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MOVING TOWARDS A COMPREHENSIVE UNIFIED TRAIT STRUCTURE: CLARIFYING THE PLACEMENT OF OPENNESS, DISINTEGRATION AND CREATIVITY IN THE PERSONALITY SPACE

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"*All knowledge is collective*
but we live in a world where all credit is individual."
Steve Reicher (2012)

In line with this quote, it is me who gets the credit for this thesis, but I strongly endorse the perspective that all knowledge is collective and accordingly it is my desire to give credit to all of those who formed the collective involved with this dissertation project.

You know who you are and you know how grateful I am for your support and encouragement.

Moving towards a comprehensive unified trait structure: clarifying the placement of openness, disintegration and creativity in the personality space

Abstract

Examining basic personality traits and creativity, this thesis addresses the question whether a comprehensive personality space comprises five, six or seven factors and explored whether there exists a positive association between creativity and psychoticism or proneness to psychotic-like experiences, as implicated in the mad-genius hypothesis. In two samples (N = 786) the personality factors represented in the HEXACO model, Disintegration (proneness to psychotic-like experiences), PID-5 Psychoticism, creative activities and achievements, and divergent thinking were assessed. Applying Exploratory Structural Equation Modeling, the analyses revealed a clear result: The seven-factor model of the personality space reached best Goodness of Fit indices, with the Disintegration-factor distinct from Openness and other established personality traits. Addressing the mad-genius hypothesis, a test of the location of creativity in the personality space clearly indicates that it was located on the Openness factor. Taken together, these findings clearly refute the quantitative version of the mad-genius hypothesis. In essence, this thesis is devoted to a subject matter at the intersection of personality and clinical psychology by examining the mad-genius hypothesis and testing competing models of the personality space. The results provide the basis for significant implications at (a) the theoretical and (b) the practical level. With respect to (a) implications refer to the dimensions of the personality space and the mad genius hypothesis, concerning (b) implications relate to personnel selection as well as individuals' well-being.

Keywords: basic personality traits, creativity, mad-genius hypothesis, psychoticism

Scientific topic: Psychology
Narrow scientific topic: Personality psychology, Clinical psychology

Odnos između otvorenosti, kreativnosti i dezintegracije u prostoru bazične strukture ličnosti

Abstrakt

Izučavajući bazične crte ličnosti i kreativnost, ova teza bavi se pitanjem da li se prostor bazične strukture ličnosti najbolje može opisati pomoću pet, šest ili sedam faktora kao pitanjem da li postoji pozitivna asocijacija između kreativnosti i psihoticizma ili sklonosti ka psihozi i sličnim fenomenima, kao što je postulirano u hipotezi o "ludom geniju". Na dva uzorka (N = 786), procenjene su crte ličnosti iz modela HEXACO, Dezintegracija (sklonosti ka iskustvima sličnim psihozi), Psihoticizam iz upitnika PID-5, kreativne aktivnosti i postignuća kao i divergentno mišljenje. Analiza podataka eksploratornim modelovanjem strukturalnim jednačinama (ESEM) dovela je do nedvosmislenog rezultata: sedmofaktorska struktura imala je najbolje vrednosti indeksa fita, u kojoj se faktor Dezintegracija jasno izdvojio u odnosu na Otvorenost i ostale bazične crte ličnosti. Ishod testiranja hipoteze o "ludom geniju", lociranjem kreativnosti u prostoru bazične strukture ličnosti, jasno pokazuju da je kreativnost smeštena u prostor faktora Otvorenost. Uzimajući sve nalaze u obzir, ovi podaci opovrgavaju kvantitativnu verziju hipoteze o „ludom geniju". Suštinski, ova teza je posvećena temi koja je na granici između psihologije ličnosti i kliničke psihologije a koja se bavi testiranjem hipoteze o "ludom geniju" i modelima za opisivanje prostora bazične strukture ličnosti. Dobijeni rezultati predstavljaju osnovu za važne implikacije na (a) teorijskom i (b) praktičnom nivou. U odnosu na (a) implikacije se odnose na broj dimenzija u prostoru ličnosti, dok u odnosu na (b) implikacije se odnose na proces selekcije i regrutacije kao i na blagostanje osoba.

Ključne reči: bazične crte ličnosti, kreativnost, hipoteza o "ludom geniju", psihoticizam

Naučna oblast: Psihologija
Uža naučna oblast: psihologija ličnosti, klinička psihologija

Table of Contents

INTRODUCTION

This thesis is essentially devoted to two important questions, both of which address a subject matter at the intersection of personality and clinical psychology and both are dealing with controversial topics in dire need of substantive empirical evidence. The first question is whether there is a positive association between creativity and psychoticism and the proneness to psychotic-like experiences as implicated in the famous mad-genius hypothesis. The second question refers to the debate about the number and conceptualization of basic personality traits and the discussion whether a comprehensive conceptualization of the personality space comprises five, six or seven basic traits.

Is the mad-genius dead or alive?

The general notion emphasized by mad-genius proponents holds that there is a positive association between creativity and mental illness. For example, Eysenck stated, "Psychoticism is linked directly with both trait creativity and achievement creativity the link being overinclusiveness." (Eysenck, 1994, p.232) as well as "The creative individual is also conceited, cynical, disorderly, egotistical, hostile, outspoken, uninhibited, quarrelsome, aggressive, asocial, and, in the extreme, psychopathic." (Eysenck, 1994, p.233). And in a similar vein Simonton asserted, "Likewise, creativity is positively associated with schizotypy, a personality disposition that represents a kind of "normal" version of schizophrenia." (Simonton, 2010, p.222) and "To give the world enduring masterpieces, creative geniuses had to sell their souls to the devil." (Simonton, 2010, p.229).

It is important to note that the mad-genius debate implies several distinct hypotheses (Simonton, 2019) referring to group differences (e.g., professional artists or artistic geniuses vs. general population) or to correlations between quantitative variables (e.g., creativity scores and scores on instruments assessing psychopathology).

In the work presented here, the mad-genius proposition referring to correlations between quantitative variables will be addressed. More specifically, the association between psychoticism (as well as proneness to psychotic-like experiences) and three quantitative indicators of creativity will be examined. Complementing these direct assessments of creativity, constructs with well-established positive relations to creativity will also be considered, specifically need for cognition (Dollinger, 2003; Madrid, & Patterson, 2016) and openness to experience (King, Walker, & Broyles, 1996; McCrae, 1987). If the mad-genius logic holds true, one should obtain significant relations between psychoticism and these established correlates of creativity.

Some prior studies reported evidence supporting the mad-genius hypothesis as reflected in a correlation between selective indicators of schizotypy and measures of creativity (Folley & Park, 2005; Kinney et al., 2000; Schuldberg et al., 1988; Weinstein & Graves, 2002). On the other hand, there are studies questioning such findings and the proposition of a robust relationship between the constructs (Acar, Chen, & Cayirdag, 2018; Acar, & Sen, 2013; Acar, & Runco, 2012; Burch, Hemsley, Pavelis & Corr, 2006; Knudsen, Bookheimer, & Bilder, 2019; Miller & Tal, 2007; Schlesinger, 2009).

In sum, the current state of the art seems to suggest that the mad-genius as reflected in an association between psychoticism and quantitative indicators of creativity is more dead than alive.

However, further substantive evidence is needed to make a more conclusive statement possible. The empirical work reported below was conducted to render such evidence available.

Since the testing of the mad-genius hypothesis is the main aim in this thesis, it is important to clarify the specific type of question I am addressing in this work. Referring to Zanna and Fazio's (1982) description of the typical progress of (psychological) research, three generations of research questions can be distinguished which describe the progress in analyzing the relations between various psychological constructs. These three generations of questions can be described as follows. A first generation research question ("Is" question) is trying to answer whether a construct or a phenomenon can be empirically documented or whether there is a reliable relationship between constructs. According to Zanna and Fazio (1982), only when the first generation question has been asked and answered, researchers should proceed to answering the next generation of questions (i.e., "When" and "How" questions). The "When" question explores under what conditions an effect does occur, whereas the "How" question is designed to clarify the mediation or processes underlying a phenomenon or a relation between constructs.

Given the ambiguity concerning the question where creativity is located in the personality space, the most important first step is to clarify this question which reflects a first generation research question. An elaboration of potential psychological processes underlying the relation between personality factors and creativity is only meaningful after this first generation question has been resolved.

The present work is devoted to this first generation question and accordingly this work is silent regarding the second generation questions referring to underlying psychological processes or boundary conditions. Thus, the crucial point is to empirically assess whether a theoretically proposed construct (in the present case: creativity) can be validly empirically identified and whether the theoretically proposed relations of it to other constructs (proneness to psychotic-like experiences, openness) hold validity as well. This thesis is devoted to address this first generation question.

Does a comprehensive conceptualization of the personality space comprise five, six or seven basic traits? The ongoing debate about the number and conceptualization of basic personality traits

This paragraph will be devoted to the debate about the number of basic personality traits focusing on the relevant contributions across the last three decades.
The interested reader can find a more elaborate description of the early developments of personality psychology and trait approach in the work of Digman (1990), Goldberg (1990, 1992), and the contributions of John and his colleagues (John, Angleitner, & Ostendorf, 1988; John, Naumann, & Soto, 2008; John & Srivastava, 1999).

The trait approach represents the dominant paradigm in personality psychology and proposes that there is a distinct number of basic personality traits which explain the major portion of variance in individual differences (McCrae & Costa, 1987, 2008).
However, there is no consensus about the exact number of traits. Nowadays, the most widely accepted and mainstream models are The Big Five (Goldberg, 1990) and the Five Factor Model (FFM, Costa & McCrae, 1992), both emerged from the lexical approach in studying personality structure, proposing five basic traits – Neuroticism (N), Extraversion (E), Agreeableness (A), Conscientiousness (C) and Openness (O).

New lexical studies conducted in the more recent past proposed a six-factor personality model, HEXACO (Ashton et al., 2004), where the additional sixth factor is labeled Honesty/Humility (Lee

& Ashton 2004, 2006).

Questioning whether the FFM is sufficient to describe the personality space, alongside empirical evidence documenting that psychotic-like experiences are widespread in the general population, there were attempts to conceptualize psychoticism as a trait (Eysenck & Eysenck, 1976; Watson, Clark, & Chmielewski, 2008). This trait-like disposition was best described and most systematically empirically tested in the work of Knezevic and colleagues (Knezevic, Savic, Kutlesic, & Opacic, 2017), and named *Disintegration*. Disintegration is a proneness to psychotic-like experiences, a trait located outside the FFM personality space, consisting of nine facets (General Executive Impairment, Perceptual Distortions, Enhanced Awareness, Depression, Paranoia, Mania, Flattened Affect, Somatic Dysregulations and Magical Thinking). Although there were attempts to locate psychotic-like experiences within the Openness trait (DeYoung, Grazioplene, & Peterson, 2012; Widiger, 2011) studies using Disintegration as marker of psychotic-like experiences found no empirical evidence for this claim (Knežević, et al., 2016; Knezevic et al., 2017). Since the Disintegration construct has only recently been introduced, the available evidence is still fairly limited. Accordingly, it is important to provide further robust evidence supporting the notion that a comprehensive trait structure must include Disintegration as a basic personality trait complementing the HEXACO model.

Taken together, the mad-genius hypothesis and the search for a comprehensive representation of the personality space are the crucial topics addressed in this thesis. Chapters 2 to 7 will provide the theoretical background and current state of the art with respect to the latter topic. Chapter 8 is devoted to the concept of creativity outlining the theoretical background and current state of the art in this field of psychological research.

Chapter 2. The Big Five and the Five Factor Model of personality

In this chapter, two models which have been and still are dominant in personality research - The Big Five Model and the Five Factor Model of personality - will briefly be discussed. Since in this thesis the trait openness is a crucial construct, a somewhat more detailed description of this trait in each of the models will be provided. In general, the discussion of prominent models of personality is relevant in the present context, since the placement of proneness to psychotic-like experiences and of creativity in the personality space is inherently linked to the question of how the structure of basic personality traits can be described. Given that the placement of creativity in the personality space is at the heart of this thesis, and given that openness figures prominently in research on the personality correlates of creativity, the following elaboration on models of personality is restricted to models including openness as a factor. Accordingly, the model of Eysenck (1967) which does not include an openness factor will not be addressed, although it was quite influential several decades ago.

The Big Five model

The empirical work resulting in the Big Five model was one of the first approaches to identify primary personality factors in succession of Cattell's pioneering contributions. This model has emerged from reanalyzing Cattell's 16-personality traits theory (Cattell, 1990) and the correlations among those variables, attempting to reduce the number of factors. In their studies Fiske (1949), Tupes and Christal (1961) and Norman (1967) interpreted the data with five factors. Norman named them as follows: 1) *extraversion*, 2) *agreeableness*, 3) *conscientiousness*, 4) *emotional stability*, 5) *culture*, and with the exception of the term *culture*, these constructs remained in the Big Five model down to the present day (John et al., 2008). Some other authors, such as Goldberg, Digman and Saucier, preferred the label *intellect* (rather than culture), but this label has been questioned as well, and nowadays the most frequently used term to describe the fifth primary factor of personality is *openness (*McCrae & Costa, 1997). Various inventories for measuring the primary personality factors proposed in the Big Five model have been designed (for an overview, see De Raad and Perugini, 2002). Prominent instruments are Goldberg's adjective scales (Goldberg, 1990) as well as the most notable one – The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991).

The Five Factor Model

Following the general five-factor logic, another model has been developed and is very widely used in personality research – The Five Factor Model (FFM). The founding fathers, Costa and McCrae, reanalyzed Cattell's 16 personality scales and suggested a three-factor solution (Costa & McCrae, 1976). The first two factors were labeled *neuroticism* and *extraversion,* while for the third one they coined the term *openness to experience*, describing it as openness to cognitive and affective experiences. The openness to experience factor consisted of Cattell's scales: B –bright; I – tender-minded; M – imaginative; and Q1 – liberal thinking.

For the purpose of assessing their model of personality, Costa and McCrae (1985) developed the NEO Personality Inventory. Later on, two additional traits – *agreeableness* and *conscientiousness* – have been incorporated both to the model and to the questionnaire, resulting in the NEO PI-R (Costa & McCrae, 1992), which is among the most widely used instruments for measuring the five primary factors of personality. Each factor within the FFM consists of six facets. The facets of openness scale are – *fantasy*, *aesthetics, feelings actions ideas values*. Nowadays, the NEO PI-R seems to be one of the most frequently used inventories in personality research.

To this date, the five-factor paradigm has strong proponents (Crego & Widiger, 2018; Soto & John, 2017; Watson, Nus & Wu, 2019). However, some researchers argue that five factors are too few to attain a comprehensive representation of major dimensions of personality, as will be discussed in the next chapter.

Chapter 3. HEXACO model of personality

Although the five-factor paradigm seems to be dominant to this day, there is accumulating evidence that the proposed five dimensions are not sufficient to comprehensively describe the basic personality space. The HEXACO model (Ashton et al., 2004) emerged from new lexical studies. This model proposes a representation of the personality space including the five constructs proposed in the FFM (with some modifications on the facet level) plus an additional sixth dimension – Honesty-Humility (Lee & Ashton 2004, 2006). To assess each of the dimensions of the HEXACO model of personality, the HEXACO PI-R inventory has been developed (Lee & Ashton, 2018).

The existence of the honesty-humility factor has been replicated in studies conducted in different cultures and using different languages. The respective authors referred to this sixth factor as *integrity*, *honesty* or *morality* (John, Angleitner & Ostenhof, 1988; Ashton, Lee, & Son, 2000; Hahn, Lee, & Ashton, 1999; Szirmak & De Raad, 1994).

Of note, the HEXACO model does not only differ from the five factor models with respect to the number of factors proposed, but also in the operationalization of openness. In contrast to other lexical studies where the fifth factor was labeled as *intellect* and the relevant items in the inventory consisted of adjectives related to intelligence – this aspect has been eliminated in the HEXACO model. Actually, the excluded descriptors are the ones that refer to intellect as mental ability, but the content related to intellectual curiosity has been retained (Lee & Ashton 2004). The authors explained their reasons for this decision as follows: a) intellect (as mental ability) was a feature of openness only in some languages, whereas in others *unconventionality* was clearly dominant; b) the personality dimension of openness should not include aspects related to intelligence as cognitive ability, because intelligence is a construct outside of the space of basic personality (Lee & Ashton 2004). The openness factor in the HEXACO model and inventory consists of four facets: *aesthetic, appreciation, inquisitiveness, creativity and unconventionality* (Lee & Ashton, 2018).

Since a growing body of evidence supports the validity and explanatory power of the HEXACO personality model concerning various criterion variables (see e.g., Ashton & Lee, 2007; Ashton, Lee, & De Vries, 2014), this six-factor model was selected as the most comprehensive personality model for the empirical study reported below.

Chapter 4. The Openness trait – it's content, different operationalizations and equivalence between models

The purpose of this chapter is (1) to provide additional information regarding the Openness trait and (2) to explain why the HEXACO model of basic personality traits has been selected for the empirical work and to explicate why the selection of this model (instead of the Big Five or the FFM) does not make a fundamental difference regarding the research question addressed in the present work.

First, I will briefly describe different operationalizations of Openness and then report on empirical data indicating that regardless of the model – The Big Five, FFM or HEXACO – the conceptualization of Openness is essentially identical in its core. That is, the main research question (the location of creativity in the personality space, especially in relation to Openness and Psychoticism), can be addressed irrespective of the selection of a specific personality model. Of course, some of the personality traits specified in the different models are significantly different (specifically, neuroticism versus emotionality) and if these constructs were at the center of attention the selection of a personality model would be of critical relevance.

The content of the Openness factor and different operationalizations

Ever since the factor openness was extracted in the studies based on the lexical approach there was a dispute among researchers regarding its label (Digman, 1990). In broadest terms, the openness trait reflects individual differences in the tendency to engage in cognitive exploration which includes reasoning and perception.

As mentioned above, this trait was recognized for the first time in the lexical studies, and labeled as *culture*. The label portrayed the content of the dimension which consisted of three elements: 1) sophistication, 2) intelligence, and 3) interest in art. It was presumed that these elements can be identified in highly educated persons (McCrea & Costa, 1985). Tupes and Christal (1961) stated that this dimension is the least clear one regarding its content. The adjectives with the highest loadings were: cultured, esthetically fastidious, imaginative, socially polished, and independent-minded. The opposite pole of this dimension was characterized by adjectives like clumsy, practical, immature.

The label *culture* was discarded in the following studies starting with Goldberg (1990), who applied the same lexical approach using the data from Norman's study (Norman, 1967) and interpreted the fifth factor as *intellect.* This term was challenged as well, and as I have mentioned in chapter 2 – the dominant label for this factor became *openness to experience*. To sum it up – in the Big Five paradigm (lexical approach) the label intellect was mostly used, while in FFM (studies based on questionnaires) the label openness was firstly used and became predominant in the field of research on personality traits.

Even though the label openness is predominantly used, some researchers are still chasing for the right term. Saucier (1992, 1994) proposed the label *imagination*, since imagination is present both in intellectual as well as in artistic pursuits and tendencies.

As described in the chapter 2, in the FFM the openness to experience trait consists of six facets – *fantasy*, *aesthetics, feelings, actions, ideas, and values*. McCrae and Sutin (2009, p.258) described the trait manifestation as follows: "Highly open people are thus seen as imaginative, sensitive to art and beauty, emotionally differentiated, behaviorally flexible, intellectually curious, and liberal in

values. Closed people are down-to-earth, uninterested in art, shallow in affect, set in their ways, lacking curiosity, and traditional in values".

Moving towards the HEXACO model and its operationalization of the openness factor and content, I will try not to be redundant since the main postulates have already been presented in the previous chapter. In short, the adjectives related to intelligence have been removed, thus the label of the factor is openness and not intellect as in the other lexical model – the Big Five model. The rationale underlying the decision to exclude adjectives related to intelligence can be extracted from the following quote: "This decision is based on our view that the personality domain subsumes typical behavioral tendencies, but not abilities; on this basis, intellectual orientation is properly part of a model of personality structure, but intellectual capacity is not" (Ashton & Lee, 2007, p.155). This quote is important since there have been other attempts to create and define openness as a broad concept, beyond the borders of personality, which encompass both personality elements as well as cognitive constructs such as intelligence (eg. De Young et. al., 2012).

Openness – the equivalence between the models

As described in the Chapters 2 and 3, there are different personality models which contain Openness as a trait. Based on these models, there are various instruments available for assessing the Openness trait. Accordingly, one may wonder whether the specification of Openness is overlapping across the models and how to choose the most appropriate instrument to assess Openness? To address this issue, I will present the results of research pointing at the equivalence of the models with respect to the Openness factor, describing studies which correlated Openness scales from different instruments (i.e., models). All the instruments were based on the Big Five, the Five Factor Model or the HEXACO model.

Because there is an ongoing debate about the appropriate label for the trait Openness, some authors claim it to be the most controversial trait (McCrae & John, 1992). Still, there is a consensus regarding its core – a highly open person is described as intellectually curious, prompt to imagination, open to new ideas and values.

Comparing three personality instruments from the two models The Big Five and FFM – Big Five Inventory (BFI), Trait Descriptive Adjectives (TDI) and NEO Five Factor Inventory (NEO) and calculating correlations John & Srivastava (1999, p. 117), found that the mean correlation was .83 BFI and TDI are developed from the same Big Five model, whereas NEO is based on the FFM model. The correlations between BFI & TDI; BFI & NEO; and TDA & NEO were .89; .85 and .71, respectively John & Srivastava (1999, p. 117).

For the purpose of testing convergent validity of the HEXACO PI-R questionnaire, its scales were correlated with Goldberg's International Personality Item Pool (IPIP) which represent markers of the lexical Big Five personality factors. IPIP markers of Openness (Intellect/Imagination) correlated .68 with the HEXACO PI-R Openness factor (Lee & Ashton, 2004), on the facet level correlations ranged from .41 (Aesthetic Appreciation) to .72 (Creativity).

These empirical findings support the notion that the Openness factor is largely equivalent across the models and that we are essentially assessing the same concept no matter if we choose to use questionnaires based on the FFM, the Big Five or the HEXACO model.

Chapter 5. The link between clinical and non-clinical traits: DSM-V

Approaching the topic at the heart of this thesis – the placement of proneness to psychotic-like experiences and of creativity in the personality space – this chapter is devoted to the link between clinical and non-clinical personality traits. This thematic field is particularly relevant since both proneness to psychotic-like experiences and creativity have been linked to psychopathology in a series of studies relevant to the main theme of this thesis (Ashton et al., 2012; Miller & Tal, 2007; Watson, Clark & Chmielewski, 2008). Accordingly, a brief look into the field of research on psychopathology and mental disorders in the last decades seems well indicated with a focus on the conceptualization and assessment of mental disorders according to the Diagnostic and Statistical Manual of Mental Disorders.

Before the most recent (fifth) edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) appeared, a categorical classification of mental disorders has been used in the DSM-IV based on the notion that mental disorders represent qualitatively distinct conditions. The DSM-IV was heavily criticized, with particularly strong critical comments concerning excessive co-occurrence of diagnoses and unresolvable disputes about the boundaries for the diagnosis of mental disorders (Widiger & Samuel, 2005). In the more recent past, researchers tested the hypothesis whether a dimensional (rather than categorical) model of classification could be a more proper path in providing an adequate representation of psychopathology. So far, substantial empirical evidence demonstrates that aspects of personality, recognized as abnormal, constitute a continuum ranging from a sub-clinical to a full-blown pathological level (Clark, Livesley, Schroeder & Irish, 1996; Oldham & Skodol, 2000; Skodol, Clark, Bender, Krueger, Morey, Verheul et al., 2011; Verheul, 2005; Widiger & Samuel, 2005; Widiger & Simonsen, 2005; Widiger & Trull, 2000).

In line with the dimensional classification model, various groups of researchers in the field started to argue that personality disorders (PD) proposed in DSM-III and DSM-IV can be considered maladaptive variants of domains and facets of personality as conceptualized in the Five Factor Model (Lynam & Widiger, 2001; Widiger & Costa, 1994; Widiger & Costa, 2012). Results of studies testing the links between personality disorders and the five factors of personality revealed that personality disorders were linked to only four of the traits in the FFM – Neuroticism, Extraversion, Agreeableness and Consciousness (Widiger & Costa, 1994). The authors concluded "It could be problematic for a personality-trait model of PDs if one of the fundamental dimensions of personality had no consequential implications for maladaptive functioning" (Widiger & Costa, 1994, p.84). In fact, the results of studies testing the relation between Openness and PDs are very inconsistent and the same is true concerning the link of basic personality traits to schizotypal PD (Lynam & Widiger, 2001; Samuel & Widiger; 2008; Watson, Clark, & Chmielewski, 2008).

As part of the development of the latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), a new maladaptive personality trait model has been proposed (Krueger, Derringer, Markon, Watson & Skodol, 2012; Krueger & Markon, 2014). The model encompasses four domains ranging from normal to abnormal variants of personality (Negative Affect, Detachment, Antagonism, and Disinhibition), plus the domain Psychoticism as fifth element. The Psychoticism domain was added in order to assess schizotypal PD, in line with results of a meta-analysis of 18 models of psychopathology assessment (Widiger & Simonsen, 2005) which suggested that there might be a fifth potential domain within maladaptive traits, which was underrepresented in previous models of psychopathology. The authors initially labeled this domain "unconventionality vs. closedness to experience ".

