A Conative Approach to Creativity: The Correlation Surface of Psychopathology and Ego-strength

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Abstract

The present investigation targets the empirical validation of the correlation surface between psychopathology and ego-strength suggested by Eysenck. The sample comprised 37 middle aged adults from the Grand Duchy of Luxembourg. Established hypotheses could not be verified and results even significantly tended in the opposite direction. The findings are discussed in the light of an eventual revision of the theoretical conception of Eysenck and its potential adaptation to the measured constructs.

Keywords: Creativity; conative approach; psychoticism; ego-strength.

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The *conative approach* tries to determine personality attributes, cognitive styles or motivational aspects that are necessary for the establishment of the creative process (Lubart, 2003). Regarding personality, creativity has been set in relation to the predisposition of developing psychotic disorders. This tendency is called *psychoticism*. The general conception of creative madness can only be interpreted in light of historical context and socio-cultural evolution. Even though the Enlightenment period spread the image of the sane creator, the nineteenth and twentieth century were literally craving for the mystical and unexplainable nature of madness. They were undeniably attracted to insanity. This fairly modern conception of creative genius has its roots in the Romantic Movement. However, according to Becker (2011), divine poetic mania was originally set apart from clinical insanity.

The debate about the appropriate categorization of these psychotic tendencies is still ongoing. Indeed, it has long been a recognized belief among psychologists and health specialists that the excessive stimulation of one psychological capacity is irreconcilable with perfect mental health and personal adjustment. This medical conception stands in contrast to the Romantic Era. According to Becker (2011), the Romantics' societal recognition and appreciation of the mad genius may have resulted in a positive feedback loop of self-fulfilling prophecy. In purpose of social appreciation, artists and writers may have entered into a model of role expectations. The resulting social selection of recognized creators may have in turn reinforced the common association between genius and madness. Indeed, many creators are overtly proud of their distinctive divine madness and do not hesitate to display it publically. This again strengthens the persisting stereotypes.

In complete contrast to this, ego-strength has been identified as an essential feature in the population of creative geniuses. "Ego-strength is a person's capacity to maintain his/her own identity despite psychological pain, distress, turmoil and conflict between internal forces as well as the demands of reality" (Psychology Glossary). According to Eysenck (1995), ego-strength is best conceptualized as emotional stability, which is the opposite extreme of neuroticism.

Hence, according to Eysenck (1995), previous research in the conative domain is based on controversial theories and findings. They associate creativity and genius on one hand with self-actualization, mental health and personal balance (Adler, 1927; Fromm, 1955; Maslow, 1976; Rogers, 1976) and on the other

hand with quite serious degrees of psychopathology (Ellis, 1926; Lange-Eichbaum, 1930; Lombroso, 1891). For Eysenck (1995), the resolution of the paradox of creative personality lies in the combination of two apparently incongruent personality features: *Psychopathology* (psychoticism) and *ego-strength*. It is only at first sight that the personality constellation of creative people seems contradictory. Even though paradox may not be the right denomination for this phenomenon, different explanations are provided. Either these incompatible traits precede creative work and favor it or they are an unavoidable consequence of creative occupations.

In the present research, it is conceived as a non-recursive interaction. Hence, these seemingly incompatible traits predate as well as result from creative work. Artists make some kind of self-sacrifice in trying to tolerate these conflicting tensions for the sake of their vocation. Throughout history artists have been known to tolerate their own mood swings and reconcile or regulate them through creative work. Eysenck illustrates this conception as following:

