 4.

Table 4  
*Stepwise regression analysis with sensation seeking as dependent variable and aesthetic measures as independent variables*

Aesthetic measures	$\beta$	$t$	$p$
NON <sub>a</sub>	-.25	-2.23	.029

$F = 4.96, p = .029$

Note. Dependent variable = Sensation seeking.

Table 4 shows that only NON<sub>a</sub> was a significant predictor of sensation seeking.



## Discussion

This study provides further support for the previously investigated relation between humor structure appreciation, sensation seeking and aesthetic judgment. Although the results partially confirmed the findings from prior studies (Carretero-Dios & Ruch, 2010; Ruch & Hehl, 1998), the pattern of association between the constructs was replicated in a Macedonian sample, using different measure for humor structure appreciation.

Before analyzing the results, it is necessary to point that the use of the term aesthetic judgment is equalized with pleasantness ratings. Ruch and Hehl (1998), state that the participants in their study were presented aesthetic judgment tasks, while the artistic postcards used were rated on a pleasantness scale. Furthermore, Rawlings et al. (2000) conclude that sensation seeking and openness to experience are “important personality dimensions underlying aesthetic judgment” (p. 572), although the musical excerpts and paintings were rated on “dislike” to “like very much” scale. However, this equalization has potential limitations. For example, the model of aesthetic experience proposed by Leder et al. (2004), clearly differentiate between two outputs: aesthetic emotion and aesthetic judgments. Pleasantness ratings of an artwork are related to aesthetic emotion. The authors, nevertheless, admit that naïve perceivers (as were the students in this investigation), have a stronger interdependence of both outputs, as opposed to experts. The question of the components of aesthetic experience (for a more thorough model see Marković, 2012) is an important one, since a conceptual coherence could provide a better understanding of the connection between personality traits and experimental aesthetics.

The results show that only aversiveness of NON humor was a significant predictor of sensation seeking when the regression analysis is considered. However, there are individual correlations that should be taken into account.

Sensation seeking was negatively correlated with aversiveness ratings of NON humor. Unresolvable of residual incongruities in humor are rated as more aversive by individuals low in sensation seeking. This finding could be interpreted by the “simple/boredom” factor, which relates more to the structural properties of humor (Ruch & Rath, 1993). It is assumed that the aversiveness of this type of humor is related to perceiving the humorous stimuli as simple and the associated state of understimulation. However, the perceived quality of the joke is in the eye of the beholder, or in other words, individual differences in finding NON humor as aversive are accounted by sensation seeking. Carretero-Dios and Ruch (2010) postulate that low sensation seekers find these jokes as aversive, since they are bizarre and absurd. This is perhaps better explained by the presumption that they experience this type of humor as simple, and future studies could include the rating scales of the “simple/boredom” factor. It should be added that in this examination, the AISS scale had very low reliability.

Preferring NON humor over INC-RES, here regarding the funniness dimension, was related with finding complex-abstract art more pleasant. Individuals, who enjoy playing with incongruous ideas, also rated the complex-

abstract art paintings as more pleasing. This was supported by the negative correlation of complex-abstract art with INC-RESf, and the positive correlation with the SPI. Nonsense humor also relates to the imagination and fantasy cluster (Ruch & Hehl, 1998), or accepting improbable events that are in contrast with one's knowledge of reality and willingness to enter the world of fantasy. It could be assumed that complex-abstract art paintings tap into this domain and that is why they are rated as more pleasing from individuals who prefer NON humor.

The limitations of these findings are comparable to the study done by Ruch and Hehl (1998). In their study, the artistic paintings (postcards) were classified by a group of eight art students, and they haven't provided evidence for empirical distinction. Also, it could be argued that a more appropriate classification for some of the paintings, for example the paintings by Dali, is *surrealistic*, rather than complex-abstract. Indeed, the analysis of individual paintings correlation with humor structure appreciation (Table 4) showed that one painting by Dali ("Femmes aux têtes de fleurs retrouvant sur la plage la peau d'un piano à queue") had positive relation with NONa, which is contrary to the expectations. Furnham and Avison (1997) showed that sensation seeking is related with preference for surreal art, so pleasantness of this painting should went along with lower aversiveness ratings of NON humor, regardless of the classification as surrealistic or complex-abstract. In this study, the Cronbach alpha coefficient for the complex-abstract art paintings was sufficiently low. In that sense, further studies are needed that will first make an empirical distinction between art styles and afterwards examine the relation with humor structure appreciation. Studies focused on the former question have been done (Furnham & Walker, 2001; Marković & Radonjić, 2008), and the provided models could also be used.