Also in the context of the DSM-V development, Krueger et al. (2012) proposed an instrument designed to assess maladaptive personality traits, Personality Inventory for DSM-V – PID-5. The

PID-5 instrument consists of 25 lower order traits that are linked to five higher order domains: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism (Krueger et al., 2012; Wright, Thomas, Hopwood, Markon, Pincus & Krueger, 2012). In the meantime, the validity of the PID-5 has been corroborated by substantial empirical evidence (De Fruyt, De Clercq, De Bolle, Wille, Markon & Krueger, 2013; Thomas, Yalch, Krueger, Wright, Markon & Hopwood, 2013; Wright et al., 2012).

In the research testing the convergence of the DSM-V pathological personality model and the FFM, several studies found consistent evidence that negative affect, detachment, antagonism and disinhibition represent domains corresponding to personality factors in the FFM, specifically, Neuroticism, Extraversion, Agreeableness, and Conscientiousness (Thomas et al., 2013; De Fruyt et al., 2013; Watson, Stasik, Ro & Clark, 2013). However, the findings are largely inconclusive with respect to the psychoticism domain and its relation to the personality traits represented in the FFM (e.g., Suzuki, Samuel, Pahlen, & Krueger, 2015). Some authors conceptualize psychotic-like phenomena as extreme level of Openness (DeYoung et al., 2012; Dilchert, Ones, & Krueger, 2014), but this notion seems empirically not supported (DeYoung, Carey, Krueger, & Ross, 2016; Knežević, et al., 2016; Knežević et al., 2017; Watson et al., 2008).

Another line of evidence concerning the convergent validity of the PID-5 comes from studies using the HEXACO model and testing links to PDs including a schizotypy/dissociation factor (Ashton, Lee, De Vries, Hendrickse & Born, 2012). It is important to note that Psychoticism in this study was operationalized with only one scale focusing exclusively on one aspect of psychotic-like phenomena (curious experiences). In their study, Ashton et al. (2012) found evidence that maladaptive personality manifestations are not reducible to a six-factor structure mirroring the HEXACO personality traits, and that incorporating a seventh factor is crucial to obtain a model that adequately represents the structure of personality disorders. In this study, Psychoticism had a strong loading on the schizotypy/dissociation factor and only a modest secondary loading on the Openness factor. In general, the results of this study revealed that Openness to experience and Agreeableness are only weakly represented in the PID-5 model. In an attempt to explain this pattern of results, Ashton et al. (2012) argued against conceptualizing schizotypy/dissociation as a distinct personality trait and tried to account for the pattern of results stating that the findings are probably the consequence of response styles. An alternative interpretation of the pattern of results considers the 7-factor structure as a valid piece of evidence and proneness to psychotic-like experiences as the personality factor corresponding to Psychoticism in the DSM-V. And in fact, a substantial body of empirical evidence supporting the conceptualization of a trait-like domain that encompasses a broad spectrum of psychotic-like experiences and behaviors has been accumulating in the last several years (e.g., Ashton & Lee, 2012; Knežević et al., 2017; Tackett, Silberschmidt, Krueger & Sponheim, 2009; Watson et al., 2008, etc.). The conceptualization and assessment of proneness to psychotic-like experiences as a basic personality trait is the topic of the next chapter.

Chapter 6. Disintegration – proneness to psychotic-like experiences: The missing element in the search for a comprehensive unified trait structure

The trait dimension Disintegration as proposed by Knežević and colleagues (Knezevic et al., 2017) articulates proneness to psychotic-like experiences as a broad hierarchically organized, multidimensional behavioral disposition which encompasses nine converging facets – General Executive Impairment, Perceptual Distortions, Paranoia, Depression, Flattened Affect, Somatic Dysregulations, Magical Thinking, Enhanced Awareness, and Mania. The content of the scales as reflected in sample items can be examined in Table 1. This construct has been shown to be independent from the big five personality traits, and was normally distributed in the general population (Knezevic et al., 2017).

Using Disintegration as a working model of psychotic-like phenomena allows for a more precise analysis of the relations between PID-5 traits and basic personality traits, especially the relations between proneness to psychotic-like experiences, creativity, openness and PID-5 Psychoticism. Moreover, including Disintegration in the analysis will provide reliable empirical evidence concerning the mad-genius link. Consistent with some previous studies (Ashton et al., 2012; Chmielewski, Bagby, Markon, Ring, & Ryder, 2014), one can expect that Openness will not be directly implicated in personality disorders represented in the PID-5, and accordingly that Openness will be underrepresented in the PID-5 model, whereas Disintegration should emerge as a close correlate of PID-5 Psychoticism.

Table 1
Disintegration scale sample items

Disintegration scale	Example items
General executive impairment	*"I frequently repeat useless actions"* *"I understand well what I read"* [a]
Perceptual Distortions	*"Sometimes I feel as a split personality"* *"I always feel that my body is really mine"* [a]
Paranoia	*"I feel being watched"* *"No one tries to cheat me"* [a]
Depression	*"I would like to sleep through this period of my life"* *"I'm usually in a good mood, regardless of what I do"* [a]
Flattened Affect	*"Although I know that some things should upset me, basically I don't care"* *"I have a lot of plans for the future."* [a]
Somatic Dysregulations	*"There are times when I can't hear anything, as if I'm deaf"* *"I rarely feel exhausted"* [a]
Magical Thinking	*"I feel the presence of evil forces around me, although I can't see them."* *"There are no „supernatural forces"* [a]
Enhanced Awareness	*"There are some pieces of music that make me think of images or moving colorful patterns"* *"Touching materials - such as wool, sand or wood – sometimes makes me think of colors or music"*
Mania	*"I am often very excited and happy for no apparent reason"* *"I'm not a superman who can do anything "* [a]

Note. a – reverse coded item.

Chapter 7. Controversial debate about the relation between Openness and Psychosis proneness

A substantial number of studies have been conducted in order to provide answers to some of the questions regarding the content and boundaries of the Openness trait, its relation to Psychosis proneness and also some studies addressing the relation of both constructs to creativity (cf. Ashton & Lee, 2012; Ashton et al., 2012; Chmielewski et al.,, 2014; DeYoung, et al., 2012; Fruyt et al., 2013; Knezevic et al.,2017; Miller & Tal, 2007; Moorman & Samuel, 2018; Pocnet, Antonietti, Handschin, Massoudi, & Rossier, 2018; Suzuki et al., 2017; Watson et al., 2008).

Given the focus of the present work on the placement of openness, disintegration and creativity in the personality space, the following discussion of prior work will elaborate only on those studies that included a) the assessment of Big Five or HEXACO traits; b) an operationalization of Psychosis proneness as a basic trait and c) criterion variable(s) reflecting psychopathology or creativity. Applying these criteria, a systematic literature review revealed that only three contributions fit this logic (Ashton et al., 2012; Miller & Tal, 2007; Watson et al., 2008).

Before reviewing these crucial articles in greater detail, the next section provides a short description of studies that do not meet the outlined criteria in total, but are still relevant to some extent in this field of research.

One of the studies aiming to define the nature of Openness and its link to Psychosis proneness was conducted by De Young and colleagues (DeYoung et al., 2012). Their theory proposes a very broad nature of Openness/Intellect, including both intelligence and the positive symptoms of Psychosis proneness (apophenia). Because of the very narrow assessment of Psychosis proneness (selectively focusing on apophenia) and the lack of constructs representing psychopathology, this study is only of limited informative value concerning the placement of openness, disintegration and creativity in the personality space and therefore not included in the more elaborate discussion below.

Following the same logic, the work of Ashton and Lee (2012) is also only of marginal significance with respect to the current research question. These authors examined their operationalization of an Oddity factor and its relation to the Big Five and HEXACO traits, and to Schizotypy. It is important to clarify that in the two studies presented in this article, the Schizotypy indicators were the following inventories, previously used to operationalize the Oddity trait (Watson et al., 2008): the Curious Experiences Survey (CES; Goldberg, 1999); the Somatoform Dissociation Questionnaire (SDQ; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1997); the Creative Experiences Questionnaire (CEQ; Merckelbach, Horselenberg, & Muris, 2001); the Magical Ideation Scale (MIS; Eckblad & Chapman, 1983); and the Obsessive-Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998). In addition, to assess Oddity "in the sense of a personality trait of perceived strangeness or eccentricity" (Ashton and Lee, 2012, p.116) the authors constructed a four-item scale[1]. Accordingly, their findings are only briefly mentioned here: using extension factor analysis (Gorsuch, 1997; O'Connor, 2001) they have entered in first study Big Five traits plus Schizotypy as core variables, and in the second study the set of core variables consisted of HEXACO traits with the addition of Schizotypy. The four-item Oddity scale was in both studies entered as an extension variable (Ashton & Lee, 2012). The extension analysis has two steps: 1) the core variables are analyzed in the same manner as in a standard exploratory factor analysis; 2) a single variable (or several variables) are then entered and the loadings are computed within the core variables' space. In the six-factor solution (Big Five & Schizotypy), the Oddity scale had its primary loading on the Openness factor (.41), and secondary on Schizotypy (.21). In the seven-

[1] "The final set of four items was as follows: "Am considered to be kind of eccentric," "Do things that others find strange," "Have a conventional lifestyle" (reverse-scored), and "Like to be thought of as a normal kind of person" (reverse-scored)." (Ashton and Lee, 2012, p.117)

factor solution Oddity had again a secondary, but higher loading on the Schizotypy scale (.32), while the primary loading on the Openness scale was similar (.43).

Identifying the limitations of prior studies regarding Openness, Psychosis proneness and psychopathological manifestations (Psychoticism), a study was conducted by Chmielewski and colleagues (2014) in order to examine the relations among those constructs more systematically. In this study, Psychosis proneness was defined and assessed as broad and heterogeneous construct using the Structured Clinical Interview for DSM- IV Axis II Personality Disorders Patient Questionnaire (SCID- II- PQ; Gibbon, Spitzer, & First, 1997), while the Psychoticism scale from the Personality Psychopathology Five (PSY-5r; Harkness, Finn, McNulty, & Shields, 2012) was used as indicator of Psychoticism. PSY-5r Psychoticism and PID-5 Psychoticism scales converge and the correlation between them was r = .53 in a prior study by Anderson et al. (2013). Because Chmielewski and colleagues did not focus on the basic personality trait structure, reflected in the fact that aside from Openness the other basic traits from Big Five or HEXACO were not elaborated on, and because the sample consisted of patients in a psychiatric hospital, this paper will not be examined in detail. However, it is noteworthy that the main finding of the study by Chmielewski et al. (2014) is well in line with the hypothesis proposed in the current study stating that Psychoticism and Openness are best viewed as distinct dimensions and accordingly the DSM-5 Psychoticism factor represents an abnormal or pathological version of some normal range trait other than Openness.

Another three studies have been "shortlisted" for this elaboration on the state of the art in this field of research, but do not fully match the criteria outlined above, because they lack a proper representation of the Psychosis proneness construct (De Fruyt et al., 2013; Pocnet et al., 2018; Suzuki et al., 2017). All of them focused on the similarities between the Big Five and PID-5 models, two found similarities between Openness and PID-5 Psychoticism (De Fruyt et al., 2013; Suzuki et al., 2017).

The study conducted by Pocnet and colleagues (Pocnet et al., 2018) used bootstrap multiple regressions to predict PID-5 factors using NEO PI-R scales as predictors. The most significant predictor of PID-5 Psychoticism was NEO-Neuroticism (.27), followed by NEO-Agreeableness (-.20), NEO-Openness (.19), and NEO-Conscientiousness (-.17). Correlation analysis revealed that PID-5 Psychoticism was associated with: NEO-Neuroticism (.42), NEO-Openness (.22), NEO-Conscientiousness (-.33) and NEO-Agreeableness (-.28). Further data analysis (Multiple Factorial Analysis, MFA; Principal Axis Factor Analysis; PAF) led to the conclusion that Openness and Psychoticism are related but distinct constructs and should not be considered adaptive and maladaptive variants of one common underlying dimension (Pocnet et al., 2018).

The last study briefly described in this section explored the relations between Openness, Psychosis proneness and Psychoticism (Moorman & Samuel, 2018). Markers used to measure Psychosis proneness were: 1) Wisconsin Schizotypy Scales (WSS; Kwapil et al., 2008); 2) Experiential Permeability Inventory (EPI; Piedmont, Sherman, & Sherman, 2012); 3) FFSI-SF (Edmundson et al., 2011). Psychoticism was assessed with the Psychoticism PID-5 scale and the subscales Peculiarity, Fantasy Proneness, Unusual Beliefs, Unusual Experiences from the Computerized Adaptive Test for Personality Disorder (CAT-PD; Simms et al., 2011). The study also included a criterion variable referring to creativity, operationalized by 1) self-report measures (Creative Behavior Inventory, CBI; Hocevar, 1980) and 2) a measure of creative performance (Abbreviated Torrance Test for Adults, ATTA; Goff, 2002). However, this study did not include any other basic personality trait aside from Openness, which is why it is not considered a major contribution entering the more elaborated discussion below. The authors reported positive correlations between Openness and some Psychosis proneness markers as well as between Openness and Psychoticism (Moorman & Samuel, 2018). However, given the neglect of other basic personality traits, this study

is only of limited informative value concerning the placement of openness, disintegration and creativity in the personality space.

The current state of the art regarding the placement of Openness, Disintegration and Creativity in the personality space

In the following paragraphs, the most relevant studies that can be identified in the literature to date which are directly related to the topic of this thesis will be discussed thus characterizing the scientific background of the (empirical) work conducted in the dissertation project as reported in this thesis. As already mentioned above, only three publications (Ashton et al., 2012; Miller & Tal, 2007; Watson et al., 2008), meet the criteria for inclusion in the more narrow focus on the current state of the art, which are the study includes a) the assessment of the Big Five or HEXACO traits; b) an operationalization of Psychosis proneness as a basic trait and c) the assessment of criterion variable(s) reflecting psychopathology or creativity. The three studies will be presented in chronological order in the next sections.

The study conducted by Miller and Tal (Miller & Tal, 2007) addressed the vivid debate about the question whether creativity can be considered an evolutionary byproduct of Schizophrenia. This debate is essentially one between two camps: Those who propose a reliable relation between creativity and psychopathology and those who consider creativity as related to the basic personality trait Openness. Miller and Tal assessed four relevant constructs to provide empirical evidence relevant to the debate: Schizotypy, Basic personality traits, Intelligence and Creativity, assessed in a student sample (N = 225). They assessed Schizotypy as criterion variable (from the domain of psychopathology) using the 74-item Schizotypal Personality Questionnaire (SPQ; Raine, 1991), with two subscales reflecting Positive and Negative Schizotypy. Basic personality traits were operationalized using the Five Factor Model (FFM) and the 60-item NEO-FFI inventory (Costa and McCrae, 1992). To measure intelligence, an 18-item version of Raven's Advanced Progressive Matrices (Raven et al., 1998) was completed by participants, while Creativity was measured with a set of creativity tasks. Specifically, the creativity tasks consisted of six verbal and eight drawing assignments. Verbal tasks included various questions, ranging from questions similar to those in Guilford's Consequences test (e.g. "Imagine that all clouds had really long strings hanging from them — strings hundreds of feet long. What would be the implications of that fact for nature and society?") to more self-focused ones (e.g. "If you could experience what it's like to be a different kind of animal for a day, what kind of animal would you want to be, and why?"). Eight drawing tasks were divided into four abstract drawings (e.g. "Please draw an abstract symbol, pattern, or composition that represents your soul, spirit, or essence.") and four representational drawings (e.g. "In the space below, please draw an animal that you admire for its strength, grace, speed, or beauty."). Each of the tasks were rated by for four raters (the two authors, and two PhD students) on 5-point Likert scales. As inter-rater reliabilities (Cronbach's alphas) were high (ranging from .80 to .90) and average correlations between tasks were significant and substantial (15 pairwise correlations across the six verbal tasks ranged from .23 to.49; abstract drawing ratings correlated .61 with the representational drawing ratings), the authors computed verbal and drawing creativity scores.

Bivariate correlation coefficients among key variables were calculated, and the results of upmost importance are presented in Table 2. This is a condensed form of the original table of results (Miller & Tal, 2007, p. 319), focusing on the correlation coefficients that are most important for the current discussion.

Table 2
Bivariate correlations between two creativity indices, positive schizotypy, negative schizotypy, and NEO-FFI traits

	V. creat.	D. creat.	P.sch	N.sch
V. creat.				
D. creat.				
P. sch	.16*	.16*		
N. sch.	-.04	.08		
O	.34**	.46**	.29**	-.01
C	-.17*	-.18*	-.26**	-.25**
E			-.05	-.50**
A			-.30**	-.38**
N			.31**	.51**

Note: V. creat. – Verbal creativity; D. creat. – Drawing creativity; P.sch – Positive schizotypy; N. sch. - Negative schizotypy; O – Openness; C – Conscientiousness; E – Extraversion; A – Agreeableness; N – Neuroticism; * – $p < .05$; ** – $p < .01$.

Of note, these correlational results clearly point to the fact that creativity is robustly associated with openness while the association is much weaker with positive Schizotypy and essentially nonexistent with negative schizotypy. In order to answer their research question whether Schizotypy or Openness and Intelligence are primary predictors of creativity somewhat more elaborately, the authors ran multiple regressions. The results – standardized beta weights - are presented in Table 3.

Table 3
Standardized beta weights of OLS regressions with verbal and drawing creativity indices as criteria and Intelligence, NEO-FFI traits, Positive and Negative schizotypy.as predictors.

Predictor	Verbal creativity	Drawing creativity
Intelligence	.26**	.15*
Openness	.23**	.38**
Conscientiousness	-.10	-.06
Extraversion	-.07	-.09
Agreeableness;	.03	.05
Neuroticism	.02	.14
Positive schizotypy	.08	.01
Negative schizotypy	.09	-.04

Notes. * – $p < .05$; ** – $p < .01$; the authors did not report R^2 values which is why they are missing in this table.

It is important to note that Miller and Tal (2007) concluded, based on the results of their study, that "Only intelligence and openness consistently predict verbal creativity. No other Big Five trait, nor either Schizotypy trait, predicts verbal creativity when controlling for all other variables." (p. 320).

Although this study is quite informative concerning the question referring to the placement of Openness, Disintegration and Creativity in the personality space, several aspects limit the conclusions that can be drawn from it: 1) the generalizability of the findings is limited due to the nature of the sample (students); 2) Psychosis proneness was not assessed as a basic personality trait; 3) the authors did not assess self-reported creative achievements (such as "I play one or more musical instruments proficiently." or "I have been author or coauthor of a study published in a scientific journal.") in the study, as an additional measure of creativity (productivity). The latter two limitations seem particularly critical from a theoretical and conceptual perspective. It may well be the case that the potential benefit of being odd and eccentric with respect to creativity might emerge given that Psychosis proneness is assessed as a basic personality trait. In terms of research goals, the study by Miller and Tal did not focus on the relations between Openness and Schizotypy in the basic personality space, instead their main focus was to come to a better understanding with respect to the question which of these two traits is the primary predictor of creativity. Notably, they did not even refer to the question whether Schizotypy could be considered a maladaptive version of Openness.

The second research contribution that I will describe in some detail is the one conducted by Watson and colleagues (Watson et al., 2008) which assessed basic maladaptive personality traits and established a new factor labeled "Oddity" that involves elements reflecting some sort of Schizotypy. According to the authors Oddity represents a construct that is distinct from Openness as entailed in the Big Five model, which has been linked to the maladaptive trait Psychoticism as included in the most recent edition of the Diagnostic and Statistic Manual of Mental Disorders – *DSM-V*. The research report by Watson and colleagues (2008) consists of three studies, which will be outlined in the next paragraphs.

In Study 1, 327 students completed several instruments designed to assess basic personality traits: 1) the NEO-PI-R (Costa & McCrea, 1992); 2) the Big Five Inventory (BFI; John & Srivastava, 1999); 3) the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1976); 4) the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993); while dissociation was measured using: 1) the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; Carlson & Putnam, 1992); 2) the Questionnaire of Experiences of Dissociation (QED; Riley, 1988); 3) the Dissociative Processes Scale (DPS; Harrison & Watson, 1992). In their data analytic approach, Watson and colleagues conducted several exploratory factor analyses (EFAs) ranging from two to six factor solutions, applying promax rotation. The five and six factor solutions are most relevant concerning the question whether Openness or Oddity reflect some sort of Schizotypy.

In the five-factor solution, the first four factors represented the well-established personality constructs Neuroticism, Conscientiousness, Agreeableness, and Extraversion, while the fifth factor consisted of several dissociative and openness markers. There were six markers of Dissociation (factor loadings are provided in brackets): 1) The Questionnaire of Experiences of Dissociation, QED (.71), 2) SNAP Eccentric Perceptions (.70), 3) DPS Detachment (.67), 4) DPS Imagination (.66), 5) Dissociative Experiences Scale, DES (.55), 6) DPS Obliviousness (.53) and five markers of Openness: 1) BFI Openness (.69), 2) NEO Aesthetics (.64), 3) NEO Fantasy (.63), 4) NEO Ideas (.62), 5) NEO Feelings (.45). The authors concluded "Thus, we do see some evidence of a basic affinity between Openness and Oddity in these data" (Watson et al., 2008, p. 1557).

However, in the six-factor solution, Oddity and Openness formed clearly distinct factors. The fifth factor Oddity included SNAP Eccentric Perceptions, QED, DES, DPS Detachment, DPS Obliviousness, DPS Imagination and SNAP Mistrust, with factor loadings ranging from .78 to .49. Only DPS Imagination had a notable secondary loading (.32) on the Openness factor. We can observe that in this factor solution both the clinical markers of Psychoticism (dissociation) and the markers of psychosis proneness (SNAP subscales) form one factor, with only a single indicator showing a low secondary loading on the Openness factor.

Openness, the sixth factor consisted of five NEO facets (except NEO Actions) and BFI Openness, with loadings ranging from .63 to .49. Two markers of the Openness factor had notable secondary loadings on the Oddity factor - BFI Openness (.39) and NEO Fantasy (.35), while their primary loadings were .50 and .49, respectively (Watson et al., 2008, p. 1561).

To test which factor solution results in better fit indices, a confirmatory factor analysis (CFA) was conducted, comparing one and two factor solutions, using the 11 variables from the five-factor solution obtained in the EFA. Openness was defined by BFI Openness and the four NEO facets (Aesthetics, Fantasy, Ideas and Feelings), while SNAP Eccentric Perceptions and five dissociative scales defined Oddity. Summarizing the results of this CFA, the authors concluded "The two-factor model fit the data significantly better than the one- factor model [χ^2 diff (1) = 5194.24, $p < .001$]" (Watson et al., 2008, p. 1561), and the correlation between the factors was moderate (r = .54).

Given that the first study was merely a secondary data analysis (Markon et al., 2005) and the data set provided various markers of dissociation but only few indicators of Schizotypy or Psychosis proneness, Study 2 was conducted, with assessments at two time points involving 555 students at Time 1, and 441 students at Time 2. The Big Five traits were measured using the BFI and Goldberg's (1992) list of 45 adjectives. Oddity was assessed with DPS, DES and Schizotypal Personality Questionnaire (SPQ; Raine, 1991). The SPQ is an inventory consisting of nine subscales designed to measure schizotypy quite broadly, and was developed for the assessment of the general population (Watson et al., 2008).

The data were analyzed using EFA, and six-factor solutions at both Time 1 and 2 were inspected, followed by CFAs where again a one-factor (Openness + Oddity) model was compared to a two-factor model. EFA at both time points revealed similar factor structures. The Openness factor consisted of Openness domains of the BFI (.84 at Time 1) and Goldberg's adjective list (.83 at Time 1). The DPS Imagination scale had a secondary loading (.34 in Time 1) on this factor. Of note, the authors did not provide factor loadings for EFA at Time 2, but simply described them as "highly similar" (Watson et al., 2008, p. 1568). The Oddity factor consisted of 1) SPQ Unusual Perceptual Experiences, 2) SPQ Ideas of Reference, 3) SPQ Odd Speech, 4) DES, 5) SPQ Suspiciousness, 6) DPS Obliviousness, 7) SPQ Magical Thinking, 8) DPS Detachment, 9) SPQ Odd Behavior, with loadings ranging from .78 to .42 at Time 1. Importantly, none of the Oddity markers had noteworthy secondary loadings on the Openness factor. Results of the CFA again speak in favor of a two-factor solution, both at Time 1 [χ^2 diff (1) = 415.11, p<.001] and also at Time 2 [χ^2 diff (1) = 435.71, p<.001].

In order to put the assumption that Oddity is an element of the broad construct of Openness to a further test, Study 3 was conducted, involving 504 participants from the Eugene-Springfield Community Sample (ESCS). The instruments included were various lower order markers of Openness: 1) six NEO PI-R Openness facets (Costa & McCrea, 1992), 2) the Intellectance domain of the Hogan Personality Inventory (HPI; Hogan & Hogan, 1992) containing six subscales – Science Ability, Curiosity, Thrill Seeking, Intellectual Games, Generates Ideas, and Culture, 4) the HEXACO Openness factor (Lee & Ashton, 2004; 2006), and various potential markers of Oddity: 1) The Curious Experiences Survey (CES; Goldberg, 1999), 2) The Somatoform Dissociation Questionnaire (SDQ; Nijenhuis, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996), 3) The Creative Experiences Questionnaire (CEQ; Merckelbach, et al., 2001), 4) Magical Ideation scale (MIS; Eckblad & Chapman, 1983), and 5) The Obsessive-Compulsive Inventory (OCI; Foa, et al., 1998).