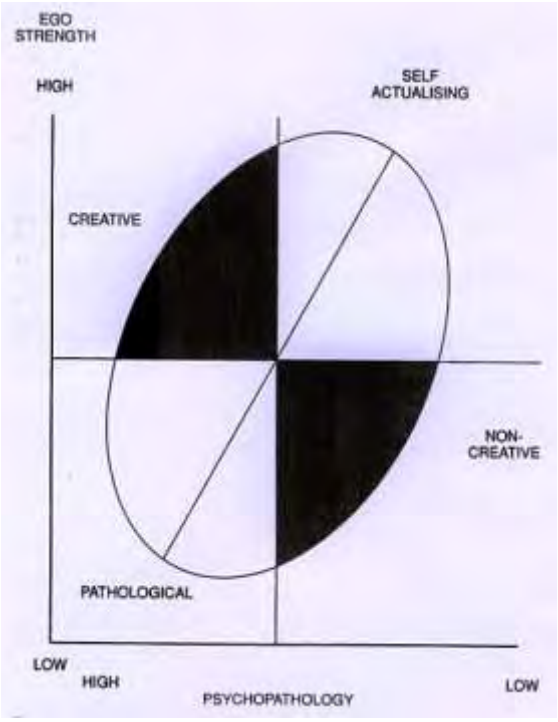

Figure 1: Correlation surface of psychopathology and ego-strength (Eysenck, 1995, p. 122).

This diagram represents a negative correlation between psychopathology and ego-strength (r = -.60). The majority of cases fall into the white quadrants, *pathological* and *self-actualizing*. Only a minority of people are represented by the black quadrants, *creative* and *non-creative*. When reading this diagram it is important to consider the inversion of the x-axis. Only in a sample of highly creative people, does the usually negative correlation between psychopathology and ego-strength turn into a positive one (Eysenck, 1995). This specificity is known as "controllable oddness" (Barron, 1969), meaning that creative people are both more fragile and more resilient than the general population.

This assumption was originally based on studies that investigated a combination of two normally contrasting personality features, neuroticism and super-ego control. As expected, their correlation was found to be negative in the general population (r = -.32, p < .05) (McKenzie, 1989; McKenzie & Tindell, 1993). However, an unusual positive association between schizothymia and ego-strength was found in a sample of eminent researchers (Cattell & Drevdahl, 1955). Furthermore, in Fodor (1995) the highest creativity level was revealed in a group of people who were both psychosis-prone and high in ego-strength. Creativity was assessed through an engineering problem

and the Remotes Associates Test (RAT). The findings were explained by a higher degree of complex visualization in people having both higher psychosis-proneness and higher ego-strength.

Taken together, the diagram represented in Figure 1 reconciles scattered and controversial findings in the conative approach to creativity. The aim of the present study is to provide empirical validation for this theoretical conception. The following hypotheses underlie Figure 1:

(1) There is a negative correlation between *psychoticism* and *ego-strength* in the low *creative potential* group.

(2) There is a positive correlation between *psychoticism* and *ego-strength* in the high *creative potential* group.

Figure 1 incorporates another important feature of Eysenck's theory. Whereas the correlation between neuroticism and academic achievement was revealed to be insignificant in low super-ego groups (r = -.05), it was found to be significantly positive in high super-ego groups (r = .53, p < .001). This neuroticism-superego interaction is known as the so-called Furneaux Factor (McKenzie, 1989; McKenzie & Tindell, 1993). Consequently, according to Eysenck (1995), investigations should go beyond the analysis of mere associations between personality features and achievement scores. Eysenck & Eysenck (1985) stated that those two scores would only positively correlate in populations that have been highly selected. This selection could be based either on intelligence (Spielberger, 1962) or on coping mechanisms such as superego-strength or independence (Holder & Wankowski, 1980).

According to Figure 1, ego-strength has the potential to compensate for the more pathological aspects of high neuroticism or high psychoticism. Accordingly, people who translate their creative potential into manifest work, manage to equilibrate their dispositional lack of *inhibition*. This compensatory effort results in the revelation of a remarkable creative potential. In the opposite case, these impulsive trends express themselves in the difficulty of controlling emotions and impulses.

The following hypotheses underlie the Furneaux Factor, which is incorporated in Figure 1:

1. There is an interaction between *psychoticism* and *ego-strength* in the prediction of *creative potential*:

a. Only in case of high e*go-strength*, *psychoticism* is positively correlated to *creative potential*.