The relation of humor structure appreciation with sophisticated music was only significant for the aversiveness ratings of INC-RES humor. In general, negative responses to humor are found for individuals who can be described as *introverted* neurotic (i.e. anxious, depressive) (Ruch, 1992). More studies are needed, which will include such variables, to further illuminate the finding that higher ratings on INC-RESa are related to lower pleasantness of sophisticated music. Also, this study had a narrow focus on the sophisticated music factor and only seven musical pieces were used. In that sense, there are many open questions that could be examined in future studies regarding humor (structure) appreciation and musical preferences.

First, a future study should include all the musical pieces from the five music factors reported in Rentfrow et al. (2011). Alongside the hypothesis that preference for NON over INC-RES humor should went along with pleasantness of sophisticated music, it could be predicted that the intense music factor is associated with high appreciation of sexual humor. Intensity subscale from the AISS was positively correlated with higher appreciation of this type of humor in Carretero-Dios and Ruch (2010) study. Definitely, a larger sample is needed to enhance the statistical power, which was a main limitation of the present research.

Next, further studies could focus on the psychological attributes associated with music (Rentfrow et al., 2011), and the rating scales used by Ruch and Rath (1993) to investigate the overlap between them. For example, it could be investigated are the originality and puzzlement of NON over INC-RES humor related to perceiving sophisticated music as more complex and intelligent.

Studies could also focus on specific genre of music, for example jazz, which was preferred by individuals appreciating NON humor (Savary, 2010, as cited in Ruch & Platt, 2012). However, the factor structure within the specific genre should be first explored, since it is comprised of wide variety of musical styles and sub genres (Rentfrow et al., 2011). These authors additionally propose that “evidence for a similar five-factor model would suggest that music preferences are driven by specific features of music, not their social connotations” (Rentfrow et al., 2011, p. 1154). Preferring complex musical pieces within the same genre and higher appreciation of NON humor will expand the association of humor structure appreciation and complex-abstract art to music preferences.

Finally, other personality variables (openness to experience, intolerance of ambiguity), and different models of musical preferences should be taken into account. Reflective and complex music factor from the study by Knowles (2013) had a strong positive correlation with openness to experience, which is one of the most robust predictors of high appreciation of NON humor. Genetic and environmental influences on humor structure appreciation (Weber et al., 2014) could be jointly analyzed with different fields of the aesthetic (art, music). As it was shown in this study, pleasantness ratings on complex-abstract art and sophisticated music were positively correlated.

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## Odnos vrednovanja strukture humora sa traženjem senzacija i procenom kompleksno-apstraktne umetnosti i sofisticirane muzike

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Cilj ove studije je dvostruk. Najpre su ispitane relacije između traženja senzacija i vrednovanja strukture humora (Carretero-Dios & Ruch, 2010), kao i povezanost vrednovanja strukture humora i kompleksno-apstraktne umetnosti (Ruch & Hehl, 1998). U tom smislu cilj ove studije je replikacija ranije utvrđenih rezultata. Nakon toga je istražena povezanost vrednovanja strukture humora i sofisticirane muzike (Rentfrow, Goldberg, & Levitin, 2011). Rezultati dobijeni na osnovu ispitivanja 77 učesnika istraživanja delimično podržavaju predviđanja. Traženje senzacija je negativno povezano sa procenama averzivnosti besmislenog humora, dok je prijatnost kompleksno-apstraktne umetnosti negativno povezana sa komičnošću humora razrešavanja inkongruencije i pozitivno sa indeksom preferencije strukture. Averzivnost humora razrešavanja inkongruencije korelirala je negativno sa procenama sofisticirane muzike. Konačno, procene slika apstraktne umetnosti i izvodi iz sofisticirane muzike su bili pozitivno povezani. Razmotrene su implikacije ovih nalaza, ograničenja ovog istraživanja, kao i mogućnosti za dalje istraživanje.

**Ključne reči:** vrednovanje strukture humora, traženje senzacija, apstraktna umetnost, sofisticirana muzika

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