In the first step of the data analysis an EFA was conducted entering the 16 Openness markers, which formed two factors – Culture (NEO-PI-R Aesthetics, HEXACO-PI Aesthetic Appreciation, HPI Culture) and Intellectance (NEO-PI-R Ideas, HEXACO-PI Inquisitiveness, HPI Science Ability) (Watson et al., 2008). Only these markers were kept and used in the following analysis. The next step consisted of a principal component analysis of the retained Openness markers complemented by the five Oddity markers. This analysis revealed three factors, interpreted as Culture, Intellectance and Oddity. While Culture and Intellectance were correlated (r = .52), there were no correlations between Oddity neither with Culture (r = .08) nor with Intellectance (r = .04). The last step of the data analysis was again CFA comparing one-factor, two-factor and three-factor models and revealed that the three-factor solution provided the best fit [χ^2 diff (2) = 167.17, p<.001].

With respect to the question whether Oddity can be considered as the sixth basic personality factor, Watson and colleagues are concluding "Although more research is needed on this topic, we believe that the already available evidence tentatively suggests an affirmative answer" (Watson et al., 2008, p. 1574). However, the authors refer to a lack of appropriate instruments to assess the Oddity factor.

This limitation has been overcome in the meantime, since an inventory for measuring the broad dimension of proneness to psychotic-like experiences (Disintegration) – the Delta-9 Inventory (Knezevic et al., 2017) – is now available and has been empirically well-established in terms of construct validity and psychometric quality. This inventory was included in the empirical work reported in the chapters below.
In conclusion of this chapter devoted to the current state of the art regarding the placement of Openness, Disintegration and Creativity in the personality space, I will now refer to another study, relevant with respect to the research questions addressed in this thesis (Ashton et al., 2012), which explored the relations between the maladaptive personality traits represented in the DSM-V model and basic personality traits as conceptualized in the HEXACO personality model, with the addition of the Schizotypy/Dissociation factor assessed with the 31-item Curious Experiences Survey (CES; Goldberg, 1999). This research article consists of two studies that will be presented in greater detail in the following paragraphs.

The aim of the first and main study was to analyze the relations between the non-pathological basic personality traits and the maladaptive traits proposed in the DSM-5. The main idea was to identify the location (by way of calculating loadings using extension factor analysis) of the PID-5 factors in the space predefined by the basic personality traits. Basic traits consisted of the factors from the HEXACO model plus the Schizotypy/Dissociation (S/D) factor. The Schizotypy/Dissociation factor has been defined in their previous study (Ashton & Lee, 2012) as "a dimension roughly orthogonal to those of the HEXACO and the FFM frameworks" (Ashton et al., 2012, p. 642), which has some resemblance to the PID-5 Psychoticism factor.

The study comprised two samples - a Canadian student sample (n = 384), and a sample drawn from a Dutch Internet panel study (n = 476; mean age 51.5 years; SD = 13.7). HEXACO PI-R and CES inventories were used as markers of core personality traits. PID-5 was administered to assess the five maladaptive traits and those factors were later on entered as extension variables in the extension factor analysis. The results of upmost importance for this study are presented in Table 4. This is a condensed form of the two original tables of results (Ashton et al., 2012, pp. 648 - 649), focusing on the extension loadings of the PID-5 Psychoticism scale and it's three subscales (Eccentricity, Perceptual Dysregulation and Unusual beliefs and experiences) on core factors (Honesty, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness and Schizotypy/Dissociation).

Table 4
Extension Loadings of the PID-5 Scales on Factors (Canadian and Dutch sample).

	H	E	X	A	C	O	S/D
	Canadian sample						
Psychoticism	−.10	−.08	−.14	−.05	−.20	.23	**.56**
Eccentricity	−.06	−.11	−.14	−.08	−.21	.26	**.39**
Perceptual Dysregulation	−.08	−.00	−.16	−.03	−.18	.13	**.62**
Unusual beliefs and experiences	−.15	−.08	−.02	.00	−.08	.18	**.49**
	Dutch sample						
Psychoticism	−.23	−.04	−.18	−.14	−.17	.17	**.39**
Eccentricity	−.24	−.13	−.20	−.21	−.21	.18	.28
Perceptual Dysregulation	−.18	.06	−.21	−.07	−.14	.06	**.43**
Unusual beliefs and experiences	−.16	.02	−.03	−.04	−.05	.20	**.34**

Note. Loadings with absolute values of .30 or above are given in bold type.

The results obtained in this study reveal quite clearly that the PID-5 Psychoticism factor has primary loadings on the S/D core factor, and only low secondary loadings on the Openness core factor, both on the domain and facet/subscale level. The differences in the absolute values of the

loadings between the analyses using the Canadian and the Dutch sample might reflect differences in the characteristics of the samples – the Canadian sample was a student sample, while the Dutch sample can be considered a community sample. A significant limitation of this study is the pretty narrow operationalization of the S/D factor, which comprised merely the CES inventory.

In the study reported in the following chapters, this limitation was overcome by way of a very broad operationalization and measurement of the proneness to psychotic-like experiences construct, Disintegration, using the 120-item Delta 9 Inventory (cf. Knezevic et al., 2017). In addition, I ran the analysis on data from two samples together, using Multigroup Exploratory Structural Equation Modeling (Multigroup ESEM). This analytic approach renders a test of the uniqueness of the structure in two different samples possible (a student and a community sample, parallel to Ashton et al., 2012).

The study by Ashton and colleagues (Ashton et al., 2012) had another goal – executing exploratory factor analysis (EFA) entering FFM and PID-5 facet scales, focusing on the seven-factor solution with varimax rotation. The purpose of this analysis was to explore whether a similar factor structure, defined by the HEXACO and S/D variables, could be obtained. In order to achieve that, they first ran EFA on PID-5 and half of the items included in the NEO Personality Inventory 3 – NEO-PI-3 (the first half; NEO-PI-3FH; McCrae & Costa, 2007, 2010), and then correlated the NEO-PI-3FH & PID-5 factors with HEXACO & S/D. Results of the joint factor structure of NEO-PI-3FH & PID-5 are presented in the Table 5, and since there is no need with respect to the current debate to show the full original table (Ashton et al., 2012, p.652) with loadings of all 55 facets, Table 5 presents meaningful (absolute value of .30 or above) facet's primary loadings on the factors six and seven that the authors (Ashton et al., 2012) interpreted as S/D and Openness.

Table 5
Joint Factor Analysis of the NEO-PI-3FH and PID-5 Facets.

	Factor name/interpretation						
	1	2	3	4	5	6	7
	E	X	H	C	A	S/D	O
Perceptual dysregulation (PID-5 Psy)	.26	−.23	−.22	**−.30**	.00	**.61**	.23
Unusual beliefs and experiences (PID-5 Psy)	.06	−.15	**−.30**	−.12	−.04	**.56**	.31
Perseveration (PID-5 NA)	**.44**	−.25	−.15	−.27	−.05	**.55**	−.05
Eccentricity (PID-5 Psy)	.07	−.26	−.22	**−.32**	−.08	**.49**	**.41**
Aesthetics (O)	.16	.08	.10	.02	.05	.14	**.59**
Ideas (O)	−.20	−.06	−.06	−.07	.08	.04	**.58**
Fantasy (O)	.06	.17	.07	−.08	−.02	.14	**.54**
Feelings (O)	**.40**	**.30**	.06	.12	−.20	−.03	**.44**
Values (O)	−.14	.10	.15	−.07	.06	−.17	**.37**

Notes. Loadings with absolute values of .30 or above are given in bold type. E – HEXACO Emotionality; X - HEXACO Extraversion; H – HEXACO Honesty-Humility; C – HEXACO Conscientiousness; A – HEXACO Agreeableness; O – HEXACO Openness; S/D - Schizotypy/Dissociation; (O) – NEO-PI-3FH Openness facet; PID-5 Psy – PID-5 Psychoticism facet; PID-5 NA – PID-5 Negative Affect facet.

After inspecting their results of the joint factor analysis of NEO-PI-3FH and PID-5 facets, the authors concluded that "the joint factor analysis involving the NEO-PI-3 and PID-5 produced seven factors that show strong resemblance to those found from the factor analysis involving the HEXACO-PI-R and CES" (Ashton et al., 2012, p. 653).

In order to calculate the similarity of the two solutions, NEO-PI-3FH and PID-5 factors were correlated with the seven HEXACO & S/D factors. Factor six from the NEO-PI-3FH & PID-5 (interpreted as Schizotypy) correlated .55 with the Schizotypy/Dissociation factor, and only .12 with the HEXACO Openness factor. The seventh factor (interpreted as Openness) correlated .20 with the Schizotypy/Dissociation factor, and .71 with the HEXACO Openness factor.

The main conclusion that can be drawn from this study is that the factor space containing the factor Schizotypy/Dissociation corresponds more closely to the PID-5 factors than to the FFM, and the authors stress that "Researchers will likely disagree as to whether the additional factor, Schizotypy/Dissociation, should be considered a dimension of personality at all but it is clear that this factor is empirically distinct from the HEXACO (and FFM) dimensions, including Openness to Experience." (Ashton et al., 2012, p.657).

In sum, the three crucial studies reviewed in this chapter provide quite consistent initial evidence pointing at a trait structure containing a factor representing proneness to psychotic-like experiences separate from openness. Moreover, creativity has been found to be essentially a correlate of openness and only weakly related to selective elements of proneness to psychotic-like experiences. The next chapter will provide a brief overview on the concept of creativity and the psychological research on this construct.

Chapter 8. Creativity

Creativity represents a crucial construct in the empirical work described below because the question whether psychoticism reflects extreme openness can be answered when creativity is included in the analysis. In addition, creativity is at the heart of the mad-genius hypothesis that will be examined in the empirical analyses described in the later chapters. In the present chapter, the conceptualization of creativity and its assessment in the general population (i.e., avoiding a selective focus on eminent creative geniuses) will be outlined. Furthermore, research concerning two correlates of creativity – openness and psychoticism – which are key constructs in this thesis will be reported.

Already in the early years of research in this field two dominant camps emerged defining and assessing creativity in distinct ways: 1) The members of one camp considered creativity as an achievement materialized in forms of products created by individuals during lifespan such as paintings, sculptures, poems or other creations; 2) The members of the other camp defined creativity as an ability that can be demonstrated in performance on tests, most notably on divergent thinking tests (Barron & Harrington, 1981). The definition of creativity is still kind of controversial, but both of these camps agreed that creativity is something that is new and useful (Batey, 2012; Mumford, 2003). Researchers focused on products created during lifespan typically count the target person's original and useful creations such as patents or novels, while test performance-oriented researchers typically calculate originality scores based on responses to a divergent thinking task and in addition assess whether the answers provided are adaptive or bizarre.

The first approach can be identified in the work of Francis Galton and Lewis Terman who studied "eminent man", "high IQ individuals", and creativity was operationalized through various achievements (Batey, 2012). This approach was dominantly used for the assessment of eminent creative people, but nowadays it is used as well to study a wider range of creative achievements as reflected in research on eminent or "Big-C" and prominent or "Pro-c" (Kaufman & Beghetto, 2009). Some inventories tap hierarchically organized achievements within domains and accordingly even everyday creativity or "little-c" can be assessed (Batey, 2007; Carson, Peterson, & Higgins, 2005; Silvia, Wigert, Reiter-Palmon, & Kaufman, 2011).

The second, psychometric approach in assessing creativity was initially established in the work of Guilford and Torrance (Guilford, 1950; 1956; 1967; Torrance, 1972). In this test performance-oriented approach creativity was mainly operationalized with divergent thinking (DT) tests, where respondents are instructed to generate (creative) ideas. These tests typically consist of various open-ended questions, with response times limited to a few minutes in most studies. One widely used example is the unusual uses task, where participants are instructed to mention as many unusual uses as possible for everyday objects such as a knife or a brick.

Of note, in both approaches creativity is viewed as a performance (as an outcome) and as an interaction between the person and social context. In the first approach, the implementation of "new and useful" criteria is reflected in the judgment of other individuals in the respective society – one's work needs to be recognized as something new in the eyes of other individuals, one's creation is seen as something original and thus being labeled as a creative product, achievement or accomplishment.
In the second approach where one's creativity/creativity potential is assessed via standardized tests, the implementation of "new and useful" criteria is reflected mainly when calculating the originality score since it refers to the statistical infrequency – or how original/novel is the answer in comparison to the answers collected from other participants in the study.

Creativity assessment in the general population

Although research on creativity has been a major topic in the behavioral sciences since their foundations and one may expect that an agreement on proper methods for the assessment of creativity should have been reached, it is an unfortunate fact that there exists a confusing methodological heterogeneity in the assessment of creativity, specifically when it comes to the assessment of creativity in the general population. To a large extent this heterogeneity reflects the lack of consensus whether creativity represents a broad general trait, or rather achievements in a specific domain. Because the concept of creativity and the question of how to best measure it are not the crucial research questions in this thesis, I will only briefly report on the mainstream measures that are most widely used nowadays. I will in short describe the logic and inventories of different approaches: 1) DT tests (Christensen & Guilford, 1958a; Christensen & Guilford, 1958b; Christensen & Merrifield, & Guilford, 1953); 2) Creative achievement and creative behavior inventories (Batey, 2007; Carson et al., 2005) and 3) the Creative assessment technique (CAT; Amabile, 1982).

Divergent thinking tests (DT). As mentioned above, these tests are designed to measure DT and have been used since the very beginning to assess creativity as a trait in the general population. With DT tests several scores can be obtained: 1) *fluency* (number of answers); 2) *flexibility* (number of ideational categories); 3) *originality* (the rarity of the answer within the sample). In addition, one can create a score for *elaboration* (number of details) and *usefulness* (is the answer reasonable or bizarre and useless). One of the mostly used DT inventories is the Consequences Test (Christensen et al., 1953).

Creative achievement and creative behavior inventories. Tests of everyday creativity were developed in the research of Torrance (1969) with the purpose to assess predictive validity of DT tests. In this approach, a creativity score is obtained based on a checklist containing various products and activities that are considered to be creative and useful. Despite the fact that the first inventories were established several decades ago, they are still widely used in recent years (15-20). These self-report inventories consist of various achievements in arts and science, and respondents indicate whether they had accomplished any of those, and at what level or frequency (e.g. “My work has been mentioned in national publications ___ times”.). There are some differences among inventories considering the levels of achievements measured, some are focused more on everyday, less prominent creative behaviors like The Biographical Inventory of Creative Behaviors (BICB; Batey, 2007), while others assess higher levels of achievements. In the research in recent years, the Creativity Achievement Questionnaire (CAQ; Carson et al., 2005) is one of the most frequently used inventories . Answering this questionnaire, respondents rate the level of their achievement in various domains – from lowest to notable (e.g., for the music domain: “0. I have no training or recognized talent in this area”; “6. Recordings of my composition have been sold publicly”).

Although some researchers in the field question the use of DT tests and favor tests of achievements, the empirical evidence suggests that these markers are both very useful for a thorough creativity assessment and they are correlated - “Our own extensive review of the literature reveals more than 70 studies in which positive and statistically significant relationships have apparently been observed between various divergent thinking test scores and reasonably acceptable nontest indices of creative behavior or achievement.” (Barron & Harrington, 1981, p.10).

Creative assessment technique – CAT. Created by Amabile (1982), this test was developed with the aim to attain an objective measure of creativity and a replacement for DT tests. In short, the procedure is as follows: Respondents are instructed to create a product, which is afterwards rated by several raters on a standard 5-point Likert type scale. The product which should be created varies including drawings, collages, or short stories. Since there is only one task, the marker of creativity

is one product's average rating. Researchers using the CAT are in most cases criticizing the time consuming aspect, both for the participant (e.g., it takes quite some time to write a complete short story) and for raters (e.g., the time needed to read and rate a whole story is considerable). There is a short version of the CAT where the task is to create a title for a painting/photograph (Kaufman, Lee, Baer, & Lee, 2007). This short version - although presented as a novel approach – actually resembles The Plot Titles test (Berger & Guilford, 1969), a classic DT test in which participants are instructed to create a title for a short story. In terms of ratings it is debatable how different the measurement obtained with the CAT factually is in comparison to the originality score in DT tests. In the CAT, the rater indicates how creative a response is using a 5-point scale, and the originality score in DT tests is obtained with a scale to indicate the rarity of the respective answer within the sample. Time consuming nature of the test and its scoring seems to be the only disadvantage in most researchers' opinion, while the advantage seems to be the fact that the CAT was developed without a special orientation concerning a distinct theory of creativity, as Kaufman et al. (2007) noted: "The CAT is not tied to any one theory of creativity, and so its validity does not rise or fall with one's opinion of any particular theory." (Kaufman et al., 2007, p. 98).

In view of the fact that there is no consensus about the most appropriate assessment of creativity, I took the decision to implement both product-oriented and performance-oriented measures of creativity in the empirical work reported below. Hence, both camps can relate to the work presented here.

Inspecting the articles aiming to validate creativity inventories, one can notice that for the purpose of criterion-related validity (convergent, predictive) the openness trait is almost always present, alongside other creativity measures and intelligence (Batey, 2007; Carson et al., 2005; Leutner, Yearsley, Codreanu, Borenstein, & Ahmetoglu, 2017; Silvia, Kaufman, & Pretz, 2009). This approach is in line with the McCrae's (1987) description of creativity – as a construct between personality and intelligence.
Another personality construct frequently discussed in the creativity literature is psychoticism. However, in contrast to openness, it's relation to creativity is under dispute. The following paragraphs are devoted to a summary of the current state of the art with respect to the relation of openness and psychoticism to creativity. As will be evident, openness is a robust correlate of creativity whereas clear-cut evidence concerning documenting a link between psychoticism and creativity is not available.

Correlate of creativity – openness

Inspecting the articles aiming to validate creativity inventories, one can notice that for the purpose of criterion-related validity (convergent, predictive) personality construct, the openness trait is almost always present, alongside other creativity measures and intelligence (Batey, 2007; Carson et al., 2005; Leutner et al., 2017; Silvia et al., 2009; Silvia, Nusbaum, Berg, Martin, & O'Connor, 2009). Since creativity is as assessed in various ways while openness is assessed with quite similar inventories, the studies referring to the link between openness and creativity will be presented sorted by the creativity assessment approach (DT test /creative achievement /CAT) and the openness measures used are also specified. Speaking about openness measures, the differences in the strength of the relationships that were obtained seem largely due to the type of openness assessment. Specifically, some inventories like NEO-PI-R (Costa & McCrae, 1992) distinguish an Intellect and an Openness factor within the Openness to experience domain, whereas others like the HEXACO PI-R (Lee & Ashton 2018) or the Big Five Inventory (BFI; John et al., 1991) conceptualize Openness as a unitary construct.

The criteria for selecting studies to be presented here were as follows: a) sample – student or community; b) standard creativity assessments (no studies using peculiar scoring or comparing

scoring methods); c) standard assessment of basic personality (NEO-PI-R and its variations; BFI and its variations; HEXACO PI-R). Most of the studies exploring the relation between Openness and creativity were correlational (Batey, Furnham & Safiullina, 2010; Carson et al., 2005; Chamorro-Premuzic & Reichenbacher, 2008; Furnham, Crump, Batey, & Chamorro-Premuzic, 2009; King et al., 1996; McCrae, 1987; Miller & Tal, 2007). The results of these studies – the correlations between markers of creativity and openness are presented in the Table 6. Some studies analyzed the data in other ways (e.g. confirmatory factor analysis, CFA), and they will be described in the text, after a brief summary of the studies presented in the Table 6.

Table 6
Correlations coefficients between creativity and openness measures from selected studies

Authors	Creativity measures	Openness measures	Correlation coefficient (r)	Sample size (n)
McCrae, 1987	DT	NEO	.39***	268
Carson et al., 2005	DT	NEO-FFI	.34*	86
Carson et al., 2005	DT	Big Five Intellect	39***	86
Chamorro-Premuzic & Reichenbacher, 2008[a]	DT	BFI	.53** / .55**	82
King et al., 1996	DT	BFI	.38**	75
Carson et al., 2005	CA	NEO-FFI	.33**	86
Carson et al., 2005	CA	Big Five Intellect	51***	86
King et al., 1996	CA	BFI	.47**	75
Batey et al., 2010	CA	TIPI	.33**	100
Miller & Tal, 2007[b]	CAT	NEO–FFI	.34** / .46**	225
Furnham et al., 2009	CAT_{DT}	NEO-Pl	.22**	2603

Note. NEO Inventory (McCrae & Costa, 1983). NEO-Pl (Costa & McCrae, 1985); NEO-FFI (Costa & McCrae, 1992). Big Five Intellect Adjectives (Goldberg, 1992); BFI – John et al., 1991; TIPI – Ten-Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). DT – divergent thinking total score. CA – creative achievement, accomplishment or behavior; CAT_{DT} – divergent thinking test rated using CAT. [a] – in this study participants were working on DT tasks in two conditions: calm condition (first coefficient) and stressful (second coefficient). [b] – in this study the authors correlated Openness with performance on verbal tasks and on nonverbal tasks. * p<.05.** p<.01.*** p<.001.

The results presented in Table 6 document a positive correlation of moderate size between openness and creativity. A reliable positive correlation was obtained no matter whether creativity was assessed with divergent thinking tests, creative achievement inventories or the CAT. A few other studies had a different approach in analyzing the data, using CFA to explore the relations between creativity and personality (operationalized with the Big Five Model; Silvia et al., 2009) as well as with the HEXACO model (Silvia et al., 2011). In the study using the Big Five, Silvia and colleagues concluded "At the level of the Big Five, openness to experience was the clear leader: as in past work, it had broad effects across essentially all of the facets of creativity, and its effect sizes were mostly moderate or large in size" (Silvia et al., 2009, p.1089). Similar results emerged from the research using the HEXACO model – openness had the largest effect size ($\beta = .553$, $p < .001$) on creativity (Silvia et al., 2011, p.688).

There is a large body of literature considering both constructs (Feist, 1998; Hornberg, & Reiter-Palmon, 2017; Kaufman, 2016; Taylor, Mckay, & Kaufman, 2017) and regardless of the definition of creativity and openness and the specific markers selected to identify individual differences, there

is agreement among researchers in this field that openness and creativity are positively correlated (Batey & Furnham, 2006; Carson, Peterson, & Higgins, 2003; Feist & Barron, 2003; King, Walker, & Broyles, 1996; McCrae, 1987; Silvia, Kaufman, & Pretz, 2009a).

I would like to stress that there is a lack of consensus regarding the specific definition of the two constructs, but I do not see that as a fundamental problem and the aim of this thesis is definitely not the search for a "correct" definition. In this respect, I would like to raise attention to the fact that in philosophy of science there is widespread agreement that every definition of a concept or construct is arbitrary. Specifically, Karl Popper (2002) stated in his work on The Logic of Scientific Discovery that every definition is essentially arbitrary. A definition can be more or less useful, precise, logical. But in the end, every definition is an arbitrary statement that cannot be true or false.

In sum, there is very solid evidence documenting that openness is a robust correlate of creativity.

At the end of this chapter, the crucial conceptual difference between openness and creativity should be acknowledged – openness is a personality trait whereas creativity reflects some kind of performance or achievement. Perormance or achievement is always an outcome of interaction between a person and a relevant situation. This implies that it would be a questionable approach to consider creativity as an element of a basic personality factor.

Correlate of creativity – psychoticism

It seems pretty hard to find a person who hasn't heard a story about a struggling artist or scientist – of someone who despite his/her abilities and prominent work had a troubled life, ending in poverty, self-harming or being hospitalized. Such individuals are often labeled as *unstable*, *mad or crazy*. On the other hand, we rarely hear about creative professionals, whose life is "in control". This selective perspective has been present not only in the news and popular culture but also in scientific studies about creative individuals, often labeled as eminent or geniuses.

The exploration of the mad-genius hypothesis seemed to start out with various researchers cherry picking cases like Vincent van Gogh, Franz Kafka or Sylvia Plath. The research method was mostly archival focusing on the personal details one can find reading the Daily Mirror – unusual sleeping or eating habits, or specific details about intimate relationships. While selectively analyzing controversial behavior of their targets, those researchers as well wrote catchy statements which could be widely cited, like "Creative geniuses may not be the kinds of folks you normally would want as lovers, friends, in-laws, coworkers, or neighbors" (Simonton, 2010, p.219) or "The creative geniuses exhibit the highest psychopathology rates" (Simonton, 2014, p.473).