In order to get largely acknowledged, McKenzie and Tindell (1993) consider that the Furneaux Factor needs to be replicated in future studies. So far however, no such attempt exists. Accordingly, the present investigation focuses on the interaction between psychoticism and ego-strength in the prediction of creative potential. This would provide an extension of the Furneaux Factor, by allowing its generalization from neuroticism to psychoticism as personality trait, and from academic achievement to creative potential as outcome variable. Finally, since previous investigations in the conative approach were mainly based on Big Five and Big Three personality traits, the consideration of *ego-strength* as supplementary feature is likely to provide innovative insights into the domain of creative personality.

Methodology

Participants

The sample consisted of 37 middle aged adults (20 women, 17 men, M_{Age} = 41.03, SD = 7.23, age range: 29-55 years). They were recruited at the University of Luxembourg and outside university. All participants were volunteers.

The mother tongue of the majority of participants was Luxemburgish (51.4%), followed by French (24.3%), German (8.1%) and Others (16.2%). The distribution of the language spoken at home was similar to that of the mother tongue. It differed only in terms of percentages: Luxemburgish (54.1%), French (29.7%), German (5.4%) and Others (10.8%).

At this point, it is important to point out that the Grand Duchy of Luxembourg is a very multicultural environment with a large immigrant background. For this reason, the mother tongue does not always correspond to the language spoken at home.

Concerning the academic background, a majority of participants (81%) had accomplished higher education (Bachelor, 35.1%; Masters, 29.7%; Post graduate 16.2%). Only 18.9% of participants possessed an education level equal or inferior to Baccalaureate. In this context, it is important to emphasize that approximately one-half of participants belonged to the University of Luxembourg. They were either students, employees, PhDs, Post-docs or Professors.

Materials

The measure of *creative potential* was realized through the Test for Creative Thinking-Drawing Production (TCT-DP) (Urban & Jellen, 1995), different sub-dimensions of Openness to new experiences from the NEO Five Factor Inventory (NEO-FFI) (Costa and McCrae, 1992): Fantasy, Ideas, and Values; and the Dominance scale from the Minnesota Multiphasic Personality Inventory (MMPI-2) (Hathaway & McKinley, 1996).

According to Urban (2005), the TCT-DP covers a more global approach to creativity than quantitative based divergent thinking tests. Furthermore, it can be considered as culture-fair/sensitive and gender fair/sensitive (Urban & Jellen, 1995). Conceptualized for a wide range of age and ability groups, this open-ended drawing test is based on several criteria: continuations; completion; new elements; connections with a line; connections with a theme; boundary breaking, fragment-dependent; boundary breaking, fragment-independent; perspective; humor and affectivity; four kinds of unconventionality and speed (Urban, 2005). A Cronbach alpha of .77 was revealed.

Openness to new experiences was assessed by the NEO-FFI. Being an abbreviated version of the NEO-PI-R, the NEO-FFI comprises 12 items per factor. They are rated on a 5-point Likert scale (with response options ranging from 1 = *strongly disagree* to 5 = *strongly agree*; i.e.: PI-R-C "*I work hard to accomplish my goals*". The internal consistency (Cronbach alpha) for the whole Openness Dimension was .78.

Psychoticism was measured through a combination of different MMPI-2 sub-scales: Psychopathic deviate (Pd) (α = .78), Strange thoughts (BIZ) (α = .74), Anger (ANG) (α = .73), Antisocial behavior (ASP) (α = .79), Lack of self-control through inhibition default (SC_5) (α = .70), Strange sensorial experiences (SC_6) (α = .70) and Sensitivity (Pa) (α = .68). According to Eysenck (1995), the MMPI is a well-known measure of psychopathology.

Ego-strength was assessed through the combination of two different dimensions from the MMPI-2: Dominance (Do) and Lack of self-control through inhibition default (SC_5) (negative pole). The *MMPI-2 Dominance scale* (α = .67) was developed by Gough, McClosky and Meehl (1952). It covers the degree of assertiveness and directivity of the subject in social relationships. Furthermore, it reflects perseverance, assurance, cold-bloodedness, initiative taking and resolution.