As already mentioned above, the question whether there exists a reliable link between creativity and psychoticism is a matter of controversy. The logic entailed in the theoretical perspective proposed by some researchers (cf. de Young et al., 2012; Gore & Widiger, 2013; Piedmont et al., 2009, 2012; Widiger, 2011; Wright et al., 2012) holds that psychoticism can be considered as excessive openness. If that was true, indicators of creativity should be positively related to indicators of psychoticism or schizotypy, because it is empirically well established that openness is a significant predictor of creativity (cf. Hornberg & Reiter-Palmon, 2017; see Table 6). In contrast, the conceptualization of psychoticism as excessive form of proneness to psychotic-like experiences (Knezevic et al., 2017) predicts that creativity is largely unrelated to indicators of psychoticism or schizotypy. Unfortunately, the currently available evidence seems quite inconclusive. Some studies reported evidence seemingly supporting the mad-genius hypothesis as reflected in a correlation between selective indicators of schizotypy and measures of creativity (Folley & Park, 2005; Kinney et al., 2000; Schuldberg et al., 1988; Weinstein & Graves, 2002). On the other side, there are studies questioning such findings and the proposition of a reliable relationship between both constructs

(Acar et al., 2018; Acar, & Sen, 2013; Acar, & Runco, 2012; Burch et al.,2006; Dietrich, 2014; Knudsen et al., 2019; Miller & Tal, 2007; Schlesinger, 2009).

Given the inconclusive status of the available evidence, it seems well indicated to provide new and compelling evidence in order to approach a conclusive answer to this question. Which of the opposing theoretical perspectives is empirically supported can be very elegantly tested applying an extension factor analytical approach, which will be outlined in the methods section below.

The study reported below can be considered as reflecting the probably most controversial issues in the field of research on creativity: (1) the ambiguity concerning the most adequate assessment – which is addressed by way of a multi-method approach in the assessment of creativity, (2) the mad-genius hypothesis – which is addressed by way of a broad and psychometrically well validated instrument to assess proneness to psychotic-like experiences (the Disintegration scale) combined with the assessment of PID-5 Psychoticism, (3) the placement of creativity in the personality space – which is addressed by way of a comprehensive assessment of seven basic personality traits (HEXACO plus Disintegration) and methodologically by way of extension factor analysis.

The research goals and hypotheses have been described in the preceeding pages. Before proceeding to the Method section, it seems meaningful to summarize the research questions and hypotheses which take center stage in this thesis.

RESEARCH QUESTIONS AND HYPOTHESES

The first and main research question in this thesis is whether there is a positive association between creativity and psychoticism and the proneness to psychotic-like experiences as implicated in the famous mad-genius hypothesis.

The second question refers to the debate about the number and conceptualization of basic personality traits and the discussion whether a comprehensive conceptualization of the personality space comprises five, six or seven basic traits.

Hypotheses:

- H1A. If in the Multi-group ESEM analysis of the variables of the HEXACO and Disintegration models the number of factors is limited in advance to a seven-factor DHEXACO solution will best describe the data matrix. In other words, the following seven factors are expected to be identified: Disintegration, Honesty, Emotionality, Extraversion, Collaboration, Conscientiousness, Openness.
- H1B. If in a similar analysis the number of factors is limited in advance to a six-factor solution, then a six-factor DEXACO or DHXACO personality model will better describe the data than a six-factor HEXACO model (Ashton, Lee, de Vries, Hendricks, & Born, 2012). This means that in the six-factor solution, a separate factor of Disintegration is expected to be emerge.
- H1C. If in a similar analysis the number of factors is limited in advance to a five-factor solution, then a five-factor personality model DEXCO will better describe the data than the six-factor HEXACO model (Ashton, Lee, de Vries, Hendricks, & Born, 2012). This means that in the five-factor solution, a separate factor of Disintegration is expected to be emerge and I expect honesty and agreeableness (and potentionally the consciousness factor) to merge or collapse.
- H2. A separate factor that will include indicators of proneness to psychotic-like experiences will emerge as predicted by the Disintegration model.
- H3. In the extension analysis, the three facets of the Psychoticism scale as well as the Psychoticism factor of the PID-5 questionnaire will have primary saturations on the disintegration factor (Ashton et al., 2012).

- H4. In the extension analysis, the creativity indicators will have highest loadings on the Openness factor. This hypothesis is based on research results that suggest that openness has a fundamental relationship with creativity (Miller & Tal, 2007).
- H5. In the analysis of predictors of divergent thinking in which the basic personality traits of the HEXACO model, need for cognition as well as aspects of positive and negative psychoticism are included, openness will emerge as the primary predictor (Miller & Tal, 2007).
- H6. Analyses testing amoralism and the dark triad traits - as additional indicators of "madness" - in predicting creativity will provide further support for the notion that openness is the single most relevant predictor of creativity.

METHOD

PARTICIPANTS

The study was conducted using two samples:

1. **Student sample** (N = 403, 21.3% male). The age of participants ranged from 18 to 40 (M = 21.6; SD = 3.52). All participants were psychology students from two faculties – Faculty of Philosophy, University of Belgrade and Faculty of Media and Communications, Singidunum University. Students received course credit for participating in the study, and gave their informed consent. In case they didn't want to participate in the study, an alternative assignment was provided for the same amount of course credits.
2. **Community sample** (N = 383, 49.1% male). The age of participants ranged from 18 to 61 (M = 41.2; SD = 12.1). Participants were recruited via psychology students from the Faculty of Media and Communications, Singidunum University. The main requirement in selected community members was not being closely related to the student (parents, siblings, partner, child…). Students received course credit for recruiting participants for the study following my instructions regarding age group, gender and education. For an example a student would get a task such as: "Please recommend one female and one male person between 40 and 50 years old, with high school being the highest degree of education". Participants from community sample gave their informed consent. In case the students didn't want to participate in this way in the study, there was an alternative assignment was provided for the same amount of course credits.

With the sample sizes in our study we are on the safe side regarding recovery of population factors. Namely, the taken into account number of subjects per variables or number of variables per factor ratio, as well as the expected commonality of the variables in our factor analysis, the sample sizes satisfy the recommendations of Everitt (1975), Gorsuch (1983), and MacCallum, Widaman, Zhang, & Hong (1999).

INSTRUMENTS

HEXACO-PI-R. The Serbian version of 100 item inventory (Lee & Ashton, 2018) has been applied for the assessment of six basic personality traits (Honesty/Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness and Openness), defined by the HEXACO model (Lee & Ashton, 2004; 2006). Domains in total have 24 subordinate facets, four for every domain. Each item has a 5-point Likert-type response scale (*1 = strongly disagree, to 5 = strongly agree*). Reliability and validity of the HEXACO model have been well documented in a number of studies investigating relations of big six personality traits with constructs related to personality disorders and psychopathology (Ashton & Lee, 2012; Ashton et al., 2012; Ashton, Lee, Visser & Pozzebon, 2008; De Vries, Lee & Ashton, 2008; Kujačić, Međedović & Knežević, 2015; Međedović, 2014).

HEXACO-PI-R assesses four facets within each trait:

1. Honesty/Humility (*Sincerity, Fairness, Greed Avoidance, Modesty*),
2. Emotionality (*Fearfulness, Anxiety, Dependence, Sentimentality*),
3. Extraversion (*Social Self-esteem, Social Boldness, Sociability, Liveliness*)
4. Agreeableness (*Forgiveness, Gentleness, Flexibility, Patience*)
5. Conscientiousness (*Organization, Diligence, Perfectionism, Prudence*)
6. Openness (*Aesthetic appreciation, Inquisitiveness, Creativity, Unconventionality*)

Of note, the Openness trait contains a facet labeled Creativity. It is important to note that this facet does not represent self-reports of creative outcomes (products or achievments) at all.

Specifically, the four items of the creativity scale read as follows:

1. I would like a job that requires following a routine rather than being creative.
2. I would enjoy creating a work of art, such as a novel, a song, or a painting.
3. People have often told me that I have a good imagination.
4. I don't think of myself as the artistic or creative type.

As is evident, these items are clearly distinct from self-report measures of creative performance accordingly the facet Creativity cannot be equated with self-report measures of creativity such as the CAQ. Moreover, it is evident that the items mentioned above are conceptionally clearly distinct from creativity indicators based on the assessment of divergent thinking. In essence the creativity facet included in the openness trait reflects a personality characteristic rather than an ability or capacity.
This is a well-established perspective in the field: "(...) the personality domain subsumes typical behavioral tendencies, but not abilities (...)" (Ashton & Lee, 2007, p.155).
That is, the label creativity assigned to the factor represented by the items mentioned above is obviously misleading because the core feature of creativity is the ability to develop or produce novel and useful ideas, products and strategies. Accordingly, it would be a misinterpreation to consider the empirical analysis of the relation between openness and creativity as kind of circular based on terminological redundancy which seems to be given due to the misleading label assigned to the facet in the openness factor.

DELTA-9. This questionnaire was constructed as a measure of Disintegration or psychosis proneness (Knežević et al., 2017). It has 110 items with joined 5-point Likert scales, organized into ten subscales: General Executive Impairment (GEI), Perceptual Distortions (PD), Paranoia (P), Depression (D), Flattened Affect (FA), Somatic Dysregulations (SD), Magical Thinking (MT), Enhanced Awareness (EA), Mania (M). Beside these facet scores, a total score as the measure of the general Disintegration was calculated. Delta-9 has well documented reliability and validity, reliability of the total score is $\alpha = .85$, while Cronbach's alpha for the facet level ranges from .76 (FA) to .89 (D) (Knezevic, et al., 2017). In our sample the descriptives didn't differ significantly.

While the HEXACO PI-R inventory contains 100 items measuring the six traits, DELTA-9 has 110 items representing one broad construct. To explore whether this imbalance regarding the number of items per construct, I conducted complementary analyses using the shorter 20-item DELTA-9, and observed no meaningful differences in the results. For details see supplementary materials.

Need for cognition. A Serbian version of the 18-item instrument developed by Cacioppo et al. (2013) to assess enjoyment and engagement in thinking was applied with response scales ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me).

PID-5. The Serbian self-report version of the Personality Inventory for DSM5 (PID-5; Krueger et al., 2012) was administered. It consists of 220 items (17 reversely coded) with joint 4-point Likert-type response scale (*0 = very false or often false, to 3 = very true or often true*) which assess 25 facets. These facets load onto five domains (Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism). It allows calculation of scores for 25 facets and 5 domains.
The Psychoticism domain contains three facets – *Unusual Beliefs & Experiences*, *Eccentricity* and *Perceptual Dysregulation*.
The PID-5 instrument can be reproduced without permission by researchers and by clinicians for use with the patients (Krueger et al., 2012; Krueger & Markon, 2014). The PID-5 was translated and back translated by two persons fluent in both Serbian and English.

Amoral. I used the 18-item short form of the AMRL9 instrument (Knezevic, Radovic, & Perunicic, 2008) in order to assess amoral forms of behavior.

SNPI-12. Narcissism Personality Inventory (Rose, 2001) was used to measure narcissism as a part of dark triad traits. The SNPI is a 12 item, 7-point Likert scale.

Mach-VI. This inventory (Jones & Paulhus, 2009) was used to measure Machiavellianism: It consists of 21 5-point Likert scale items.

SRP. The 64-item Self-Report Psychopathy scale (Williams, Paulhus, & Hare, 2007) was administered to assess psychopathy. This scale as well consists of 5-point Likert scale items.

CAQ. Creative Achievement Questionnaire (Carson et al., 2005) consisting of 96 self-report items referring to the level of creative achievements (and in some cases also the frequency) in ten fields: visual arts (painting, sculpture), music, dance, architectural design, creative writing, humor, inventions, scientific discovery, theatre & film, and culinary arts. Each of the areas has eight levels of achievement, ranging from none (0 – "*I have no training or recognized talent in this area*") to high (example: 7 – "*I have sold one of my inventions to a manufacturing firm*."). Each of these levels is weighted. For each area a score can be calculated which presents a sum of weighted answers, as well as the total score. In our study we used only CAQ total score as a measure of creative achievement. Following Hirsh and Peterson's recommendations (Hirsh &Peterson, 2008), I log-transformed the total score.

CAAI. Creative Activities and Accomplishments Inventory (Altaras Dimitrijevic, Matovic, & Jolic Marjanovic, 2016) consisting of 45 items referring to the frequency a particular creative activity (e.g., inventing a joke, acting in a play) is performed or a creative achievement is attained, with response scales ranging from 1 (*never*) to 4 (*very often*).

Consequences test. I assessed divergent thinking with the *Consequences Test* (Guilford, 1956; Pine & Holt, 1960). The test itself does not have a strict form, the number of timed questions varies, ranging from four to ten, as well as the time limit (2-5 minutes).
In this study participants answered four questions referring to hypothetical scenarios, with a limited amount of time to come up with ideas (3 min.):

1. What would happen if people lost the ability to read and write?
2. What would be the results if all the people in the world lost the ability to reproduce offspring?
3. What would be the result if none of us needed food any more in order to live?
4. What would be the results if humans lost their group feeling to the extent that they all preferred to live alone?

Every response was evaluated by three raters, experts from the fields of arts or sciences, with respect to: a) *fluency* (number of ideas); b) *flexibility* (number of distinct ideational categories) and c) *originality* (perceived statistical infrequency of the idea). Average inter-rater reliability usually goes from .84 to .98 across the three evaluative dimensions (Pine & Holt, 1960; Fulgosi & Guilford, 1968). In this study average inter-rater reliability across the three evaluative dimensions was .97 in both samples. I computed an overall score (comprising fluency, flexibility and originality) as the first principal component which explained 80.92% of the variance.

Going beyond the typical rating procedure, the three raters also were instructed to check whether the responses were either rational or irrational/bizarre. Since there were only three irrational/bizarre answers in total out of more than 1800 responses, I simply excluded these three and the analyses are based on rational answers.

The scoring system applied for originality scoring was as follows:

- ideas generated by 1% or less of the respondents received a score of 6

- ideas generated by more than 1% and up to 3% of the respondents received a score of 5
- ideas generated by more than 3% and up to 6% of the respondents received a score of 4
- ideas generated by more than 6% and up to 10% of the respondents received a score of 3
- ideas generated by more than 10% of the respondents received a score of 0

Note that all scores based on the Consequences test were computed separately for the community sample and the student sample.

PROCEDURE

The data have been collected online between September 2014 and January 2016. Data collection was in accordance with APA ethical principles for code of conduct.

ANALYTICAL STRATEGY

Descriptive statistics are presented for all variables. Besides, reliabilities and intercorrelations are reported below.

To identify factors of the basic personality space and their reproducibility across the samples, I used multi-group Exploratory Structural Equation Modeling (ESEM; Marsh et al., 2010). Models of configural invariance (only number of factors kept constant across the samples), metric invariance (number of factors and loadings kept constant, but not intercepts and residuals) and scalar invariance (number of factors, loadings, and intercepts kept constant) will be tested. Extraction of the factors will be followed by Geomin rotation. The MLR estimator will be used, which is robust even when some variables' distributions deviate from normality.

The position of the scores representing creativity (e.g. scores based on the Consequences test) in the basic personality space will identified using extension factor analysis (Gorsuch, 1997). This analysis explores loadings of a set of variables (extension variables) on the factors extracted based on a different set of variables (core variables). I used HEXACO and DELTA facets (core variables) to define the basic personality space, and then investigated the loadings of the other relevant variables (such as scores based on the Consequences test representing the extension variables) on these factors.

RESULTS

Descriptives and reliability

Descriptive statistics and reliability coefficients of measured variables in both samples are displayed in Table 7. For HEXACO-PI-R domains Cronbach's alphas range from .80 (Agreeableness) to .87 (Extraversion), in student sample, and for from .80 (Emotionality and Conscientiousness) to .86 (Extraversion) in community sample. Of note, Disintegration reached reliability coefficients of .97 and .96. The respective coefficients for the PID-5 domains range from .88 (Disinhibition) to .95 (Psychoticism). Overall, these results document that all the instruments included in the study have adequate psychometric properties.

Correlational analysis

First and foremost, the correlational analysis, see Table 8 reveals that the relations of Openness and Disintegration to Psychoticism (O: .24; .18; D: .72; .70) provide much stronger support for the notion that Psychoticism represents and extreme form of proneness to psychotic-like experiences than the notion that it is an extreme form of Openness. Of note, the relations of all personality factors to psychoticism are equal to or stronger than the one for Openness, and the only factor showing a strong relation is Disintegration. It is also remarkable, that Openness and Disintegration are essentially unrelated in both samples.

Considering the associations between Openness and creativity indices one can observe that they range from .23 to .45, and the correlation between Openness and Need for Cognition is .53 and .61, respectively; whereas links between Disintegration and creativity indices range from non-significant -.03 to .19, and the link to need for cognition is -.15 and -.09, respectively. This is again clear evidence revealing differential associations for Openness and Disintegration and supports the notion that proneness to psychotic-like experiences is not reliably linked to creativity, which is incompatible with the mad-genius hypothesis (at least the quantitative psychometric version of it, cf. Simonton, 2019). This is further underscored by the very weak links between Psychoticism and creativity indices ranging from non-significant .04 to .27, and the weak link to Need for Cognition (.02 and .11).

Taken together, this initial exploration of bivariate relations provides first evidence well in line with the theoretical perspective proposed in this thesis according to which Openness and Disintegration are distinct traits, and according to which the link between psychoticism and creativity as proposed in the mad-genius hypothesis is elusive and most probably not existent.

In the next step of the empirical analysis, the data were submitted to Multigroup ESEMs to explore which structure provides the best fit to the data with the main goal to establish a proper structure of the basic personality space for the consecutive Extension analysis.

Table 7
Means, Standard Deviations, Skewness and Kurtosis and Alpha Reliabilities of HEXACO PI-R, Need for cognition, Disintegration, PID-5 Psychoticism, CAQ, CAAI, Amoral, NPI, MACH-IV, SRP in student (n=403) and community sample (n=383), and Consequences test in (n=346) and community sample (n=285)

Measure	Student sample							Community sample						
	M	SD	Min	Max	Sk	Ku	α	M	SD	Min	Max	Sk	Ku	α
HEXACO PI –R factor-level scales														
Honesty/Humility	3.39	.66	1.38	4.88	-.38	.02	.83	3.41	.68	1.06	5.00	-.43	.25	.84
Emotionality	3.33	.64	1.31	4.75	-.33	-.12	.83	3.21	.59	1.13	4.94	-.02	.16	.80
Extraversion	3.50	.67	1.63	4.94	-.34	-.43	.87	3.53	.63	1.44	5.00	-.34	.29	.86
Agreeableness	2.87	.60	1.50	4.50	.13	-.34	.80	2.81	.61	1.00	4.31	-.10	-.22	.82
Conscientiousness	3.50	.59	1.75	4.88	-.21	-.32	.81	3.68	.56	1.25	5.00	-.47	.79	.80
Openness	3.67	.65	1.56	4.94	-.51	-.12	.83	3.50	.70	1.19	4.88	-.59	.15	.83
HEXACO PI –R facet-level scales														
(Honesty/Humility)														
Sincerity	3.67	.89	1.00	5.00	-.65	.15	.71	3.73	.88	1.00	5.00	-.43	-.24	.69
Fairness	3.47	1.00	1.00	5.00	-.45	-.56	.74	3.55	1.04	1.00	5.00	-.53	-.41	.77
Greed Avoidance	2.99	1.00	1.00	5.00	.04	-.85	.80	2.99	1.01	1.00	5.00	-.05	-.67	.78
Modesty	3.42	.77	1.25	5.00	-.19	-.01	.62	3.38	.85	1.00	5.00	-.21	-.17	.66
(Emotionality)														
Fearfulness	2.91	.87	1.00	4.75	-.04	-.52	.65	2.75	.87	1.00	5.00	.29	-.12	.64
Anxiety	3.57	.79	1.00	5.00	-.37	-.18	.56	3.41	.76	1.00	5.00	-.19	-.17	.54
Dependence	3.22	.96	1.00	5.00	-.24	-.73	.79	3.11	.89	1.00	5.00	-.17	-.43	.72
Sentimentality	3.64	.86	1.00	5.00	-.53	-.35	.74	3.55	.81	1.00	5.00	-.31	-.12	.67
(Extraversion)														
Social Self-esteem	3.72	.73	2.00	5.00	-.30	-.65	.57	3.85	.70	1.50	5.00	-.46	-.20	.62
Social Boldness	3.06	.91	1.00	5.00	-.12	-.67	.72	3.09	.88	1.00	5.00	-.04	-.42	.71
Sociability	3.69	.83	1.00	5.00	-.57	.00	.74	3.62	.85	1.00	5.00	-.46	-.19	.74
Liveliness	3.53	.90	1.00	5.00	-.52	-.33	.80	3.55	.79	1.00	5.00	-.50	.17	.69
(Agreeableness)														
Forgiveness	2.72	.88	1.00	4.75	.08	-.56	.70	2.62	.82	1.00	4.75	.01	-.44	.67
Gentleness	3.04	.71	1.00	5.00	-.04	-.28	.47	3.11	.80	1.00	5.00	-.09	-.01	.62
Flexibility	2.59	.79	1.00	5.00	.18	-.26	.57	2.52	.75	1.00	5.00	.17	-.28	.55

Patience	3.11	.86	1.00	5.00	-.01	-.52	.66	3.00	.84	1.00	5.00	-.04	-.39	.66
(Conscientiousness)														
Organization	3.32	.88	1.25	5.00	-.11	-.72	.64	3.62	.86	1.00	5.00	-.50	-.24	.65
Diligence	3.79	.73	1.00	5.00	-.53	.14	.64	3.96	.68	1.00	5.00	-.60	.44	.62
Perfectionism	3.48	.81	1.00	5.00	-.21	-.34	.70	3.53	.78	1.00	5.00	-.24	-.21	.60
Prudence	3.42	.86	1.25	5.00	-.31	-.58	.77	3.60	.83	1.00	5.00	-.68	.42	.73
(Openness)														
Aesthetic appreciation	3.64	.88	1.25	5.00	-.37	-.58	.61	3.61	.99	1.00	5.00	-.58	-.30	.71
Inquisitiveness	3.54	.83	1.00	5.00	-.48	-.13	.58	3.56	.90	1.00	5.00	-.42	-.45	.61
Creativity	3.80	.94	1.00	5.00	-.74	-.14	.77	3.51	.99	1.00	5.00	-.42	-.47	.72
Unconventionality	3.70	.72	1.00	5.00	-.49	-.11	.56	3.33	.77	1.00	5.00	-.30	-.17	.49
Need for cognition	64.47	11.75	27.00	88.00	-.48	.01	.90	61.51	12.41	23.00	90.00	-.50	.31	.90
Disintegration factor	2.15	.50	1.19	3.73	.41	-.40	.97	2.07	.49	1.14	3.75	.54	-.09	.96
Disintegration facet-level scales														
GEI	2.19	.65	1.00	4.20	.50	-.34	.85	2.10	.61	1.07	3.79	.43	-.45	.84
PD	1.64	.65	1.00	4.08	1.16	.75	.89	1.58	.61	1.00	4.33	1.44	2.21	.88
P	1.91	.54	1.00	3.92	.87	.78	.83	1.94	.55	1.00	4.15	.92	.89	.83
D	1.89	.65	1.00	4.36	1.27	1.54	.87	1.82	.56	1.00	4.00	.97	.90	.81
FA	2.16	.65	1.00	4.45	.55	-.02	.81	2.12	.61	1.00	3.91	.47	-.18	.79
SOD	1.88	.57	1.00	3.93	.89	.42	.83	1.86	.56	1.00	4.07	1.00	.78	.83
MT	2.30	.80	1.00	4.62	.33	-.68	.87	2.25	.76	1.00	4.69	.48	.02	.86
EA	2.58	.86	1.00	4.80	.24	-.58	.85	2.38	.82	1.00	4.80	.36	-.41	.84
M	2.79	.69	1.00	4.67	-.14	-.35	.81	2.58	.74	1.00	4.58	.16	-.48	.84
PID-5 Psychoticism factor	0.75	0.55	0.00	2.59	.68	-.22	.95	0.63	0.47	0.00	2.03	.76	-.08	.94
Psychoticism facet-level scales														
Eccentricity	0.98	0.72	0.00	3.00	.49	-.56	.95	0.79	0.63	0.00	2.62	.76	-.13	.93
Perceptual dysregulation	0.61	0.50	0.00	2.17	.88	.16	.85	0.49	0.43	0.00	1.91	1.01	.47	.82
Unusual beliefs	0.67	0.63	0.00	3.00	.94	.24	.85	0.62	0.56	0.00	2.88	1.06	.85	.81
Consequences test	0.22	1.05	-1.98	5.40	.46	1.06	.85	-0.27	0.87	-1.98	2.64	.53	-.09	.85
CAQ	0.87	0.36	0.00	1.69	-.20	-.18	.78	0.71	0.43	0.00	2.21	.29	-.37	.79
CAAI	67.39	13.87	45.00	138.00	1.04	1.82	.89	60.11	11.59	45.00	106.00	1.04	.90	.88
Amoral	2.32	0.48	1.33	4.17	.73	.91	.78	2.24	0.50	1.06	4.28	.31	.27	.78

Dark Triad scales														
NPI	3.54	0.79	1.00	5.33	-.58	.37	.88	3.31	0.94	1.00	6.25	-.29	-.39	.88
MACH-IV	2.93	0.34	1.96	4.15	.07	.85	.80	3.10	0.39	1.52	4.07	-.25	.53	.81
SRP	2.11	0.40	1.27	3.78	.77	.94	.92	2.10	0.44	1.19	3.70	.77	.83	.92
Positive ptpe	2.36	0.62	1.07	3.92	.19	-.77	.92	2.24	0.60	1.05	4.05	.38	-.25	.91
Negative ptpe	2.06	0.49	1.03	3.82	.42	-.11	.89	2.07	0.50	1.03	3.62	.43	-.27	.90

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. SA – Social Anhedonia. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. NPI – Narcissistic Personality Inventory. MACH-IV – Machiavellianism scale. SRP – Self-Report Psychopathy Scale. Positive ptpe – positive proneness to psychotic-like experiences; Negative ptpe – negative proneness to psychotic-like experiences.

Table 8
Correlations between the key variables in student sample (n=403; above the diagonal) and community sample (n=383; below the diagonal)

	Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Disintegration	–	-.22	.08	-.33	-.12	-.31	.05	.05	-.05	.05	.12	-.1	-.03	.13	.2	.72	.59	.72	.64
2	Honesty/Humility	-.24	–	.03	-.05	.4	.17	.15	.23	.1	.09	.04	.17	-.01	-.02	-.01	-.13	-.11	-.11	-.12
3	Emotionality	.08	.05	–	-.07	-.07	.09	-.11	-.02	-.14	-.08	-.11	-.17	-.03	0	-.02	-.06	-.14	.05	-.02
4	Extraversion	-.33	-.01	-.06	–	-.03	.1	.07	.04	.07	.15	-.07	.15	-.03	.16	.14	-.26	-.32	-.27	-.11
5	Agreeableness	-.04	.30	-.05	.01	–	-.01	.16	.19	.04	.14	.09	.03	.16	-.02	0	-.02	-.01	-.01	-.02
6	Conscientiousness	-.22	.25	.21	.20	.07	–	.18	.16	.2	.11	.07	.29	-.05	.09	.05	-.24	-.24	-.28	-.15
7	Openness	.04	.12	.01	.10	.15	.22	–	.81	.69	.79	.78	.61	.25	.37	.35	.24	.3	.12	.19
8	Aesthetic appreciation	.03	.23	.12	.05	.20	.27	.84	–	.43	.52	.52	.47	.18	.28	.29	.17	.18	.12	.16
9	Inquisitiveness	-.08	.10	-.10	.12	.00	.19	.72	.47	–	.31	.4	.44	.13	.16	.16	.07	.13	-.01	.05
10	Creativity	.07	.09	.04	.18	.11	.16	.80	.61	.37	–	.55	.45	.21	.4	.38	.19	.24	.09	.17
11	Unconventionality	.11	-.09	-.05	-.08	.02	.03	.69	.44	.36	.43	–	.52	.25	.26	.23	.31	.38	.19	.23
12	Need for cognition	-.15	.08	-.03	.22	-.03	.23	.53	.38	.36	.42	.49	–	.13	.28	.22	.11	.13	.03	.13
13	Consequences test[1]	.08	.04	-.07	-.11	.00	.02	.23	.19	.08	.21	.22	.12	–	.18	.16	.04	.04	.04	.03
14	CAQ	.01	.01	-.02	.10	.01	.09	.34	.24	.14	.42	.24	.29	.19	–	.73	.22	.18	.17	.24
15	CAAI	.03	.06	.04	.17	.08	.13	.45	.37	.20	.51	.30	.34	.22	.67	–	.28	.21	.23	.3
16	PID-5 Psychoticism	.70	-.20	-.02	-.19	-.09	-.23	.18	.11	-.01	.22	.23	.02	.11	.09	.10	–	.9	.89	.89
17	Eccentricity	.54	-.24	-.14	-.22	-.16	-.27	.18	.06	.03	.19	.32	.09	.15	.15	.12	.87	–	.71	.65
18	Perceptual dysregulation	.72	-.15	.08	-.25	-.03	-.23	.11	.08	-.03	.15	.14	-.09	.08	.03	.06	.88	.65	–	.73
19	Unusual beliefs	.61	-.11	.04	-.04	-.04	-.09	.16	.14	-.02	.22	.13	.03	.04	.03	.09	.87	.58	.72	–

Note. [1] – Correlations involving divergent thinking are based on lower sample size in student (n=346) and community (n=285) sample due to missing values. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. In the full student sample correlations above .12 are significant at the .05 level, and above .13 at the .01 level while in the smaller sample (correlations involving Consequences test) the respective figures are .13 and .15. In the full community sample correlations above .13 are significant at the .05 level, and above .14 at the .01 level while in the smaller sample (correlations involving Consequences test) the respective figures are .12 and .15

Establishing the basic personality space: Multi-group ESEMs testing models with a 5-factor, 6-factor or 7-factor structure

We found support for the metric invariance of the 7-factor model across the two samples. The metric invariance means that the number of factors and loadings are the same in these two samples, but not the intercepts and residuals of the variables. To put it in less technical terms, achieving metric invariance is comparable to saying that congruence coefficients of all seven factors in both samples are 1. In other words, the same structures are extracted in these two samples. The arguably most appropriate methodological approach to answering the question whether a comprehensive unified personality space comprises 5, 6, or 7 factors given the nature of the data collected for this study (two samples) is to run multi-group ESEMs testing models with a 5-factor, 6-factor or 7-factor structure. According to those researchers adhering to the Big Five model of personality (cf. Crego & Widiger, 2017; Soto & John, 2017; Watson, Nus & Wu, 2019), each and every item tapping into elements of basic personality should show primary loadings on one of the five factors representing O, C, E, A, and N. The same logic holds true concerning the HEXACO model of personality, with the specialty that this perspective proposes 6-factors. The position advanced in this thesis, in line with substantive prior work (Knezevic et al., 2017), holds that the space of basic personality comprises seven factors with Disintegration complementing the six HEXACO traits.

In order to test which of the three models of the basic personality space is most strongly supported by the data, goodness of fit parameters of the three models can be compared. In addition, it is intriguing to explore which of the seven factors proposed in the most complex model "collapse" when the model is reduced to a 6-factor and a 5-factor structure.

In the multi-group ESEM testing the seven-factor structure, the goodness of fit indicators revealed that this factorial structure provides an excellent fit to the data. Moreover the factorial structure was identical in both samples. Note that the loadings reported in tables 9 to 11 represent standardized loadings and therefore the values in both samples are not identical.
Concerning the factorial structure, the HEXACO model is perfectly replicated and most importantly the disintegration factor emerged as clearly separate factor from the other basic personality traits. None of the HEXACO factors had secondary loadings on the disintegration factor. Moreover, none of the disintegration facets had secondary loadings on the HEXACO factors with the only exception of enhanced awareness which had a secondary loading on the openness factor.

Table 9
Multi-group ESEM with loadings and fit indices for 7-factor structure

	$X^2(818) = 1729.209$***; CFI = .910; TLI = .884; SRMR = .044; RMSEA [90%-CI] = .053 [.050, .057]													
	Student sample (n = 403)							Community sample (n = 383)						
	D	H	E	X	A	C	O	D	H	E	X	A	C	O
GEI	**.72**	.01	-.03	-.20	.04	-.19	-.07	**.74**	.01	-.03	-.19	.04	-.19	-.08
PD	**.87**	.04	-.09	-.09	.03	.00	-.04	**.88**	.05	-.09	-.09	.03	.00	-.04
P	**.64**	-.13	-.09	-.12	-.13	.04	-.11	**.64**	-.14	-.09	-.11	-.14	.03	-.11
D	**.47**	.01	-.07	-.5	-.06	-.07	-.02	**.51**	.01	-.07	**-.50**	-.07	-.08	-.02
FA	**.52**	-.12	**-.34**	-.27	.01	-.12	-.09	**.54**	-.13	**-.34**	-.26	.01	-.12	-.10
SOD	**.81**	.09	-.01	-.25	-.01	-.04	-.04	**.80**	.10	-.01	-.22	-.01	-.03	-.04
MT	**.65**	-.04	.06	.11	.07	.10	.16	**.63**	-.04	.06	.10	.07	.09	.16
EA	**.65**	.02	.04	.04	.01	.04	**.42**	**.66**	.03	.04	.04	.01	.04	**.44**
M	**.66**	-.10	.15	.06	-.11	-.05	.13	**.63**	-.11	.14	.05	-.11	-.05	.13
Sincerity	-.04	**.53**	-.05	.03	-.06	.09	.05	-.04	**.57**	-.05	.03	-.07	.09	.06
Fairness	-.02	**.50**	.05	.02	.09	.28	-.08	-.02	**.51**	.05	.02	.09	.25	-.08
Greed Avoidance	.04	**.68**	-.23	-.02	.00	-.01	.05	.04	**.71**	-.21	-.02	.00	-.01	.04
Modesty	-.14	**.58**	.01	-.10	.06	-.07	-.03	-.12	**.57**	.01	-.09	.05	-.06	-.03
Fearfulness	-.04	-.05	**.57**	-.39	.09	.12	-.11	-.04	-.05	**.53**	-.35	.09	.12	-.12
Anxiety	.07	-.01	**.48**	-.41	-.17	.19	.05	.08	-.01	**.48**	-.4	-.19	.19	.05
Dependence	.01	-.03	**.66**	0	.00	-.10	-.01	.01	-.04	**.69**	0	.00	-.11	-.01
Sentimentality	-.02	.24	**.72**	.03	-.03	-.02	.08	-.02	.27	**.73**	.03	-.03	-.02	.09
Social Self-esteem	-.12	-.08	-.02	**.71**	.01	.10	-.05	-.14	-.09	-.02	**.72**	.01	.11	-.06
Social Boldness	.05	-.09	-.07	**.58**	-.11	.04	.09	.05	-.11	-.07	**.58**	-.13	.04	.09
Sociability	.06	-.01	.24	**.64**	.06	-.02	-.06	.06	-.01	.23	**.59**	.06	-.02	-.06
Liveliness	-.07	.03	.06	**.82**	-.01	-.02	-.02	-.07	.03	.06	**.80**	-.01	-.02	-.02
Forgiveness	.07	.12	-.01	.09	**.55**	-.09	.10	.07	.13	-.01	.08	**.58**	-.09	.11
Gentleness	.03	.16	.07	.01	**.54**	-.06	.04	.03	.16	.07	.01	**.54**	-.06	.04
Flexibility	-.02	.07	.04	-.07	**.59**	.03	-.09	-.02	.07	.04	-.07	**.64**	.03	-.10
Patience	-.03	-.04	-.27	-.01	**.70**	.16	.11	-.03	-.04	-.25	-.01	**.74**	.15	.11
Organization	.01	.07	.02	.11	.02	**.70**	-.17	.01	.07	.02	.10	.02	**.67**	-.17
Diligence	-.06	.02	-.02	.27	-.22	**.53**	.21	-.06	.03	-.03	.26	-.25	**.55**	.23

Perfectionism	.06	-.02	.08	-.21	-.17	**.54**	.18	.06	-.02	.08	-.21	-.19	**.55**	.20
Prudence	-.18	-.02	-.13	-.09	.15	**.60**	.00	-.18	-.02	-.13	-.08	.16	**.59**	.00
Aesthetic appreciation	.02	.15	.03	-.05	.08	.06	**.68**	.02	.16	.02	-.04	.08	.06	**.69**
Inquisitiveness	-.08	.02	-.17	.02	-.04	.10	**.50**	-.07	.02	-.15	.02	-.04	.09	**.49**
Creativity	.03	.02	.02	.11	.05	-.04	**.71**	.03	.02	.02	.10	.06	-.03	**.71**
Unconventionality	-.07	-.11	-.08	-.16	.00	-.11	**.82**	-.06	-.11	-.06	-.13	.00	-.09	**.74**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** - $p < .001$.

In the six-factor structure, the goodness of fit indicators were substantially worse compared to the seven-factor structure.

Table 10
Multi-group ESEM with loadings and fit indices for 6-factor structure

	$X^2(852) = 2065.430$***; CFI = .880; TLI = .851; SRMR = .050; RMSEA [90%-CI] = .060 [.057, .064]											
	Student sample (n = 403)						Community sample (n = 383)					
	D	H+A	E	X	C	O	D	H+A	E	X	C	O
GEI	**.71**	.03	-.01	-.24	-.19	-.07	**.73**	.03	-.01	-.23	-.19	-.07
PD	**.85**	.05	-.07	-.13	.00	-.03	**.87**	.06	-.07	-.12	.00	-.03
P	**.63**	-.22	-.10	-.14	.04	-.10	**.64**	-.23	-.09	-.13	.04	-.11
D	**.45**	-.04	-.06	**-.53**	-.07	-.01	**.49**	-.05	-.06	**-.53**	-.07	-.02
FA	**.52**	-.06	**-.35**	-.29	-.13	-.09	**.54**	-.07	**-.34**	-.28	-.14	-.10
SOD	**.79**	.05	.03	-.28	-.03	-.02	**.77**	.05	.02	-.26	-.03	-.02
MT	**.65**	.03	.05	.10	.09	.16	**.64**	.03	.05	.09	.08	.16
EA	**.64**	.01	.05	.03	.03	**.43**	**.66**	.01	.04	.03	.03	**.45**
M	**.65**	-.19	.15	.05	-.05	.13	**.63**	-.20	.14	.04	-.05	.13
Sincerity	-.11	**.30**	.06	-.02	.12	.10	-.11	**.31**	.06	-.02	.12	.11
Fairness	-.07	**.42**	.13	.00	.29	-.04	-.07	**.41**	.11	.00	.27	-.04
Greed Avoidance	-.05	**.45**	-.07	-.09	.03	.11	-.05	**.45**	-.07	-.08	.03	.10
Modesty	-.19	**.45**	.12	-.14	-.03	.01	-.17	**.42**	.10	-.12	-.03	.01
Fearfulness	-.01	.03	**.50**	**-.34**	.12	-.14	-.01	.03	**.48**	**-.31**	.12	-.14
Anxiety	.07	-.20	**.47**	**-.40**	.21	.04	.07	-.21	**.47**	**-.38**	.21	.04
Dependence	.02	-.05	**.64**	.03	-.09	-.02	.02	-.06	**.66**	.03	-.10	-.03
Sentimentality	-.04	.10	**.76**	.04	.00	.09	-.04	.12	**.77**	.04	.00	.10
Social Self-esteem	-.11	-.05	-.02	**.72**	.09	-.05	-.12	-.06	-.02	**.74**	.10	-.06
Social Boldness	.06	-.17	-.07	**.58**	.03	.09	.06	-.19	-.07	**.58**	.03	.11
Sociability	.07	.03	.25	**.65**	-.03	-.06	.07	.03	.23	**.60**	-.03	-.06
Liveliness	-.06	.01	.08	**.81**	-.02	-.01	-.07	.01	.08	**.79**	-.02	-.01
Forgiveness	.10	**.59**	-.03	.11	-.12	.08	.10	**.62**	-.03	.10	-.12	.08
Gentleness	.06	**.62**	.05	.03	-.08	.02	.06	**.60**	.05	.03	-.08	.02
Flexibility	.03	**.59**	-.02	-.04	.00	-.13	.03	**.63**	-.02	-.04	.00	-.13
Patience	.03	**.60**	**-.33**	.03	.10	.07	.03	**.63**	**-.31**	.03	.10	.07
Organization	.03	.06	-.01	.14	**.72**	-.16	.03	.06	-.01	.12	**.70**	-.17
Diligence	-.07	-.20	-.02	.28	**.54**	.23	-.07	-.22	-.02	.28	**.57**	.25
Perfectionism	.06	-.19	.07	-.19	**.55**	.19	.06	-.21	.07	-.19	**.57**	.21
Prudence	-.14	.12	-.19	-.04	**.58**	-.01	-.15	.13	-.19	-.04	**.59**	-.01
Aesthetic appreciation	.02	.19	.03	-.04	.06	**.69**	.02	.19	.03	-.04	.06	**.70**
Inquisitiveness	-.07	-.01	-.18	.02	.10	**.51**	-.07	-.01	-.16	.02	.09	**.50**
Creativity	.04	.08	.01	.12	-.05	**.71**	.04	.08	.01	.10	-.05	**.71**
Unconventionality	-.05	-.06	-.11	-.15	-.12	**.79**	-.04	-.05	-.09	-.12	-.11	**.72**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** – $p < .001$.

Considering the factorial structure, it is notable that the honesty factor collapses and merges into the agreeableness factor. In contrast, the disintegration factor remained robust and in parallel to the seven-factor structure none of the HEXACO factors had secondary loadings on the disintegration factor. Again none of the disintegration facets had secondary loadings on the HEXACO factors with two exceptions: 1) the depression facet had a negative secondary loading on the extraversion factor; 2) the enhanced awareness facet on the openness factor.

In the concluding analysis testing the five-factor structure, the goodness of fit indicators were again substantially worse compared to the seven-factor structure and also compared to the six-factor structure (see Table 11).

Inspecting the factorial structure, one can note that the honesty factor collapses again and merges into the agreeableness factor. In addition, the consciousness factor collapses and virtually disappears. Yet again, the disintegration factor remained robust and in parallel to the seven- and six-factor structure none of the HEXACO factors had secondary loadings on the disintegration factor. Parallel to the six-factor structure, only two of the disintegration facets had secondary loadings. The depression facet had a negative secondary loading on the extraversion factor and the enhanced awareness facet on the openness factor.

To conclude, the analyses applying multi-group ESEMs revealed a strikingly clear result: The 7-factor model of the basic personality space reached the best GoFs, Disintegration is a robust personality factor that did not collapse in the models reducing the personality space down to a 6- or 5-factor structure, and Disintegration is clearly distinct from the previously established basic personality traits, irrespective of the model structure that was tested.

Table 11
Multi-group ESEM with loadings and fit indices for 5-factor structure

	$X^2(886) = 2607.685$***; CFI = .830; TLI = .797; SRMR = .059; RMSEA [90%-CI] = .070 [.067, .073]									
	Student sample (n = 403)					Community sample (n = 383)				
	D	H+A	E	X	O	D	H+A	E	X	O
GEI	**.79**	.02	-.04	-.22	-.07	**.80**	.02	-.05	-.21	-.08
PD	**.83**	.05	-.01	-.15	.04	**.86**	.05	-.01	-.14	.04
P	**.61**	-.22	-.04	-.17	-.03	**.61**	-.23	-.04	-.16	-.03
D	**.49**	-.05	-.05	**-.53**	-.01	**.53**	-.05	-.05	**-.52**	-.01
FA	**.56**	-.07	**-.35**	**-.30**	-.07	**.57**	-.08	**-.37**	-.28	-.07
SOD	**.80**	.04	.06	-.29	.02	**.78**	.04	.06	-.27	.02
MT	**.61**	.03	.11	.08	.23	**.60**	.03	.11	.07	.24
EA	**.64**	.01	.07	.01	**.48**	**.65**	.01	.07	.01	**.51**
M	**.68**	-.20	.15	.04	.17	**.65**	-.20	.14	.04	.17
Sincerity	-.14	**.32**	.11	-.02	.11	-.14	**.33**	.11	-.02	.11
Fairness	-.17	**.43**	.25	-.02	.01	-.16	**.43**	.24	-.02	.01
Greed Avoidance	-.05	**.46**	-.05	-.08	.09	-.05	**.46**	-.05	-.07	.09
Modesty	-.16	**.46**	.10	-.11	-.05	-.14	**.43**	.09	-.09	-.04
Fearfulness	-.01	.03	.55	**-.33**	-.15	-.01	.03	**.55**	**-.31**	-.15
Anxiety	.04	-.18	.55	**-.41**	.07	.04	-.20	**.56**	**-.39**	.07
Dependence	.10	-.06	.57	.06	-.09	.10	-.06	**.60**	.06	-.10
Sentimentality	.01	.10	.70	.06	.03	.01	.11	**.74**	.06	.04
Social Self-esteem	-.18	-.06	.01	**.69**	-.01	-.20	-.06	.01	**.70**	-.01
Social Boldness	.01	-.18	-.06	**.57**	.14	.01	-.20	-.07	**.56**	.15
Sociability	.06	.02	.23	**.65**	-.06	.06	.02	.23	**.60**	-.06
Liveliness	-.09	.00	.06	**.82**	.00	-.10	-.01	.06	**.79**	.00
Forgiveness	.15	**.59**	-.06	.14	.02	.15	**.62**	-.06	.13	.03
Gentleness	.10	**.62**	.04	.07	-.04	.09	**.60**	.04	.06	-.04
Flexibility	.03	**.59**	.02	-.02	-.15	.03	**.63**	.02	-.02	-.16
Patience	-.02	**.60**	-.24	.03	.09	-.02	**.63**	-.24	.03	.09
Organization	-.24	.08	.28	.04	.05	-.25	.08	.29	.04	.06
Diligence	-.27	-.16	.18	.20	**.38**	-.29	-.17	.19	.20	**.42**
Perfectionism	-.12	-.15	.28	-.25	**.34**	-.13	-.16	.29	-.24	**.36**
Prudence	**-.37**	.14	.07	-.11	.16	**-.36**	.14	.07	-.10	.16
Aesthetic appreciation	.02	.20	.02	-.04	**.69**	.02	.20	.02	-.03	**.70**
Inquisitiveness	-.11	.01	-.16	.01	**.54**	-.11	.01	-.15	.01	**.53**
Creativity	.08	.08	-.05	.13	**.69**	.07	.08	-.04	.11	**.68**
Unconventionality	.03	-.04	-.20	-.12	**.72**	.02	-.04	-.17	-.10	**.66**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** – $p < .001$.

Results of Extension Analysis – Loadings of Need for cognition, Psychoticism and Creativity measures on the basic personality traits

In the next sections, the empirical analyses will be focusing on the mad-genius hypothesis by way of a powerful methodological approach. Specifically, it will be tested where the different creativity indices, need for cognition and psychoticism are located in the personality space. As outlined above, if the mad-genius hypothesis is correct, one should observe that openness, psychoticism, need for cognition and creativity form a common cluster. If the alternative view is correct, which considers psychoticism as the extreme form of proneness to psychotic-like experiences, psychoticism should be linked to Disintegration whereas creativity is largely unrelated to Disintegration.

In order to determine the location of creativity, as well as psychoticism markers and the need for cognition scale (NCS) extension analysis was performed. As described in the method section, this two-step analysis allows for the investigation of how extension variables fit into the space defined by a number of core variables (Gorsuch, 1997; O'Connor, 2001).

In the first step, the core space is predefined as in an exploratory factor analysis, establishing the core variables and setting up the number of factors. In this case, since the results of the Multi-group ESEM confirmed that the core space is best described using a seven-factor structure, I inserted HEXACO PI-R and Delta-9 as core variables, used varimax rotation and set the number of factors extracted at seven.

In the second step, NCS, PID-5 Psychoticism factor and facet scales, as well as three markers of creativity – CT, CAQ, and CAAI – were used as extension variables. The results of this analysis for students and community samples are shown in Table 12 and 13, respectively. Each table has two parts, the upper part describes the loadings of core variables in the basic seven factor space, while the lower part shows the loadings of extension variables.

Table 12.
Extension Loadings of the variables on Factors (Student sample; n = 347)

	D	O	X	E	A	C	H
Core variables (Delta-9 and HEXACO PI-R)							
GEI	.82	-.12	-.38	.07	-.08	-.54	-.35
PD	.88	.08	-.30	.01	-.12	-.30	-.25
P	.68	-.10	-.33	.03	-.30	-.28	-.42
D	.70	-.06	-.61	-.03	-.04	-.33	-.24
FA	.62	-.14	-.52	-.31	-.10	-.44	-.38
SOD	.91	.04	-.37	.08	-.10	-.35	-.25
MT	.60	.27	.04	.11	-.06	-.08	-.24
EA	.62	.53	.02	.19	-.04	-.08	-.15
M	.64	.20	.05	.29	-.24	-.22	-.31
Sincerity	-.17	.21	.08	.04	.16	.22	.62
Fairness	-.28	.04	.10	.15	.29	.29	.55
Greed Avoidance	-.08	.14	-.07	-.05	.31	.02	.66
Modesty	-.22	.00	-.06	.05	.31	.01	.58
Fearfulness	.05	-.22	-.25	.56	-.06	.05	-.19
Anxiety	.23	-.08	-.26	.50	-.23	.11	-.08
Dependence	.03	-.11	.13	.61	-.05	-.03	-.05
Sentimentality	.01	.07	.16	.73	-.04	.11	.17
Social Self-esteem	-.33	.10	.71	-.03	-.12	.24	.02
Social Boldness	-.11	.23	.56	-.05	-.05	.14	.02
Sociability	-.17	.04	.66	.19	.02	.01	.02
Liveliness	-.41	.11	.84	.03	-.01	.14	.11
Forgiveness	-.10	.13	.10	.05	.66	-.09	.34
Gentleness	-.10	.06	.04	.10	.54	-.12	.34
Flexibility	-.08	-.09	-.11	.00	.65	-.06	.17
Patience	-.19	.14	-.05	-.28	.68	.10	.29
Organization	-.30	-.03	.17	.09	.02	.65	.20
Diligence	-.24	.33	.35	.05	-.36	.66	.22
Perfectionism	-.03	.22	-.07	.22	-.17	.52	.08
Prudence	-.37	.06	-.05	-.06	.21	.58	.13
Aesthetic appreciation	.03	.67	.17	-.06	.12	.20	.30
Inquisitiveness	-.06	.49	.11	-.14	.00	.26	.17
Creativity	.06	.72	.22	-.03	.07	.15	.16
Unconventionality	.12	.78	.00	-.10	.03	.08	.13
Extension variables (PID-5 Psychoticism facets and factor, CT, CAQ, CAAI and NCS)							
Eccentricity	.59	.31	-.30	-.13	-.05	-.28	-.17
Perceptual dysregulation	.73	.18	-.27	.03	-.06	-.32	-.20
Unusual beliefs	.60	.29	-.08	.01	-.09	-.14	-.19

Psychoticism factor	.71	.30	-.24	-.04	-.07	-.27	-.21
CT	-.01	.23	-.01	-.04	.10	-.02	.07
CAQ	.13	.37	.18	.07	-.08	.12	.02
CAAI	.19	.38	.19	.04	-.04	.09	.04
NCS	-.09	.58	.20	-.13	-.02	.32	.25

Note. CT – Consequences test. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. NCS – Need for cognition scale.