In brief, it targets the evaluation of leadership capacities. The *MMPI-2 SC_5 scale* (α = .70) meaningfully completes the assessment of ego-strength. It reflects the incapacity to control emotions and impulsions. This expresses itself in moments of hyperactive excitement, uncontrollable fits of laughter and tears and episodes completely escaping consciousness and memory.

Procedure

Data collection took place at the University of Luxembourg in two consecutive time intervals. Both lasted approximately one month. Both sessions were organized in the form of individual testing, which afforded approximately two hours per person.

The participants were also offered the possibility to be tested at their own place. There was no dropout rate between both sessions. All participants were recompensed for their contribution with a little gadget.

Results

Descriptive statistics

Table 1: Mean and standard deviation for personality and creativity variables.

Variables	*M*	*SD*	*Min*	*Max*
Creative Potential	101.15	15.49	62	133
Psychoticism	39.84	17.90	0	85
Ego-strength	14.78	4.22	0	21

Correlations between the examined variables are depicted in Table 2. It displays a highly significant correlation between ego-strength and creative potential (r = .43; p < .01). The correlation between psychoticism and ego-strength did not reach significance level.

Table 2: *Correlation matrix of personality and creativity variables in the total sample.*

Variables	1	2	3
1. Creative Potential	–	.11	.43**
2. Psychoticism		–	-.20
3. Ego-strength			–

Note. * p < .05 level; ** p < .01 level.

Table 3 displays the correlation between psychoticism and ego-strength in the group of low creative potential. This correlation failed to reach significance level.

Table 3: Correlation matrix of psychoticism and Ego-strength in case of low creative potential.

Variables	1	2
1. Psychoticism	–	.16
2. Ego-strength		–

Note. * p < .05 level; ** p < .01 level.

Table 4 displays the correlation between psychoticism and ego-strength in the group of high creative potential. This correlation was negative and significant (r = -.51; p < .05).

Table 4: Correlation matrix of psychoticism and Ego-strength in case of high creative potential

Variables	1	2
1. Psychoticism	─	─ .51*
2. Ego-strength		─

Note. * p < .05 level; ** p < .01 level.

Regressions and interactions

In the aim of testing the hypotheses, the interaction between psychoticism and ego-strength in regard to creative potential was investigated. This was realized by introducing the multiplication term of the z-standardized score of psychoticism and ego-strength as additional predictor. The analysis was performed by two different regression methods (Enter, Stepwise). In the end, the result of that method which excluded the least number of subjects from the analysis was considered. Table 5 represents the interaction between psychoticism and ego-strength in regard to creative potential. The retained solution refers to the method Stepwise.

Table 5: Predictors of creative potential.

Creative Potential		
Predictor	ΔR^2	β
Model 1	.20	
Ego-strength x Psychoticism		─ .47**
Model 2	.27	
Ego-strength x Psychoticism		─ .37*
Ego-strength		.31*
n	36	

Note. * p < .05 level; ** p < .01 level.

The direction of the interaction between psychoticism and ego-strength in regard to creative potential is illustrated in Figure 2.

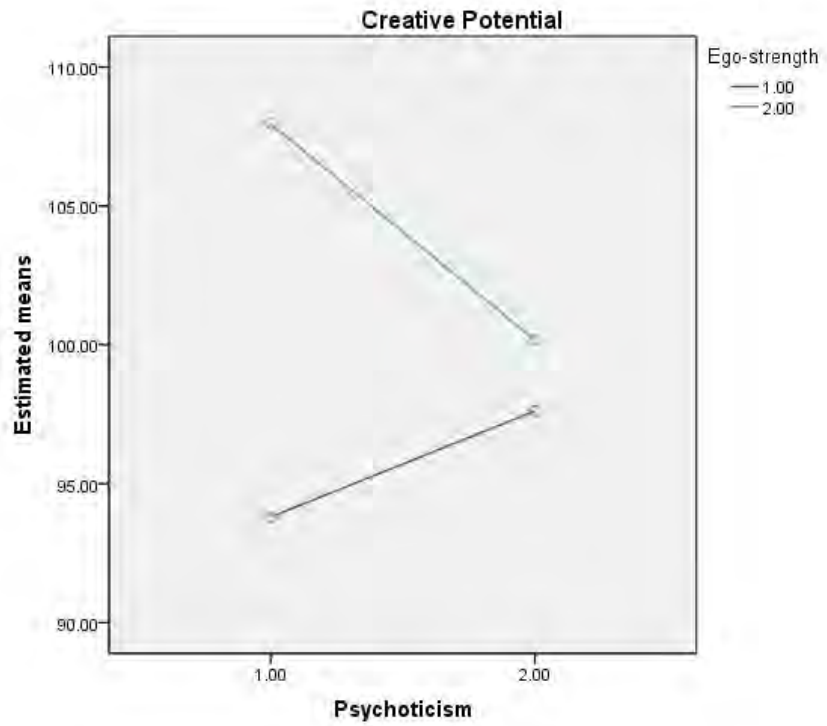

Figure 2: Psychoticism X Ego-strength.

Whereas in the low ego-strength group psychoticism and creative potential were positively related, in the high ego-strength group both variables were negatively related.

Discussion

For discussion purposes, the hypotheses will be separately examined. Taken together, all established hypotheses have been contradicted. Results even tended in the opposite direction.

(1) There is a negative correlation between *psychoticism* and *ego-strength*, in case of low *creative potential*.

This hypothesis was contradicted. In case of low creative potential there was even a positive relationship between psychoticism and ego-strength, even though it did not reach significance level (see Table 3). Nonetheless, in the total sample a negative correlation between both variables was found but it was not significant either (see Table 2).

(2) There is a positive correlation between *psychoticism* and *ego-strength*, in the case of high *creative potential*.

This hypothesis was also contradicted. Again results tended in the opposite direction. Surprisingly, it was in the sample of people with high creative potential that the correlation between psychoticism and ego-strength became significantly negative (r = -.51; p < .05). This stands in contradiction to the theory of Eysenck (1995), according to which the usually negative correlation between psychoticism and ego-strength turns into a positive one in a sample of people with high creative potential.

At this point it is important to keep in mind that the present sample did not include creative geniuses but essentially people with a high academic background. This means that the sample was selected in terms of intelligence. Theoretically speaking, these people should also possess a high

creative potential, by considering that creativity and intelligence are to some degree related (Silvia, 2008). Indeed, the association of both personality characteristics (psychoticism and ego-strength) was previously revealed in a sample of eminent researchers (Cattell & Drevdahl, 1955). This means that we could have expected an inversion of the correlation sign in our sample as well.

(3) There is an interaction between *psychoticism* and *ego-strength* in the prediction of *creative potential*:
a. Only in the case of high e*go-strength*, *psychoticism* is positively correlated to *creative potential*.

Also this hypothesis was contradicted. There was indeed an interaction between psychoticism and ego-strength in regard to creative potential, but it went exactly in the opposite direction as predicted by the hypothesis. Only in the case of low ego-strength, was psychoticism positively associated with creative potential. In the case of high ego-strength there was even a negative association between psychoticism and creative potential.

In the present study the Furneaux effect, which is incorporated in the theory of Eysenck (see Figure 1), could not be supported.

Nonetheless, we have to take into account that the Furneaux effect regards the neuroticism-superego interaction, whereas in the present study the psychoticism-superego interaction was analyzed. Furthermore, past studies concentrated on academic achievement and not on creative performance as outcome variable. Thus, these controversial findings could be due to the fact that the direction of the neuroticism-superego interaction cannot be generalized to psychoticism as personality trait and creative potential as outcome variable. Future studies are necessary in order to reinforce these findings and shed further light on the exact nature of the psychoticism-superego interaction in regard to creative potential as outcome variable. Eventually, the Furneaux effect has to be differentiated according to the personality and achievement variables involved.