The upper part of Table 12 displays the results of the exploratory factor analysis and reveals that the extracted seven factors can be interpreted as Disintegration, Openness, Extraversion, Emotionality, Agreeableness, Conscientiousness, and Honesty respectively. Of note, none of the disintegration facets had a notable loading on openness with the exception of enhanced awareness. In general, the disintegration factor appears particularly "clean" in the sense that no HEXACO facets had substantial loadings on this domain. This pattern obtained in the factor analysis can be considered a clear-cut conceptual replication of Knezevic et al. (2017).

The lower part of the table contains the loadings of extension variables. Indicators of psychoticism had primary loadings on the Disintegration factor ranging from .59 (Eccentricity) to .73 (Perceptual dysregulation), whereas loadings on the openness factor ranged from .18 (Perceptual dysregulation) to .31 (Eccentricity).
This pattern is largely identical with previous findings (Ashton et al., 2012; Chmielewski et al., 2014), documenting that PID-5 Psychoticism showed no substantial loading on openness. The conception of proneness to psychotic-like experiences as excessive openness is incompatible with these findings.

With respect to the creativity indicators, the extension analysis provides striking evidence to the fact that creativity is located on the openness factor in the personality space, and not on the factor representing proneness to psychotic-like experiences. These results are obviously incompatible with the mad-genius hypothesis. Complementing the findings concerning creativity, NCS also showed substantial loading on openness.

Table 13.
Extension Loadings of the variables on Factors (Community sample; n = 288)

	D	O	X	A	E	C	H
Core variables (Delta-9 and HEXACO PI-R)							
GEI	.86	-.03	-.36	-.04	-.08	-.30	-.16
PD	.86	.02	-.29	.01	-.01	-.20	-.19
P	.72	-.09	-.24	-.23	-.11	-.15	-.36
D	.69	-.14	-.67	-.19	-.06	-.21	-.17
FA	.75	-.13	-.42	-.08	-.31	-.36	-.20
SOD	.82	-.05	-.49	-.06	.08	-.17	-.12
MT	.55	.20	-.04	.04	.18	.09	-.21
EA	.65	.48	-.06	-.02	.08	.08	-.18
M	.70	.14	-.14	-.24	.01	-.03	-.37
Sincerity	-.23	.10	.11	.30	.15	.23	.55
Fairness	-.24	.05	.07	.38	.27	.36	.58
Greed Avoidance	-.10	.09	.02	.34	-.01	.03	.73
Modesty	-.19	-.03	-.04	.28	.13	.13	.61
Fearfulness	.08	-.16	-.33	.07	.49	.25	.06
Anxiety	.19	.07	-.35	-.22	.49	.43	-.17
Dependence	.03	.04	.07	-.12	.57	.10	-.23
Sentimentality	-.17	.16	.20	.12	.80	.28	.20
Social Self-esteem	-.43	.06	.78	.10	-.02	.11	.01
Social Boldness	-.20	.20	.61	-.15	-.12	-.03	-.18
Sociability	-.22	.08	.61	.08	.23	.12	.01
Liveliness	-.35	.13	.80	.11	.03	.07	.11
Forgiveness	.05	.13	.10	.55	.01	-.02	.32
Gentleness	.00	.05	-.02	.65	.14	.05	.34
Flexibility	-.11	-.03	-.02	.65	.15	.04	.32
Patience	-.03	.09	.04	.76	-.11	.05	.33
Organization	-.22	.02	.14	.16	.27	.65	.22
Diligence	-.33	.38	.43	-.02	.17	.64	.00
Perfectionism	.03	.26	-.12	-.05	.23	.67	-.01
Prudence	-.29	.05	.10	.23	.05	.60	.28
Aesthetic appreciation	-.02	.76	.05	.17	.21	.32	.20
Inquisitiveness	-.08	.52	.14	.06	-.03	.19	.05
Creativity	.06	.74	.17	.10	.12	.16	.06
Unconventionality	.11	.62	-.07	-.05	-.10	.05	-.14
Extension variables (PID-5 Psychoticism facets and factor, CT, CAQ, CAAI and NCS)							
Eccentricity	.55	.21	-.23	-.23	-.23	-.24	-.28
Perceptual dysregulation	.69	.17	-.25	-.07	.01	-.15	-.20
Unusual beliefs	.56	.23	-.04	-.07	.04	-.05	-.19

Psychoticism	.67	.24	-.19	-.15	-.08	-.17	-.26
CT	.07	.22	-.07	.00	-.06	.01	.03
CAQ	.04	.37	.09	.02	-.01	.09	.00
CAAI	.02	.50	.16	.09	.06	.15	.05
NCS	-.19	.49	.22	-.04	.01	.19	.04

Note. CT – Consequences test. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. NCS – Need for cognition scale.

The results obtained with the community sample are structurally identical with those obtained with the student sample and even more pronounced.

As is evident from the upper part of Table 13, the results of the exploratory factor analysis reveal that the extracted seven factors can be interpreted as Disintegration, Openness, Extraversion, Agreeableness, Emotionality, Conscientiousness, and Honesty respectively. Again, none of the disintegration facets had a notable loading on openness with the exception of enhanced awareness, and the disintegration factor appears particularly "clean" in the sense that no HEXACO facets had substantial loadings on this domain.

The lower part of the table contains the loadings of extension variables. Indicators of psychoticism had primary loadings on the Disintegration factor ranging from .55 (Eccentricity) to .69 (Perceptual dysregulation), whereas loadings on the openness factor ranged from .17 (Perceptual dysregulation) to .24 (Psychoticism factor). This is further evidence rejecting the notion that proneness to psychotic-like experiences could be considered as excessive openness.

Looking at the creativity indicators, the analysis revealed that none of them showed a noteworthy relation to proneness to psychotic-like experiences, whereas all of them are again primarily loading on openness. In the community sample NCS again showed a substantial loading on openness.

In combination, the extension analyses provide clear-cut evidence revealing that creativity is located on the openness factor in the personality space and virtually unrelated to proneness to psychotic-like experiences. This is incompatible with the quantitative version of the mad-genius hypothesis, according to which one should observe a close link between creativity and proneness to psychotic-like experiences.

To complement the picture concerning the mad-genius hypothesis, the next section is devoted to what may be considered a conceptual replication of the study reported by Miller and Tal (2007) as described in chapter 6.

Schizotypy versus openness as predictors of creativity

In the notable work of Miller and Tal (2007), the crucial findings were obtained in regression analyses with creativity scores (divergent thinking) as criterion and the Big Five personality factors, a measure of intelligence, and indicators of positive and negative schizotypy as predictors. In order to approach a conceptual replication, two aspects are challenging: (1) identifying a proxy for intelligence in the current data sets and (2) constructing measures that are conceptually largely identical with those indicators of positive and negative schizotypy in Miller and Tal's work. Given the lack of a straightforward measure of intelligence or other indicators of cognitive ability, need for cognition seems to be the best possible proxy in the present context. Concerning the second challenge, the available data sets included a measure of social anhedonia and the Delta instrument so that it was possible to construct a measure of positive schizotypy including the facets enhanced awareness, general executive impairment (reflecting odd thoughts and behavior) and magical thinking. The scale for negative schizotypy included social anhedonia, as well as the Delta facets paranoia and flattened affect.

Using these variables is probably the closest one can get with the available data sets in the attempt to conceptually replicate Miller and Tal's work who assessed positive schizotypy with indicators for unusual experiences, magical ideation, ideas of reference, confusing/odd speech, and odd behavior and negative schizotypy with indicators for flat affect, having no close friends, social anxiety, and paranoid ideation.

Table 14
Regression analyses conceptually replicating Miller & Tal (2007)

	DT Student sample		DT Community sample	
	$F(8,337) = 4.65^{***}$; $R^2 = .10$		$F(8,379) = 3.24^{**}$; $R^2 = .09$	
	beta	sig	beta	sig
Need for cognition	.02	.75	.03	.70
Openness	.28	.00	.19	.01
Conscientiousness	-.13	.03	.01	.91
Extraversion	-.05	.53	-.18	.01
Agreeableness	.11	.04	-.05	.39
Emotionality	.06	.34	-.13	.03
Positive psychoticism	-.13	.08	.14	.08
Negative psychoticism	.01	.92	-.14	.13

Note. DT – divergent thinking score. *** – $p < .001$. ** – $p < .01$.

As is evident from Table 14, openness turned out to be the strongest predictor of creativity in each of the analyses. None of the other predictor variables showed explanatory power consistently in both samples. Importantly, negative psychoticism did not matter as an explanatory factor at all. And the relation of positive psychoticism to divergent thinking turned out to be inconsistent and only weak. Overall, these results can be interpreted as a conceptual replication of Miller and Tal (2007) providing additional evidence that is strikingly incompatible with the mad-genius hypothesis.

Extending the search for the mad genius: the DSM-V, narcissism, Machiavellianism, psychopathy, and amoralism as markers of madness

In view of the fact that Miller and Tal (2007) focused exclusively on schizotypy in their analysis and given that creativity might be associated with a distinctive combination of markers reflecting "madness" or subclinical precursors of "madness" (cf. Simonton, 2019), it seems indicated to extend the analysis. Since additional constructs have been assessed in the data collection process of this study, a set of additional markers of "madness" or subclinical precursors of "madness" are available in the data sets, such as the Dark Triad (Narcissism, Macchiavellianism, Psychopathy; Paulhus & Williams, 2002) and amoralism (Knezevic et al., 2008) as well as the full DSM-V. Accordingly, additional regression analyses mirroring those of Miller and Tal (2007) but extending the psychopathology spectrum are reported below which were conducted to explore if it is possible to find evidence in support of the mad-genius hypothesis when other aspects of mental illness ("madness") are taken into account.

In the first set of analysis the full set of DSM-V factors was entered in the second block of a stepwise regression analysis. As depicted in Table 15, none of the DSM-V factors showed a reliable link to creativity. In general, the extended regression model did not have incremental explanatory power.

Table 15
Regression analyses testing an extended spectrum of psychopathology in predicting creativity

	DT Student sample		DT Community sample	
	$F(12,333) = 3.60^{***}$; $R^2 = .12$		$F(12,272) = 2.35^{**}$; $R^2 = .09$	
	beta	sig	beta	sig
Honesty Humility	-.102	.187	.142	.102
Emotionality	.028	.669	-.120	.069
Extraversion	-.033	.673	-.128	.142
Agreeableness	.138	.018	-.044	.493
Conscientiousness	-.144	.026	-.033	.648
Openness	.305	.000	.250	.000
Disintegration	-.108	.213	.043	.635
Negative affect	.095	.373	.089	.459
Detachment	.049	.619	-.029	.793
Antagonism	.028	.761	.181	.107
Disinhibition	-.135	.147	-.126	.218
Psychoticism	-.020	.826	-.033	.761

Note. DT – divergent thinking score. *** – $p < .001$. ** – $p < .01$.

In the following analyses the amorality scale plus dark triad traits were entered in the second block of a stepwise regression analysis. As depicted in Table 16, neither the dark triad traits nor amoralism showed a reliable link to creativity. Again, the extended regression model did not have incremental explanatory power.

Table 16
Regression analyses testing amoralism and dark triad traits in predicting creativity

	DT Student sample		DT Community sample	
	$F(11,334) = 4.19^{***}$; $R^2 = .12$		$F(11,273) = 2.56^{**}$; $R^2 = .09$	
	st beta	sig	st beta	sig
Honesty Humility	-.140	.049	.035	.653
Emotionality	.036	.561	-.111	.103
Extraversion	-.119	.045	-.132	.044
Agreeableness	.139	.022	-.084	.215
Conscientiousness	-.128	.037	.018	.806
Openness	.272	.000	.209	.001
Disintegration	-.109	.110	.069	.351
Machiavellianism	-.037	.477	-.217	.058
Narcissism	.094	.134	.039	.581
Psychopathy	.017	.851	.012	.909
Amoralism	-.123	.124	-.057	.575

Note. DT – divergent thinking score. *** – $p < .001$. ** – $p < .01$.

In combination, the results of the analyses conducted in the attempt to extend the search for the mad genius reveal that none of the markers of "madness" or subclinical precursors of "madness" emerged as significant predictors of creativity when basic personality traits are controlled for. This provides further evidence seriously questioning the validity of the mad-genius hypothesis.

Conclusions

The empirical work conducted was designed to address two basic questions: 1) whether there is a positive association between creativity and psychoticism as implicated in the famous mad-genius hypothesis; and 2) whether a comprehensive conceptualization of the personality space comprises five, six or seven basic traits.

In my thesis, I firstly focused on answering the latter question, particularly focusing on providing empirical evidence in order to answer the question whether the trait openness and proneness to psychotic-like experience and its psychopathological complement – psychoticism – are elements of a unitary construct or represent distinct domains.
In the relevant literature two camps can be identified concerning this question. The first camp attempts to locate psychotic-like experiences within the openness trait (DeYoung et al., 2012; Widiger, 2011), in contrast to the second camp which proposes that a comprehensive trait structure must include two separate domains with proneness to psychotic-like experiences representing an independent factor (Ashton et al., 2012; Chmielewski et al., 2014; Knezevic, et al., 2016; Knezevic et al., 2017; Watson et al., 2008).

The current work contributes substantial empirical evidence. Based on two large samples – a student and a community sample – I tested whether a comprehensive unified personality space comprises 5, 6, or 7 factors. Using the HEXACO traits and the Disintegration construct representing the proneness to psychotic-like experiences, multi-group ESEMs analyses were conducted. The results point at two main conclusions. The goodness of fit indicators clearly supports the seven-factor structure. Regarding the factor structure in terms of the pattern of loadings, when the number of extracted factors was set to six or five, disintegration and openness domains remain separate, whereas other factors merge or collapse.

Considering the methodological characteristics of the current study, I want to emphasize some aspects, which can be considered quality features of this work:

(a) The sample size obtained in this study is remarkable, particularly in comparison to the studies that have been published in this field so far.
(b) The creativity assessment using three distinct indicators renders the study relevant to the different groups of scientists in creativity research who selectively apply one or the other indicator.
(c) The divergent thinking data were obtained using expert ratings provided by a scientist and an artist.
(d) Proneness to psychotic-like experiences was assessed as a broad construct comprising nine facets; this approach is clearly more adequate than the approach taken in most previous studies where selective aspects of psychoticism or schizotypal personality disorder have been assessed.
(e) The full set of basic personality domains was assessed (HEXACO plus Disintegration) and also the full set of personality disorders (DSM-V).

In view of these quality features, it seems fair to state that the empirical work presented in this thesis stands out in comparison to all studies in this field that have been published so far.

DISCUSSION

Limitations and Possible Next Steps

As is true for every study, there is room for improvement. One possible extension of this line of research could implement the assessment of personality traits at the implicit level (cf. De Cuyper et al., 2017; Grumm & von Collani, 2007). Given that at least some aspects of creativity reflect spontaneous types of behavior and given that we know from prior research how crucial implicit constructs are when it comes to predicting spontaneous behavior (cf. Fazio, 1990; Hofmann, Rauch & Gawronski, 2007), including implicit personality indicators could be valuable in a next generation of research.

The current work did not address the mad-genius hypothesis referring to artistic or scientific geniuses in comparison to the general population. That is, this work is silent concerning this specific version of the mad-genius hypothesis. However, since the selective sampling of artistic or scientific geniuses can hardly be realized without buying into confounds of various sorts, I am skeptical whether such a research strategy can provide conclusive evidence in any case. Nevertheless, I acknowledge the fact that some researchers in this field have a different perspective on this issue.

Given the fact that the aim of the empirical work reported here was to examine the relation between creativity and personality traits, a measure of intelligence was not included. If the focus of research was specifically directed at the cognitive aspects involved in creativity, the assessment of intelligence would certainly be relevant.

In order to understand the link between openness and creativity, a next generation of research should explore potential mediating variables. In this context, selecting powerful theoretical constructs is certainly most meaningful. Accordingly, the construct "level of construal" (Liberman & Trope, 2007) - which represents a prominent and empirically well validated theoretical approach to social cognition - seems a very promising candidate. This approach distinguishes between a low and a high level of construal that can characterize how individuals are processing information. A low level of construal can be described as “relatively unstructured, contextualized representations that include subordinate and incidental features of events” (Trope, Liberman & Wakslak, 2007, p. 83) whereas a high level of construal is characterized by “a few superordinate core features of events” (Trope, et al., 2007, p. 83).

With respect to the the link between openness and creativity, I suggest that future research should explore construal level as a potential mediating variable. I see two options how openness might be linked to construal level: (1) openness can be linked to a high level of construal (seeing the forest not the trees) or (2) openness might be linked to a greater flexibility in switching between a high and a low level of construal. Both potential pathways could explain the positive link between openness and creativity.

Another possible improvement in terms of methodology and assessment could be to match the number of items per construct. In the present study disintegration was assessed with 110 items whereas the six HEXACO traits were assessed with the HEXACO PI-R inventory which comprises 100 items in total. In order to match the number of items, one could reduce the number of items per scale in the Delta-9 inventory. There is no clear “gold standard” to obtain that goal, some of the possible paths could be based on: 1) the statistical procedure named ant colony optimization (Marcoulides & Drezner, 2003); 2) the approach focusing on the content of the items; 3) selecting the items with the highest loading on the respective disintegration subscales.

Based on ant colony optimization (Marcoulides & Drezner, 2003), a 20-item version of Delta has been constructed and I rerun the crucial analysis, multi-group ESEMs and Extension Analysis, with this instrument and obtained virtually identical results. The interested reader can consider the respected tables in the Appendix.

Implications

Theoretical level: Two questions – Two Answers

As outlined above, the empirical work conducted was designed to address two basic questions: 1) whether there is a positive association between creativity and psychoticism as implicated in the famous mad-genius hypothesis; and 2) whether a comprehensive conceptualization of the personality space comprises five, six or seven basic traits. In conclusion of this thesis, I think I can provide two clear-cut answers: ad 1) the data clearly refute the quantitative mad-genius hypothesis; ad 2) a comprehensive conceptualization of the personality space comprises seven basic traits with Disintegration complementing the HEXACO model.

Practical level

Creativity (being able to create a new value) has been identified by the OECD Learning Compass 2030 as one of the three transformative competencies for 2030 (OECD, 2019). Moreover, creativity was recognized as a factor which can have a direct impact on achieving the 2030 Agenda for Sustainable Development (United Nations, 2015).

In the corporate world, the results of an IBM study involving more than 1,500 CEOs (chief executive officers) worldwide revealed that the CEO's "identify creativity as the single most important leadership competency" for coping effectively with the complexity in the global environment (IBM Institute for Business Value, 2010, p.3).

Because creativity is being recognized as a valuable ability, it is important in terms of personnel selection to be aware of which personality traits can foster creativity and which are irrelevant (or even hindering). Since we can say that there is no reliable link between weird and odd behavior and creativity, we should avoid selecting people high in disintegration or dark triad traits falsely thinking that they will produce something creative.

Disintegration can serve as an "alarm sign" for counterproductive work behavior and/or sickness leaves, since it is positively linked to prejudice, the view of the world as a competitive jungle, and "proneness to see conspiracies and danger in other peoples' actions" (Knezevic, & Keller, 2021, p.64), and presents a risk factor "for lower engagement in recommended health-related behaviors" (Stankovic, Lazarevic, & Knezevic, 2022, p.39).

At the same time since this study once again confirmed a strong positive link between creativity and openness, we should look for people high in openness and provide context that fosters their creativity.

The results of this study also suggest that it is important to communicate these findings to the broader audience – the general public – since the romantization of mental health issues as being a component of a creative achievement can be harmful. One should be aware that untreated mental health problems will not lead to an eureka, but more probably to the suffering of individuals affected by them.

The presented findings provide further robust evidence supporting the notion that a comprehensive trait structure must include Disintegration as a basic personality trait complementing the HEXACO model.

Testing the mad-genius hypothesis, I focused on the relations between creativity, openness, proneness to psychotic-like experience and its clinical complement – psychoticism. In addition, to more thoroughly explore the mad-genius hypothesis, the relations between creativity and an extended spectrum of psychopathology, amorality and dark triad traits were tested. Psychopathology was assessed with traits from the DSM-V model that measures personality disorders (Negative affect, Detachment, Antagonism, Disinhibition, Psychoticism). Creativity was measured with three distinct assessment methods. In combination, this methodological approach was taken to establish a broad empirical basis to put the mad-genius hypothesis to a comprehensive test. Moreover, this methodological strategy enabled the conceptual replication of prior findings thus bolstering the confidence in the available empirical evidence testing the quantitative mad-genius hypothesis.

The findings obtained with this solid methodological approach are clear-cut. First, the correlation pattern revealed robust relations between openness and the creativity indicators whereas proneness to psychotic-like experience and psychoticism showed only weak correlations with creativity which were below .11 in the community sample.

Second, in order to locate the creativity markers in the personality space I conducted extension analysis. In addition, DSM-V psychoticism was included and the results provided striking evidence to the fact that creativity is located on the openness factor in the personality space, and not on the factor representing proneness to psychotic-like experiences. PID-5 Psychoticism showed no substantial loading on openness whereas the loadings on Disintegration were substantial. The conception of proneness to psychotic-like experiences as excessive openness is incompatible with these findings. And these results are obviously incompatible with the mad-genius hypothesis, as well.

Third, referring back to an important contribution to the controversial debate about the relation between openness, psychoticism and creativity (Miller & Tal, 2007), a conceptual replication of this previous study was conducted. My results are well in line with their findings, confirming the notion that openness is a much stronger predictor of creativity compared to positive and negative psychoticism.

Finally, concluding the empirical work testing the mad-genius hypothesis, a broad set of indicators was taken into account. The idea underlying this analysis was to give the mad-genius hypothesis another chance by testing additional elements that one can consider indicators of madness (the full set of DSM-V psychopathology, amoralism, and the dark triad). This analysis did not provide any evidence in support of the mad-genius hypothesis either.

In sum, the current study speaks to the fact that the mad-genius is dead, at least when considering the quantitative version of the hypothesis.

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Supplementary materials

Appendix 1
Multi-group ESEM with loadings and fit indices for 7-factor structure involving HEXACO PI-R and 20-item Delta

	X^2 (818) = 1457.074***; CFI = .918; TLI = .884; SRMR = .043; RMSEA [90%-CI] = .045 [.041, .048]													
	Student sample							Community sample						
	D	H	E	X	A	C	O	D	H	E	X	A	C	O
GEI	**.71**	.02	.00	-.07	.04	-.01	-.02	**.74**	.02	.00	-.07	.04	-.01	-.03
PD	**.77**	.03	.01	-.03	.07	-.03	.01	**.81**	.03	.01	-.03	.08	-.03	.02
P	**.67**	.07	.06	-.19	-.05	-.01	.01	**.71**	.08	.06	-.19	-.05	-.01	.02
D	**.66**	-.03	-.01	.10	.10	.08	.06	**.69**	-.03	-.01	.10	.11	.08	.07
FA	**.55**	.00	.02	.04	.00	-.03	.25	**.61**	.00	.02	.04	-.01	-.04	.29
SOD	**.54**	-.12	**-.38**	-.08	-.02	-.01	.00	**.59**	-.13	**-.38**	-.08	-.03	-.01	.00
MT	**.55**	-.10	.03	-.04	-.11	.01	-.05	**.55**	-.11	.02	-.03	-.12	.01	-.05
EA	**.52**	.01	-.07	-.25	.03	-.11	-.08	**.56**	.01	-.07	-.26	.04	-.12	-.09
M	**.56**	-.11	.03	.06	-.09	-.08	.00	**.56**	-.12	.03	.06	-.09	.08	.00
Sincerity	-.07	**.53**	.01	.00	-.05	.01	.11	-.07	**.57**	.01	.00	-.05	.01	.12
Fairness	-.05	**.50**	.10	.02	.08	.24	-.03	-.04	**.50**	.09	.02	.08	.23	-.03
Greed Avoidance	.02	**.68**	-.14	-.04	.02	-.05	.10	.02	**.70**	-.13	-.03	.02	-.05	.10
Modesty	-.11	**.59**	.06	-.12	.07	-.08	-.02	-.10	**.57**	.06	-.10	.07	.07	-.02
Fearfulness	.02	-.06	**.50**	**-.34**	.05	.22	-.13	.02	-.06	**.47**	.33	.05	.22	-.13
Anxiety	.08	-.03	**.43**	**-.36**	-.19	.21	.07	.09	-.04	**.42**	.37	.21	.23	.08
Dependence	.01	-.07	**.64**	.00	.00	-.04	-.02	.01	-.08	**.65**	.00	.00	.04	-.02
Sentimentality	-.05	.19	**.77**	.01	-.01	-.01	.12	-.05	.21	**.77**	.01	-.02	.01	.14
Social Self-esteem	-.21	-.10	.04	**.65**	.02	.04	-.01	-.23	-.12	.04	**.70**	.02	.05	-.02
Social Boldness	.01	-.11	-.03	**.60**	-.09	-.02	.12	.01	-.12	-.03	**.61**	-.11	.02	.13
Sociability	.03	-.04	.27	**.66**	.08	.01	-.02	.03	-.04	.25	**.62**	.08	.01	-.02
Liveliness	-.15	.02	.13	**.76**	.01	-.07	.03	-.16	.02	.12	**.76**	.01	-.07	.04
Forgiveness	.08	.13	-.02	.07	**.56**	-.04	.05	.08	.14	-.02	.07	**.60**	.04	.05
Gentleness	.06	.17	.06	.00	**.56**	.00	.00	.05	.17	.05	.00	**.56**	.00	.00

Flexibility	-.01	.06	.00	-.08	**.59**	.11	-.15	-.02	.07	.00	-.08	**.65**	.11	-.17
Patience	.00	.00	**-.33**	.01	**.67**	.24	.03	.00	.00	**-.30**	.01	**.72**	.24	.03
Organization	-.05	.08	.02	.16	-.05	**.62**	-.09	-.05	.09	.02	.16	-.06	**.64**	-.10
Diligence	.11	.14	-.02	.17	-.17	.02	-.09	.08	.11	-.01	.11	-.12	.02	-.06
Perfectionism	.04	-.01	.05	-.14	-.23	**.52**	.26	.04	-.01	.05	-.14	.25	**.55**	.28
Prudence	-.18	-.01	-.20	-.01	.07	**.65**	.04	-.19	-.01	-.19	-.01	.07	**.69**	.04
Aesthetic appreciation	.03	.15	.02	-.02	.06	.10	**.70**	.03	.15	.02	-.01	.07	.10	**.71**
Inquisitiveness	-.09	.01	-.16	.04	-.04	.11	**.53**	-.08	.01	-.15	.03	-.04	.11	**.53**
Creativity	.04	.02	.01	.12	.05	.00	**.71**	.04	.02	.01	.12	.05	.00	**.73**
Unconventionality	-.04	-.10	-.13	-.15	.00	-.06	**.76**	-.03	-.09	-.10	-.13	.00	-.06	**.71**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** - $p < .001$.

Appendix 2
Multi-group ESEM with loadings and fit indices for 6-factor structure involving HEXACO PI-R and 20-item Delta

	$X^2(852) = 1817.010$***; CFI = .876; TLI = .846; SRMR = .049; RMSEA [90%-CI] = .054 [.050, .057]											
	Students						Community					
	D	H+A	E	X	C	O	D	H+A	E	X	C	O
GEI	**.70**	.05	.00	-.07	.00	-.03	**.75**	.05	.00	-.07	.00	-.03
PD	**.77**	.08	.02	-.04	-.03	.01	**.81**	.09	.02	-.04	-.03	.01
P	**.66**	.00	.08	-.20	.00	.01	**.70**	.00	.08	-.20	.00	.01
D	**.67**	.08	-.02	.10	.07	.06	**.70**	.08	-.02	.10	.07	.06
FA	**.55**	-.02	.02	.04	-.03	.24	**.62**	-.02	.02	.04	-.03	.29
SOD	**.55**	-.08	**-.38**	-.09	-.01	.00	**.60**	-.09	-.39	-.09	-.01	.00
MT	**.55**	-.17	.02	-.04	.02	-.06	**.56**	-.18	.01	-.03	.02	-.06
EA	**.52**	.04	-.06	-.27	-.11	-.08	**.56**	.05	-.06	-.27	-.12	-.09
M	**.56**	-.16	.02	.06	-.07	-.01	**.57**	-.17	.02	.06	-.07	-.01
Sincerity	-.14	**.28**	.09	-.05	.06	.10	-.14	**.30**	.09	-.05	.06	.11
Fairness	-.10	**.39**	.15	-.01	.25	-.03	-.09	**.39**	.14	-.01	.25	-.03
Greed Avoidance	-.06	**.43**	-.04	-.10	.00	.09	-.06	**.43**	-.04	-.09	.00	.09
Modesty	-.17	**.43**	.14	-.16	-.04	-.02	-.15	**.40**	.12	-.14	-.04	-.02
Fearfulness	.04	-.01	**.47**	**-.30**	.19	-.12	.04	-.02	**.44**	-.29	.20	-.13
Anxiety	.08	-.22	**.43**	**-.34**	.23	.07	.09	-.25	**.42**	**-.35**	.25	.08
Dependence	.03	-.08	**.61**	.04	-.04	-.02	.03	-.09	**.62**	.04	-.04	-.02
Sentimentality	-.06	.06	**.80**	.02	.00	.13	-.07	.07	**.81**	.03	.00	.14
Social Self-esteem	-.19	-.05	.01	**.66**	.04	-.03	-.22	-.05	.01	**.71**	.05	-.03
Social Boldness	.02	-.16	-.06	**.61**	.00	.10	.02	-.17	-.06	**.62**	.00	.12
Sociability	.04	.03	.24	**.68**	.01	-.03	.04	.04	.22	**.64**	.01	-.03
Liveliness	-.16	.02	.11	**.76**	-.06	.02	-.16	.02	.11	**.76**	-.06	.02
Forgiveness	.10	**.60**	-.02	.08	-.09	.06	.11	**.63**	-.02	.08	-.10	.07
Gentleness	.08	**.64**	.06	.01	-.05	.01	.07	**.62**	.05	.01	-.05	.01
Flexibility	.02	**.59**	-.02	-.05	.04	-.12	.02	**.64**	-.02	-.05	.04	-.14
Patience	.04	**.62**	-.33	.03	.14	.06	.04	**.64**	**-.31**	.02	.15	.06
Organization	-.05	.03	.01	.17	**.64**	-.11	-.05	.03	.01	.17	**.67**	-.12
Diligence	.09	-.05	-.01	.14	.06	-.10	.06	-.04	.00	.10	.04	-.07
Perfectionism	.03	-.22	.05	-.13	**.54**	.24	.03	-.24	.04	-.13	**.58**	.26
Prudence	-.16	.08	-.22	.01	**.64**	.03	-.17	.08	-.21	.01	**.68**	.03
Aesthetic appreciation	.03	.15	.04	-.02	.09	**.71**	.02	.14	.04	-.01	.09	**.71**
Inquisitiveness	-.09	-.03	-.16	.04	.11	**.53**	-.08	-.03	-.15	.04	.11	**.53**
Creativity	.04	.04	.01	.13	-.01	**.72**	.04	.04	.01	.12	-.01	**.73**
Unconventionality	-.02	-.08	-.13	-.14	-.08	**.76**	-.02	-.07	-.10	-.12	-.07	**.71**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** - $p < .001$.

Appendix 3
Multi-group ESEM with loadings and fit indices for 5-factor structure involving HEXACO PI-R and 20-item Delta

	$X^2(886) = 2224.521$***; CFI = .827; TLI = .794; SRMR = .057; RMSEA [90%-CI] = .062 [.059, .065]									
	students					community				
	D	H+A	E	X	O	D	H+A	E	X	O
GEI	**.71**	.05	.02	-.08	-.03	**.74**	.05	.02	-.08	-.03
PD	**.78**	.08	.01	-.04	.01	**.81**	.09	.01	-.04	.01
P	**.67**	.00	.09	-.21	.01	**.70**	.00	.09	-.21	.01
D	**.64**	.09	.02	.08	.07	**.67**	.09	.02	.08	.08
FA	**.57**	-.02	.02	.04	.24	**.62**	-.02	.02	.04	.28
SOD	**.53**	-.07	-.36	-.11	.02	**.57**	-.08	-.38	-.11	.02
MT	**.54**	-.17	.03	-.06	-.05	**.54**	-.18	.03	-.06	-.05
EA	**.56**	.03	-.09	-.25	-.09	**.59**	.03	-.09	-.25	-.11
M	**.58**	-.17	.00	.06	-.02	**.58**	-.18	.00	.06	-.02
Sincerity	-.14	**.30**	.10	-.04	.10	-.14	**.31**	.10	-.04	.11
Fairness	-.15	**.42**	.25	-.04	.00	-.15	**.42**	.23	-.04	.00
Greed Avoidance	-.05	**.44**	-.04	-.07	.08	-.05	**.44**	-.04	-.07	.08
Modesty	-.14	**.43**	.12	-.12	-.04	-.12	**.40**	.10	-.10	-.04
Fearfulness	.02	.00	**.54**	**-.33**	-.10	.02	.00	**.54**	**-.32**	-.11
Anxiety	.05	-.19	**.51**	**-.39**	.09	.06	-.21	**.52**	**-.39**	.11
Dependence	.07	-.10	**.59**	.05	-.04	.07	-.12	**.61**	.05	-.04
Sentimentality	-.02	.04	**.75**	.04	.10	-.02	.05	**.78**	.04	.11
Social Self-esteem	-.23	-.05	.02	**.64**	-.01	-.26	-.05	.02	**.68**	-.02
Social Boldness	-.01	-.16	-.05	**.60**	.11	-.01	-.18	-.06	**.60**	.13
Sociability	.03	.02	.24	**.68**	-.03	.03	.02	.23	**.63**	-.03
Liveliness	-.16	.00	.08	**.77**	.01	-.17	.00	.08	**.76**	.01
Forgiveness	.14	**.59**	-.06	.14	.03	.14	**.62**	-.06	.13	.03
Gentleness	.11	**.64**	.04	.06	-.02	.10	**.62**	.04	.05	-.02
Flexibility	.02	**.59**	.01	-.03	-.13	.02	**.64**	.01	-.03	-.14
Patience	-.01	**.64**	-.26	.03	.06	-.01	**.68**	-.26	.03	.07
Organization	-.22	.11	.24	.04	-.01	-.22	.12	.24	.04	-.01
Diligence	.05	-.05	.01	.12	-.08	.04	-.04	.01	.08	-.06
Perfectionism	-.09	-.13	.24	-.23	.30	-.10	-.14	.24	-.22	**.33**
Prudence	**-.33**	.16	.04	-.11	.13	**-.33**	.17	.04	-.10	.14
Aesthetic appreciation	.02	.16	.07	-.02	**.72**	.02	.16	.06	-.01	**.74**
Inquisitiveness	-.12	-.01	-.12	.02	**.55**	-.11	-.01	-.11	.02	**.56**
Creativity	.06	.04	-.01	.15	**.70**	.06	.04	-.01	.14	**.73**
Unconventionality	.02	-.07	-.16	-.10	**.73**	.02	-.07	-.14	-.09	**.69**

Note. GEI – General Executive Impairment. PD – Perceptual Distortions. P – Paranoia. D – Depression. FA – Flattened Affect. SOD – Somatoform Dysregulations. EA – Enhanced Awareness. MT – Magical Thinking. M – Mania. D – Disintegration. H – Honesty/Humility. E – Emotionality. X – Extraversion. A – Agreeableness. C – Conscientiousness. O – Openness. Loadings greater than .29 are in boldface. *** - $p < .001$.

Appendix 4
Extension Loadings of the variables on Factors (Student sample; n = 347), involving 20-item Delta

	D	O	X	E	A	O	H
Core variables (Delta-9 and HEXACO PI-R)							
GEI	-.74	.05	-.24	-.12	.11	-.28	.22
PD	-.76	-.05	-.23	-.06	.12	-.25	.18
P	-.77	-.04	-.26	-.09	.07	-.21	.17
D	-.61	-.14	-.05	.01	.06	-.14	.21
FA	-.53	-.29	-.10	-.02	.04	-.14	.15
SOD	-.53	-.04	-.35	.35	.16	-.20	.36
MT	-.50	.09	-.20	-.10	.27	-.18	.34
EA	-.63	.01	-.38	.01	-.03	-.30	.20
M	-.57	.00	-.04	-.03	.25	-.18	.32
Sincerity	.17	-.21	.04	-.03	-.14	.19	-.62
Fairness	.27	-.02	.08	-.16	-.29	.30	-.55
Greed Avoidance	.08	-.16	-.09	.06	-.31	.04	-.65
Modesty	.24	-.04	-.06	-.09	-.30	.01	-.59
Fearfulness	-.06	.22	-.25	-.61	.03	.09	.17
Anxiety	-.21	.11	-.28	-.48	.21	.14	.03
Dependence	-.05	.16	.12	-.61	.04	-.05	.05
Sentimentality	-.01	-.01	.12	-.73	.04	.07	-.21
Social Self-esteem	.27	-.03	.70	.07	.15	.17	.00
Social Boldness	.04	-.18	.58	.11	.05	.10	.01
Sociability	.12	.02	.70	-.15	-.02	-.03	.01
Liveliness	.37	-.04	.84	.01	.02	.06	-.10
Forgiveness	.09	-.15	.10	-.04	-.66	-.08	-.35
Gentleness	.10	-.07	.05	-.09	-.53	-.10	-.36
Flexibility	.09	.06	-.09	-.02	-.64	.00	-.19
Patience	.22	-.18	-.05	.27	-.67	.14	-.27
Organization	.27	.07	.16	-.08	.00	.66	-.20
Diligence	.22	-.30	.32	-.02	.38	.61	-.20
Perfectionism	.01	-.19	-.11	-.19	.17	.53	-.09
Prudence	.35	-.08	-.05	.06	-.22	.64	-.09
Aesthetic appreciation	-.02	-.70	.13	.08	-.11	.18	-.28
Inquisitiveness	.06	-.51	.08	.18	.00	.25	-.14
Creativity	-.06	-.72	.18	.10	-.06	.09	-.14
Unconventionality	-.09	-.79	-.06	.16	-.03	.04	-.11
Extension variables (PID-5 Psychoticism facets and factor, CT, CAQ, CAAI and NCS)							
Eccentricity	-.55	-.31	-.32	.17	.05	-.26	.14
Perceptual dysregulation	-.66	-.17	-.28	.01	.06	-.29	.15

Unusual beliefs	-.56	-.25	-.10	.05	.09	-.16	.15
Psychoticism factor	-.65	-.28	-.26	.10	.08	-.26	.17
CT	.03	-.25	-.03	.05	-.11	-.04	-.05
CAQ	-.11	-.34	.15	-.01	.08	.09	-.03
CAAI	-.15	-.35	.16	.03	.05	.06	-.05
NCS	.08	-.58	.14	.20	.03	.28	-.21

Note. CT – Consequences test. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. NCS – Need for cognition scale.

Appendix 5

Extension Loadings of the variables on Factors (Community sample; n = 288), involving 20-item Delta

	D	A	X	E	O	C	H
Core variables (Delta-9 and HEXACO PI-R)							
GEI	-.71	.00	-.22	.11	-.03	-.12	.11
PD	-.76	-.07	-.20	-.02	-.12	-.12	.12
P	-.71	.11	-.48	-.05	.02	-.16	.15
D	-.62	-.08	-.08	-.03	-.08	-.05	.08
FA	-.67	.10	-.07	.02	-.28	-.11	.21
SOD	-.65	.09	-.22	.36	-.06	-.25	.19
MT	-.62	.18	-.16	.00	.00	-.07	.26
EA	-.50	.06	-.47	.14	.08	-.27	.10
M	-.63	.20	-.12	.07	.06	-.27	.20
Sincerity	.19	-.28	.10	-.12	-.09	.23	-.55
Fairness	.23	-.36	.07	-.24	-.05	.38	-.58
Greed Avoidance	.09	-.32	.02	.05	-.09	.02	-.72
Modesty	.21	-.27	-.04	-.10	.03	.15	-.60
Fearfulness	-.03	-.08	-.34	-.48	.16	.26	-.06
Anxiety	-.16	.20	-.35	-.47	-.06	.41	.16
Dependence	.00	.12	.07	-.58	-.01	.08	.21
Sentimentality	.15	-.11	.20	-.83	-.13	.24	-.23
Social Self-esteem	.33	-.07	.79	-.01	-.01	.12	-.03
Social Boldness	.11	.17	.64	.10	-.18	-.04	.17
Sociability	.09	-.05	.63	-.23	-.04	.10	-.03
Liveliness	.23	-.07	.78	-.06	-.07	.05	-.16
Forgiveness	-.05	-.55	.11	.02	-.13	-.03	-.33
Gentleness	-.02	-.66	-.03	-.12	-.06	.06	-.35
Flexibility	.15	-.66	-.01	-.11	.01	.06	-.30
Patience	.00	-.76	.03	.15	-.09	.07	-.32
Organization	.20	-.15	.12	-.24	.02	.64	-.24
Diligence	.26	.02	.42	-.16	-.34	.62	-.03
Perfectionism	-.05	.05	-.14	-.21	-.25	.66	.00
Prudence	.26	-.24	.11	-.02	-.06	.63	-.26
Aesthetic appreciation	-.01	-.18	.02	-.17	-.77	.29	-.22
Inquisitiveness	.06	-.06	.14	.04	-.55	.19	-.04
Creativity	-.11	-.10	.15	-.10	-.75	.12	-.08
Unconventionality	-.13	.04	-.09	.12	-.62	.03	.14
Extension variables (PID-5 Psychoticism facets and factor, CT, CAQ, CAAI and NCS)							
Eccentricity	-.57	.22	-.23	.23	-.21	-.28	.25
Perceptual dysregulation	-.70	.06	-.26	.00	-.16	-.20	.16

Unusual beliefs	-.60	.07	-.06	-.02	-.19	-.11	.14
Psychoticism	-.70	.14	-.20	.09	-.22	-.22	.21
CT	-.04	.01	-.08	.07	-.21	.01	-.03
CAQ	-.07	-.02	.09	.01	-.38	.08	.00
CAAI	-.05	-.09	.15	-.05	-.49	.12	-.06
NCS	.15	.04	.22	.00	-.48	.17	-.05

Note. CT – Consequences test. CAQ – Creative achievement questionnaire. CAAI – Creative Activities and Accomplishments Inventory. NCS – Need for cognition scale.

Appendix 6
PID-5 Inventory

Molimo Vas, pažljivo pročitajte sve instrukcije pre nego što počnete sa radom.

Ovaj upitnik sadrži 220 tvrdnji. Molimo Vas, pažljivo pročitajte svaku tvrdnju i obeležite jedan odgovor u meri u kojoj se tvrdnja na Vas odnosi ili ne odnosi.

Obeležite "1" ako je tvrdnja potpuno netačna kada se radi o Vama ili se sa njom nimalo ne slažete
Obeležite "2" ako je tvrdnja uglavnom netačna ili se sa njom ne slažete
Obeležite "3" ako je tvrdnja uglavnom tačna ili se sa njom Uglavnom slažete
Obeležite "4" ako je tvrdnja potpuno tačna ili se sa njom sasvim slažete

1. Ne uživam u aktivnostima onoliko koliko mi deluje da drugi uživaju.
2. Mnogo ljudi želi da mi naudi.
3. Ljudi me opisuju kao nemarnu osobu.
4. Čini mi se da stvari radim impulsivno.
5. Često imam ideje koje su previše neobične da bih ih objasnio/la drugima.
6. Često izgubim nit razgovora jer mi druge stvari odvlače pažnju.
7. Izbegavam rizične situacije.
8. Kada se radi o mojim emocijama, ljudi kažu da sam „hladan kao kamen“.
9. Menjam svoje postupke u zavisnosti od toga šta drugi žele.
10. Preferiram da se ne zbližavam previše sa ljudima.
11. Često ulazim u fizičke obračune.
12. Zastrašuje me pomisao da nemam nekoga da me voli.
13. Drskost i neprijatnost su deo mene.
14. Radim stvari da bih bio/la primećen/a.
15. Obično činim ono što drugi misle da treba da činim.
16. Obično radim stvari impulsivno ne razmišljajući o posledicama.
17. Iako znam da mogu da postupim bolje, ne mogu da prestanem da donosim ishitrene odluke.
18. Nekad mi se osećanja menjaju bez nekog dobrog razloga.
19. Zaista me nije briga ako učinim da drugi ljudi pate.
20. Držim se po strani.
21. Često kažem nešto što se drugima može činiti neobično ili čudno.
22. Uvek radim stvari naprečac (kako „mi dune“).
23. Izgleda da ništa ne uspeva da me dovoljno zainteresuje.
24. Izgleda da je drugim ljudima moje ponašanje čudno.
25. Ljudi mi kažu da razmišljam o stvarima na čudan način.
26. Skoro nikad ne uživam u životu.
27. Često se osećam kao da je sve što radim beznačajno.
28. Puknem kada ljudi rade male stvari koje me nerviraju.
29. Ne mogu da se koncentrišem ni na šta.
30. Ja sam energična osoba.
31. Drugi me vide kao neodgovornog/u.
32. Mogu biti zloban/a kad je potrebno da budem.
33. Misli mi često odlutaju u čudnom ili neobičnom pravcu.
34. Govore mi da provodim previše vremena uveravajući se da je sve na svom mestu.

35. Izbegavam rizične sportove i aktivnosti.
36. Dešava mi se da imam problem da definišem razliku između sna i jave.
37. Često imam čudan osećaj da su delovi mog tela mrtvi ili da nisu zaista moji.
38. Lako se naljutim.
39. Nemam granice kada su u pitanju opasne stvari.
40. Iskreno, ja sam jednostavno bitniji/a od drugih ljudi.
41. Izmišljam priče i događaje koji su potpuno neistiniti.
42. Ljudi često prepričavaju događaje u kojima ja radim stvari kojih se uopšte ne sećam.
43. Činim stvari zbog kojih moraju da mi se dive.
44. Čudno je, ali čini mi se da obični objekti ponekad imaju potpuno drugačiji oblik od uobičajenog.
45. Nemam emocionalne reakcije koje su dugotrajne.
46. Teško mi je da prekinem neku aktivnost, čak i kada je vreme da to uradim.
47. Nisam dobar/a u planiranju unapred.
48. Radim dosta stvari koje drugi smatraju rizičnim.
49. Ljudi mi govore da se previše fokusiram na nebitne detalje.
50. Često me brine da će biti sam/a.
51. Propusito/la sam mnogo toga pokušavajući da druge stvari uradim baš kako treba.
52. Moje misli često nemaju smisla drugima.
53. Često izmišljam stvari o sebi da bih dobio/la ono što želim.
54. Nije me briga kad vidim da drugi ljudi bivaju povređeni.
55. Ljudi me često gledaju kao da sam izgovorio/la nešto baš uvrnuto.
56. Ljudi ne shvataju da im laskam da bih dobio/la ono što hoću.
57. Radije bih bio/la u lošoj vezi nego sam/a.
58. Običnom razmislim pre nego što uradim nešto.
59. Često vidim živopisne slike nalik na snove pre nego što zaspim ili se probudim.
60. Ne menjam način na koji pristupam stvarima, čak i kada mi ne ide.
61. Veoma sam nezadovoljan/a sobom.
62. Imam mnogo jače emocionalne reakcije nego većina drugih ljudi.
63. Radim stvari koje mi drugi ljudi kažu da radim.
64. Ne mogu da podnesem da ostanem sam/a, čak i na par sati.
65. Imam izuzetne kvalitete koje mali broj drugih ljudi poseduje.
66. Budućnost mi deluje beznadežno.
67. Volim da preuzimam rizike.
68. Ne mogu da postignem svoje ciljeve jer mi druge stvari odvlače pažnju.
69. Kada želim da uradim nešto, ne dozvoljavam da me mogućnost da je to rizično zaustavi.
70. Drugi kao da misle da sam prilično čudan/a ili neobičan.
71. Moje misli su čudne i neprevidive.
72. Nije me briga za tuđa osećanja.
73. Moraš da nagaziš na druge da bi dobio šta želiš u životu.
74. Volim da privlačim pažnju drugih ljudi.
75. Trudim se da po svaku cenu izbegavam svaku vrstu grupne aktivnosti.
76. Mogu biti podao/la da bih dobio/la šta želim.
77. Ponekad kada gledam u poznat objekat, čini mi se kao da ga vidim prvi put.
78. Teško mi je da prebacujem sa jedne aktivnosti na drugu.
79. Dosta se brinem oko užasnih stvari koje bi mogle da se dese.
80. Teško mi je da promenim način na koji radim nešto čak i kad mi ne ide dobro.
81. Svet bi bio bolje mesto kada bih bio/la mrtav/a.
82. Držim distancu u odnosima sa ljudima.