A primary serious limit of this study consists in the restricted sample size. This problem has been addressed through the computation of the internal consistencies of the employed measurement tools, which were largely satisfying. A second specificity concerns the configuration of the sample. It contained a majority of people with a high academic background (81.1% of people have higher education). Indeed, this distribution is not representative of the general population. Hence, external validity is limited and generalization goes along with a bias. Future studies are necessary to extend those results to the general population.

Conclusions and perspectives

Taken together, the established hypotheses could not be confirmed and results even tended in the opposite direction. As opposed to the expectations, it was only in the sample of people with high creative potential that the correlation between psychoticism and ego-strength became significantly negative (r = -.51; p < .05). Theoretically speaking, both variables are supposed to be negatively related only in the general population, with a correlation coefficient varying around r = -.60. In people with high creative potential the association between psychoticism and ego-strength was assumed to be positive (Eysenck, 1995). However, in the present study there is no hint that this negative relationship turns into a positive one in people with high creative potential.

Ego-strength can indeed be conceptualized as moderating the relation between psychoticism and creative potential, as it was originally suggested by the theory of Eysenck (see Figure 1). The revealed significant interaction between ego-strength and psychoticism in the prediction of creative potential confirmed this result. It only seems that this interaction goes in the opposite direction as originally expected. Accordingly, it was only in the case of low ego-strength that psychoticism was positively related to creative potential. An explanation for this unexpected association is proposed by the following graph:

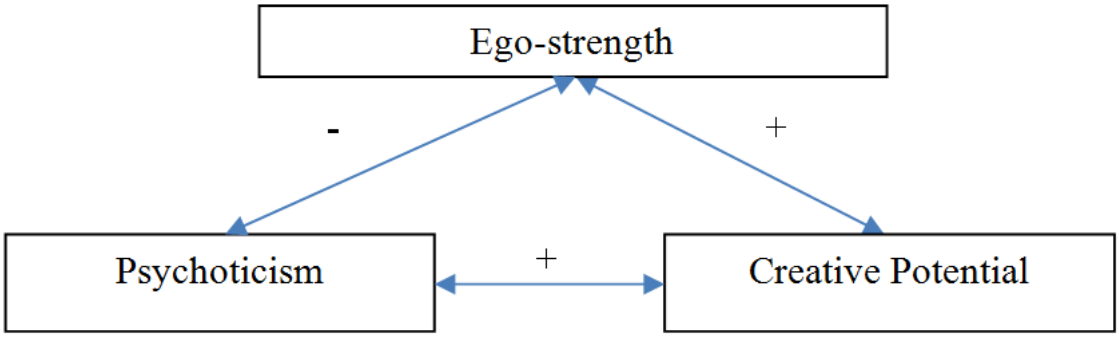

Figure 3: Relation between psychoticism, ego-strength and creative potential.

According to this graph, high ego-strength promotes creativity and at the same time reduces psychoticism. This explains the fact that only in case of low ego-strength, a positive association between psychoticism and creative potential remains (see Figure 2). In the case of high ego-strength, psychoticism gets automatically lowered and has no influence anymore on creative potential.

Based on the present findings, it is assumed that there are two different ways to creativity, passing through two distinct personality features. The first and the most important one is ego-strength, also known as emotional stability and emotional strength. This feature is the most determinant one and fosters a healthy kind of creativity, by considering its negative relationship to psychoticism. Most of the time, creativity is conceptualized as a generous and healthy kind of self-expression and as a constructive form of problem resolution, ultimately leading to self-actualization (Cropley, Kaufman, White, & Chiera, 2014). This form of creativity could be assimilated to the *Self-actualizing* quadrant in Figure 1. Self-actualizing creativity was sometimes associated to everyday creativity (Cropley, 1990), which refers to creative expression of ordinary people in daily life (Richards, 1999; Silvia et al. 2014).