83. Često ne mogu da kontrolišem o čemu mislim.
84. Nisam emotivac.
85. Prezirem da mi se govori šta da radim, čak i kada dolazi od nadležnih.
86. Sramota me je od toga što sam izneverio/la ljude na mnogo malih načina.
87. Izbegavam sve što bi moglo biti i najmanje opasno.
88. Imam poteškoće da sledim specifične ciljeve čak i za kratke vremenske periode.
89. Preferiram da u svoj život ne uključujem romantične odnose.
90. Nikada ne bih povredio/la drugu osobu.
91. Ne iskazujem snažno emocije.
92. Imam kratak fitilj.
93. Često brinem da bi nešto loše moglo da se dogodi zbog grešaka koje sam učinio/la u prošlosti.
94. Imam neke neobične sposobnosti. Na primer, ponekad znam tačno šta druga osoba misli.
95. Unervozim se kada razmišljam o budućnosti.
96. Retko brinem.
97. Uživam da budem zaljubljen/a.
98. Preferiram da igram na sigurno nego da preuzimam nepotrebne rizike.
99. Desilo mi se da čujem nešto što drugi nisu mogli da čuju.
100. Ponekad se fiksiram na neke stvari i to ne mogu da prekinem.
101. Ljudi mi kažu da im je teško da znaju kako se osećam.
102. Ja sam veoma emotivna osoba.
103. Drugi bi me iskorišćavali kad bi mogli.
104. Često se osećam kao promašaj.
105. Ako nešto što radim nije potpuno savršeno, to je jednostavno neprihvatljivo.
106. Često imam neobična iskustva, kao što je osećaj prisustva osobe koja nije zapravo tu.
107. Dobro mi ide primoravanje ljudi da rade ono što ja želim.
108. Raskidam veze čim odnos počne da bude previše prisan.
109. Stalno se brinem oko nečega.
110. Brinem se oko skoro svega.
111. Volim da se ističem iz gomile.
112. Ne smeta mi malo rizika tu i tamo.
113. Moje ponašanje je često upadljivo, i privlači pažnju drugih ljudi.
114. Bolji/a sam od gotovo svih drugih ljudi.
115. Ljudi se žale na moju potrebu da sve isplaniram.
116. Uvek se potrudim da uzvratim ljudima koji se o mene ogreše.
117. Uvek sam na oprezu zbog onih koji bi mogli da me prevare ili povrede.
118. Imam teškoće da se fokusiram na stvari koje treba završiti.
119. Često govorim o samoubistvu.
120. Nisam preterano zainteresovan/a za seksualne veze.
121. Često se zakačim za nešto.
122. Lako se emotivno uzbudim, često bez mnogo razloga.
123. Iako to izluđuje druge ljude, insistiram na apsolutnom savršenstvu šta god radio/la.
124. Skoro nikad nisam srećan/a u vezi sa svojim svakodnevnim aktivnostima.
125. Slatkorečivost mi pomaže da dobijem šta želim.
126. Ponekad je potrebno preterivati da bi se napredovalo.
127. Bojim se toga da budem sam/a u životu više od bilo čega drugog.
128. Obično se zakačim za jedan način na koji nešto radim, i onda kada je jasno da to ne uspeva.
129. Često sam prilično nepažljiv/a prema sopstvenim i tuđim stvarima.
130. Ja sam veoma anksiozna osoba.
131. U suštini su ljudi prilično vredni poverenja.

132. Lako mi je odvući pažnju.
133. Često sa drugima postižem dogovore koji su nepovoljni po mene.
134. Ne prezam od toga da varam ako će mi to pomoći da napredujem.
135. Proveravam sve što radim više puta da budem siguran/a da je to savršeno.
136. Ne volim da provodim vreme sa drugima.
137. Osećam se prinuđeno da nastavim da nešto radim čak i kada ima malo smisla to raditi.
138. Nikad ne znam kuda će mi „odlutati“ emocije od trenutka do trenutka.
139. Video/la sam stvari koje nisu bile zaista prisutne.
140. Važno mi je da su stvari urađene na određeni način.
141. Uvek očekujem da će se dogoditi najgore.
142. Pokušavam da kažem istinu čak i kad je to teško.
143. Verujem da neki ljudi mogu da pomeraju stvari svojim umom.
144. Ne mogu dugo da ostanem koncentrisan/a na nešto.
145. Klonim se romantičnih veza.
146. Nisam zainteresovan/a da stvaram prijateljstva.
147. Trudim se da kažem što manje stvari kada imam posla s ljudima.
148. Ja sam beskoristan/a kao osoba.
149. Učinio/la bih skoro sve da sprečim da budem napušten/a.
150. Mogu da utičem na druge ljude šaljući im svoje misli.
151. Život mi deluje prilično sumorno.
152. Mislim o stvarima na čudan način koji za većinu drugih ljudi nema smisla.
153. Nije me briga ako moji postupci povređuju druge.
154. Ponekad osećam da me „kontrolišu“ misli koje pripadaju nekom drugom.
155. Živim život punim plućima.
156. Dajem obećanja koja nemam nameru da ispunim.
157. Čini mi se da ništa ne može da učini da se dobro osećam.
158. Lako me iziritiraju razne stvari.
159. Radim ono što hoću bez obzira na to koliko opasno može biti.
160. Često zaboravim da platim račune.
161. Ne volim da se preterano zbližavam s ljudima.
162. Dobro mi ide manipulisanje drugim ljudima.
163. Sve mi deluje besmisleno.
164. Nikad ne preuzimam rizike.
165. Emotivno me uzbudi svaka sitnica.
166. Nije strašno ako povredim osećenja drugih ljudi.
167. Nikad ne pokazujem osećanja drugima.
168. Često se osećam jadno.
169. Kao osoba, ja sam bezvredan/a.
170. Obično sam prilično neprijateljski nastrojen.
171. “Zbrisao” sam iz grada da bih izbegao/la obaveze.
172. Bilo mi je rečeno više puta da imam određen broj čudnih ćefova ili navike.
173. Volim da budem osoba koju drugi primećuju.
174. Uvek sam u strahu od loših stvari koje bi mogle da se dese.
175. Ne želim nikada da budem sam/a
176. Uvek pokušavam da uradim stvari savršeno, čak i kad ih sam ih uradio/la najbolje što se može.
177. Retko imam osećaj da ljudi koje znam pokušavaju da me iskoriste.
178. Znam da ću izvršiti samoubistvo pre ili kasnije.
179. Postigao/la sam mnogo više nego skoro svi ljudi koje poznajem.
180. Mogu lako da iskoristim svoj šarm ako želim da bude po mom.

181. Moje emocije su nepredvidive.
182. Izbegavam da imam posla s ljudima osim ako moram.
183. Nije me briga za probleme drugih ljudi.
184. Ne reagujem na stvari koje većinu drugih ljudi čine emotivno uznemirenim.
185. Imam nekoliko navika koje drugi smatraju ekscentričnim ili čudnim.
186. Izbegavam društvena događanja.
187. Ja zaslužujem poseban tretman.
188. Veoma me ljuti kada me ljudi vređaju, čak i kad su u pitanju sitne uvrede.
189. Retko kad me nešto oduševi.
190. Sumnjam da me čak i moji takozvani „prijatelji“ često izdaju.
191. Žudim za pažnjom.
192. Ponekad mislim da neko drugi uklanja misli iz moje glave.
193. Imam periode u kojima se osećam nepovezanim/om sa svetom i sa samim sobom.
194. Često vidim neuobičajene povezanosti među stvarima koje drugim ljudima promiču.
195. Ne razmišljam o tome da bih mogao/la da se povredim dok radim stvari koje mogu biti opasne.
196. Jednostavno ne mogu da podnesem da stvari ne budu tamo gde im je mesto.
197. Često imam posla s ljudima koji su manje bitni nego ja.
198. Ponekad udarim ljude da ih podsetim ko je glavni.
199. Ponekad me od nekog posla odvrate i najmanje sitnice.
200. Uživam u tome da činim da nadređeni izgledaju glupo.
201. Kada nisam raspoložen/a samo preskočim sastanke.
202. Trudim se da radim ono što drugi žele da ja radim.
203. Preferiram da budem sam/a nego da imam bliskog ljubavnog partnera.
204. Veoma sam impulsivan/a.
205. Često imam misli koje za mene imaju smisla, ali drugi ljudi kažu da su čudne.
206. Iskorišćavam ljude da bih dobio/la ono što želim.
207. Ne vidim poentu da se osećam krivim zbog stvari koje sam učinio/la a koje su povredile druge ljude.
208. Uglavnom ne vidim smisao u tome da se ponašam prijateljski.
209. Imao/la sam neka veoma neobična iskustava koja je jako teško objasniti.
210. Sprovodim do kraja ono na šta sam se obavezao.
211. Volim da privlačim pažnju.
212. Često osećam krivicu.
213. Često odlutam u mislima i odjednom shvatim da je mnogo vremena prošlo.
214. Laganje mi ne predstavlja problem.
215. Mrzim da rizikujem.
216. Gadan/a sam i odsečan/a prema svakome ko to zaslužuje.
217. Stvari oko mene mi često deluju nerealno, ili realnije nego što bi bilo uobičajeno.
218. Zakriviću istinu ako mi to ide u prilog.
219. Lako mi je da iskorišćavam druge ljude.
220. Imam strogo određen način na koji radim stvari.

Appendix 7

CAQ Questionnaire

Upitnik o kreativnim postignućima

1. Obeleži sve oblasti u kojima ti se čini da imaš više talenta, sposobnosti ili treninga/vežbanja nego prosečna osoba:

vizuelne umetnosti (slikarstvo, vajarstvo)
muzika
ples
individualni sportovi (tenis,golf)
timski sportovi
dizajn u arhitekturi
preduzetničke sposobnosti
kreativno pisanje
humor
izumi, pronalasci
naučno istraživanje
film i pozorište
kulinarske veštine

2. U svakoj od oblasti, štikliraj sve rečenice koje te tačno opisuju. Pored rečenica sa zvezdicom, napiši koliko puta se to odnosilo na tebe:

A. Vizuelne umetnosti (slikarstvo, vajarstvo)

0. Nemam iskustva niti prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - muzika)
1.Uzimao/la sam dodatne časove iz ove oblasti.
2.Dobijao sam pohvale o svom talentu u ovoj oblasti.
3.Osvojio/la sam nagradu/nagrade na takmičenju koji je žiri ocenjivao.
4.Imao/la sam izložbu svojih radova u galeriji.
5. Prodao/la sam svoje delo.
6. O mom radu se pisalo u lokalnim časopisima/publikacijama.
7*. O mom radu se pisalo u nacionalnim časopisima/publikacijama.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

B. Muzika

0. Nisam uzimao/la časove niti imam prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - ples).
1. Sviram jedan ili više muzičkih instrumenata vešto.
2.Svirao/la sam sa priznatim orkestrom ili bendom.
3. Komponovao/la sam originalno muzičko delo.
4. O mom radu se pisalo u lokalnoj štampi/publikaciji.
5. Moja kompozicija je snimljena.
6. Snimci moje kompozicije su prodavani.

7*. O mojim kompozicijama se pisalo u nacionalnim publikacijama.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

C. Ples

0. Nisam uzimao/la časove niti imam prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - arhitektura)
1. Plesao/la sam sa priznatom plesnom grupom/plesnim društvom.
2. Pravio/la sam originalnu koreografiju/plesnu numeru.
3. Moja koreografija je izvođena javno.
4. O mojim plesnim sposobnostima se pisalo u lokalnoj štampi/publikaciji.
5. Profesionalno sam se bavio/la plesnom koreografijom.
6. O mojoj koreografiji se pisalo u lokalnoj štampi/publikaciji.
7*. O mojoj koreografiji se pisalo u nacionalnoj štampi/publikaciji.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

D. Arhitektura

0. Nisam uzimao/la časove niti imam prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - pisanje)
1. Diznajnirao sam originalnu konstrukciju.
2. . Izgrađena je struktura po mom dizajnu.
3. Prodao/la sam originalni arhitektonski dizajn.
4. Dizajnirao sa i prodao nacrt za konstrukciju koju je sagradila profesionalna građevinska firma.
5. Moj arhitekonski dizajn je osvojio nagradu ili više nagrada.
6. O mom arhitektonskom dizajnu se pisalo u lokalnoj štampi/publikaciji.
7*. O mom arhitektonskom dizajnu se pisalo u nacionalnoj publikaciji.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

E. Kreativno pisanje

0. Nemam prethodnog iskustva niti prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - humor)
1. Napisao/la sam originalno kratko delo (poemu ili kratku priču).
2. Moj rad je bio nagrađen.
3. Napisao/la sam originalno duže delo (ep, roman, ili predstavu).
4. Prodao/la sam svoj rad izdavaču.
5. Moj rad je štampan i prodavan.
6. O mom radu se pisalo u lokalnoj štampi/publikaciji.
7*. O mom radu se pisalo u nacionalnoj štampi/publikaciji.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

F. Humor

0. Nemam prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - izumi)
1. Ljudi često komentarišu moj originalni smisao za humor.
2. Osmislio/la sam šale koje ljudi često ponavljaju.
3. Pisao sam šale za druge ljude.
4. Napisao sam šalu ili strip/karikaturu koji je objavljen.
5. Radio/la sam kao profesionalni/a komičar/ka.
6. Radio/la sam kao profesionalni/a pisac komedija.
7. O mom humorističkom radu se pisalo u nacionalnim publikacijama.

G. Izumi

0. Nemam prepoznatog talenta u ovoj oblasti.
1. Često pronalazim nove namene kućnim objektima.
2. Skicirao/la sam izum i radio/la na manama u tom dizajnu.
3. Napravio sam originalni kompjuterski softver.
4. Stvorio sam prototip za jedan od izuma koje sam dizajnirao.
5. Prodao/la sam jedan od svojih izuma ljudima koje znam.
6*. Patentirao/la sam jedan od svojih izuma.
7*. Prodao/la sam jedan/neki od svojih izuma nekom proizvođaču.

Ako ste obeležili pitanje 6 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____
Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

H. Naučna dostignuća

0. Nemam prethodnog iskustva niti prepoznatog talenta u ovoj oblasti (pređi na sledeće pitanje - pozorište).
1. Često smišljam načine (razmišljam o načinima) na koje bi naučni problemi mogli biti rešeni.
2. Osvojio/la sam nagradu na sajmu nauke ili drugom lokalnom takmičenju.
3. Primio/la sam stipendiju za svoj rad u nauci ili medicini.
4. Bio/la sam autor ili koautor u istraživanju objavljenom u naučnom časopisu.
5*. Osvojio/la sam nacionalnu nagradu na polju nauke ili medicine.
6*. Dobio/la sam stipendiju da vršim svoja istraživanja na polju nauke ili medicine.
7. Moj rad je citiran od strane drugih naučnika u nacionalnim publikacijama.

Ako ste obeležili pitanje 5 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____
Ako ste obeležili pitanje 6 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

I. Pozorište i film

0. Nemam prethodnog iskustva niti prepoznatog talenta u ovoj oblasti.
1. Nastupao/la sam u pozorištu ili na filmu.
2. O mojim glumačkim sposobnostima se pisalo u lokalnoj publikaciji.
3. Režirao/la sam ili producirao/la filmski ili pozorišni komad.
4. Osvojio/la sam nagradu za ulogu u filmu ili u pozorišnoj predstavi.
5. Bio/la sam plaćen/a da glumim u pozorištu ili filmu.
6. Bio/la sam plaćen/a da režiram u pozorišnoj ili filmskoj produkciji.
7. O mom dramskom radu se pisalo u nacionalnoj publikaciji.

J. Kulinarkse veštine

0. Nemam iskustva niti ekspertize u ovoj oblasti.
1. Često eksprimentišem sa receptima.
2. Moji recepti su objavljeni u lokalnom kuvaru.
3. Moji recepti su korišćeni u restoranima ili drugim javnim mestima.
4. Bio/la sam zamoljen/a da pripremam hranu za slavne ličnosti ili velikodostojnike.
5. Moji recepti su bili nagrađeni.
6. Dobio/la sam diplomu za kulinarske veštine.
7*. Moji recepti su objavljeni u nacionalnoj publikaciji.

Ako ste obeležili pitanje 7 sa zvezdicom, molimo vas da napišite koliko puta se to desilo:
_____

K. Molimo Vas, nabrojte druga kreativna postignuća, koja nisu navedena iznad:
_____
_____
_____

Molim vas obeležite rečenice koje se na vas odnose:

Jedna od prvih stvari koje ljudi spomenu u vezi mene kada me upoznaju sa drugima je moja kreativna sposobnost u nekoj od gore navedenih oblasti.

Ljudi mi često govore da imam „umetnički“ temperament (da sam umetnička duša).

Ljudi mi često govore da delujem kao „rasejani profesor"

Appendix 8

CAAI Questionnaire

Upitnik o kreativnim aktivnostima i postignućima

Uputstvo: Pred Vama se nalazi spisak ponašanja i dostignuća za koja se može reći da su kreativna. Vaš zadatak je da zaokružite odgovor koji najtačnije odražava učestalost/trajanje tih aktivnosti u vašem dosadašnjem životu, pri čemu Vas molimo da **izuzmete ono što ste radili kao zadatak u okviru redovnog obrazovanja** (u školi i na fakultetu)!

Prilikom odgovaranja koristite sledeću skalu:

1	2	3	4
nikad	jednom/vrlo kratko	više puta/duže vremena	redovno

Upitnik sadrži tri dela. Za prvi i drugi deo važi gorenavedeno uputstvo. U trećem delu imaćete mogućnost da izvestite o svojim kreativnim aktivnostima i postignućima koja nisu obuhvaćena prvim u drugim delom. To ćete učiniti tako što ćete u prazne rubrike uneti kratak opis svojih kreativnih aktivnosti ili postignuća, a potom dati ocenu njihove učestalosti/trajanja, koristeći opisanu četvorostepenu skalu!

Deo I

1.	Komponovao muziku	1	2	3	4
2.	Svirao ili pevao u orkestru ili bendu	1	2	3	4
3.	Pisao pesme ili kratke priče	1	2	3	4
4.	Napisao roman ili dramu	1	2	3	4
5.	Pisao eseje ili književne/filozofske beleške	1	2	3	4
6.	Smislio aforizam ili vic	1	2	3	4
7.	Napravio celovit strip ili ilustraciju	1	2	3	4
8.	Crtao, slikao, pravio grafike	1	2	3	4
9.	Pravio skulpture ili vajao figurice	1	2	3	4
10	Dizajnirao odeću ili pravio nakit	1	2	3	4
11	Napravio seriju umetničkih fotografija	1	2	3	4
12	Osmislio lutkarsku predstavu	1	2	3	4
13	Pravio animirani film	1	2	3	4
14	Osmislio originalnu likovnu tehniku (sa/na nestandardnim materijalima)	1	2	3	4
15	Osmislio i napravio grafit ili mural	1	2	3	4
16	Osmislio i izveo originalno naučno istraživanje	1	2	3	4
17	Napravio kompjuterski program	1	2	3	4
18	Glumio u predstavi ili na filmu	1	2	3	4
19	Snimio ili pomogao da se snimi film	1	2	3	4
20	Osmislio sopstvenu koreografiju ili plesni pokret	1	2	3	4
21	Osmislio koreografiju za celu plesnu trupu	1	2	3	4

22	Originalno primenio matematiku u rešavanju nekog praktičnog problema	1	2	3	4
23	Samostalno konstruisao neku spravu ili aparat (radio, teleskop, pojačalo)	1	2	3	4
24	Osmislio neku novu spravu, pomagalo, ili aparat	1	2	3	4
25	Osmislio novi naučni konstrukt ili teoriju koja objašnjava neku pojavu	1	2	3	4
26	Spremio jelo po sopstvenom receptu	1	2	3	4
27	Osnovao i vodio svoj blog	1	2	3	4

Deo II

1	Učestvovao u radu literarne sekcije, kluba ili sličnog udruženja	1	2	3	4
2	Učestvovao kao autor na književnoj večeri (čitao svoju poeziju/prozu)	1	2	3	4
3	Učestvovao kao autor u radu novina ili časopisa	1	2	3	4
4	Učestvovao u likovnoj radionici ili slikarskoj koloniji	1	2	3	4
5	Učestvovao u dramskoj radionici, klubu ili radu sličnog udruženja	1	2	3	4
6	Učestvovao u plesnoj radionici, klubu ili radu slične organizacije	1	2	3	4
7	Imao muzički nastup (svirao ili pevao pred publikom)	1	2	3	4
8	Imao plesni nastup (igrao pred publikom)	1	2	3	4
9	Objavio neko literarno delo (pesmu, kratku priču, roman, esej itd.)	1	2	3	4
10	Izlagao svoje likovno stvaralaštvo u nekom izložbenom prostoru	1	2	3	4
11	Objavio naučno istraživanje u stručnom časopisu	1	2	3	4
12	Patentirao neki izum	1	2	3	4
13	Dobio nagradu za svoju kompoziciju ili muzičko izvođenje	1	2	3	4
14	Dobio nagradu za neko literarno delo	1	2	3	4
15	Dobio nagradu za svoje likovno stvaralaštvo	1	2	3	4
16	Dobio nagradu za neko dramsko ili scensko ostvarenje	1	2	3	4
17	Dobio nagradu na plesnom takmičenju	1	2	3	4
18	Dobio nagradu za neki naučni projekat ili rad	1	2	3	4

Deo III

Izvestite o ostalim kreativnim aktivnostima i postignućima iz svog života!

1		1	2	3	4
2		1	2	3	4
3		1	2	3	4
4		1	2	3	4
5		1	2	3	4

Biografija kandidatkinje

Mina Hagen rođena je 1984. godine u Beogradu. Osnovne studije psihologije na Filozofskom fakultetu u Beogradu je završila je 2010. godine, a na istom fakultetu i master studije psihologije na istraživačkom smeru 2012. godine. Doktorske studije je upisala je u prolećnom semestru školske 2012/2013 godine pod mentorstvom prof. dr Gorana Kneževića. Zvanje sistemsko-porodične savetnice stekla je 2010 godine.

Od 2010. godine kandidatkinja je angažovana na odeljenju za psihologiju, Fakulteta za medije i komunikacije Univerziteta Singidunum na predmetima: Statistika, Napredna Statistika, Psihometrija i Metodologija psiholoških istraživanja. Kao gostujući predavač, učestvovala je na master studijama Fakulteta političkih nauka u Beogradu i doktorskm studijama Prirodno-matematičkog fakulteta u Beogradu.

Mina Hagen je od 2015. godine spoljna saradnica Laboratorije za neuroekonomiju na MIT Sloan, Cambridge, MA, USA. Članica je Laboratorije za istraživanje individualnih razlika – LIRA. Članica je strukovnog udruženja EAPP-a (Evropske asocijacije psihologija ličnosti).

Takođe, ona je povremeno angažovana kao konsultant za potrebe izrade metodologije istraživanja, konstrukcije upitnika i statističke obrade podataka od strane Zavoda za vrednovanje kvaliteta obrazovanja i vaspitanja u Beogradu, OEBS-a, i brojih privatnih korporacija.
Do sada je objavila ukupno pet radova u naučnim časopisima i zbornicima[1] i 27 saopštenja na nacionalnim i međunarodnim skupovima[2].

Tokom doktorskih studija u sklopu saradnje sa Univerzitetom u Ulmu, kandidatkinja je bila na studijskim boravcima nekoliko puta tokom 2017. i 2019. godine u Laboratoriji za socijalnu psihologiju.

Krajem 2019. godine, Mina Hagen[3] izabrana je za članicu radne grupe za reviziju standarda i izradu novih standarda postignuća u okviru priprema za sprovođenje državne mature 2021-2022. godine za predmet psihologija.

Kada je počela COVID-19 pandemija marta 2020. godine Mina Hagen je sa psiholozima iz regiona osnovala NVO "TU SMO Balkan" za pruženje besplatne psihološke podrške.

Od 2021. godine Mina je angažovana kao konsultantkinja za dansko-srpski startap Heartcount koji je vlasnik aplikacije za procenu angažovanosti na poslu.

[1] Radovi su objavljivani pod imenom Mina Pejić i Mina Božović
[2] ibid
[3] pod imenom Mina Božović

образац изјаве о ауторству

Изјава о ауторству

Име и презиме аутора Mina Hagen

Број индекса 4P12-5

Изјављујем

да је докторска дисертација под насловом

Moving Towards a Comprehensive Unified Trait Structure: Clarifying the Placement of Openness, Disintegration and Creativity in the Personality Space

- резултат сопственог истраживачког рада;
- да дисертација у целини ни у деловима није била предложена за стицање друге дипломе према студијским програмима других високошколских установа;
- да су резултати коректно наведени и
- да нисам кршио/ла ауторска права и користио/ла интелектуалну својину других лица.

Потпис аутора

У Београду, 05.04.2023.

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образац изјаве о истоветности штампане и електронске верзије докторског рада

Изјава о истоветности штампане и електронске верзије докторског рада

Име и презиме аутора Mina Hagen

Број индекса 4P12-5

Студијски програм Psihologija

Наслов рада Moving Towards a Comprehensive Unified Trait Structure: Clarifying the Placement of Openness, Disintegration and Creativity in the Personality Space

Ментор prof. dr Goran Knežević

Изјављујем да је штампана верзија мог докторског рада истоветна електронској верзији коју сам предао/ла ради похрањивања у **Дигиталном репозиторијуму Универзитета у Београду.**

Дозвољавам да се објаве моји лични подаци везани за добијање академског назива доктора наука, као што су име и презиме, година и место рођења и датум одбране рада.

Ови лични подаци могу се објавити на мрежним страницама дигиталне библиотеке, у електронском каталогу и у публикацијама Универзитета у Београду.

Потпис аутора

У Београду, 05.04.2023.

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образац изјаве о коришћењу

Изјава о коришћењу

Овлашћујем Универзитетску библиотеку „Светозар Марковић“ да у Дигитални репозиторијум Универзитета у Београду унесе моју докторску дисертацију под насловом:

Moving Towards a Comprehensive Unified Trait Structure:
Clarifying the Placement of Openness, Disintegration and Creativity in the Personality Space

која је моје ауторско дело.

Дисертацију са свим прилозима предао/ла сам у електронском формату погодном за трајно архивирање.

Моју докторску дисертацију похрањену у Дигиталном репозиторијуму Универзитета у Београду и доступну у отвореном приступу могу да користе сви који поштују одредбе садржане у одабраном типу лиценце Креативне заједнице (Creative Commons) за коју сам се одлучио/ла.

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