The present results confirmed the prevailing role of ego-strength over psychoticism in the prediction of creative potential, at least in this specific sample of highly educated people. Indeed, in the total sample the only significant positive correlation emerged between ego-strength and creative potential (r = .43, p < .01). This association even stayed positive if the influence of psychoticism on creative potential and the interaction between psychoticism and ego-strength in regard to creative potential were controlled for (β = .31, p <.05). Furthermore, the well-established positive relationship between psychoticism and creativity could not be completely confirmed in the present study. The observed correlation was indeed positive but it did not reach significance level (see Table 2). One could assume that is due to the fact that psychoticism only plays a fundamental role for creativity in artists, as suggested byBatey and Furnham (2006). It presently seems that the creation process of people with a high academic background rather relies on emotional stability and strength. They embody a more self-actualized form of creativity (see Figure 1).

According to Figure 3, it is only in the absence of pronounced ego-strength that the way to creativity leads through enhanced psychoticism (see Figure 3). This is unhealthier form of creativity which could be assimilated to the *Pathological* quadrant in Figure 1. It is characterized by a flat associative gradient, which is also typical of psychotic disorders. This refers to the so called dark side of creativity, which has gained increased attention in recent years (i.e., Cropley, Cropley, Kaufman, & Runco, 2010). It responds to the question concerning the nature of the relationship between creativity and mental illness (Kaufman, 2014; Silvia & Kaufman, 2010). This dark side of creativity is also known as negative creativity (Clark & James, 1999) or malevolent creativity, as originally suggested by Cropley, Kaufman, & Cropley (2008). Whereas negative creativity does not necessarily include a harmful intend, malevolent creativity on the other hand definitely does include one. With regard to the consensual definition of creativity, including ideas that are both novel and useful, malevolent creativity additionally requires ideas “that are intended to materially; mentally, or physically

harm oneself or others" (Harris, Reiter-Palmon, & Kaufman, 2013, p.237). To summarize, according to Harris, Reiter-Palmon, and Kaufman (2013), malevolent creativity is both original and harmful. Destructive or immoral results are deliberately provoked.

Malevolent creativity arises more often on the eminent (Big-C) or expert (Pro-c) creativity level than on the everyday (little-c) and personal (mini-c) creativity level (Kaufman & Beghetto, 2009). According to Cropley et al. (2014), malevolent creativity is comparatively more difficult to assess empirically and is currently still profoundly underexplored. According to Harris et al. (2013), emotional intelligence, an optimistic explanatory style and conscientiousness impede malevolent creativity. Seeing that specific individual differences favor or hinder malevolent creativity in divergent thinking tasks, it gets considered as a distinctive type of creativity. It significantly diverges from the common notion of creativity. Taken together, according to the authors, original and harmful ideas result from an interplay between dispositional traits, the creative process and the situation.

This dark side of creative expression can even be harmful to the world at large (McLaren, 1993). According to Cropley et al. (2008), malevolent creativity mostly applies to crime and terrorism, which often occur in times of war. The purpose of malevolent creativity is opposed to the one of traditional creativity, which is socially useful and desirable because it benefits the system. In malevolent creativity, the benevolent outcome is largely subjective, in the sense that personal gain is aspired regardless of other peoples' loss. According to McLaren (1999), its expression undoubtedly results in fundamental anarchism, which completely disregards social obligations and restrictions.

Indeed, according to Cropley et al. (2010), being a criminal requires some creative skills, especially when it comes to manipulating other people for personal interests. Malevolent creativity was associated to the anti-social personality disorder. Indeed, according to Eisenman, Frampton, and Gandelsonas (1974), psychopaths fulfill many criteria for unfolding anti-social creativity. Being largely freed from empathy, social concern, conscientiousness and anxiety, anti-social personalities use their queen intelligence and their superficial charm to creatively manipulate the rules of society.

Even creative people in the general population can exhibit traits that are potentially associated to malevolent creativity. According to Gino and Ariely (2012), creativity might facilitate immoral behavior in two ways: first, it allows people to conceive ingenious ways to bypass ethical doctrines. Secondly, the enhanced moral flexibility enables creative people to better justify their self-serving actions. Creative people in general have a higher probability of influencing their test outcomes (Gino & Ariely, 2012), they are more likely to be dishonest in resolving conflictual circumstances (De Dreu & Nijstad, 2008), they show less integrity (Beaussart, Andrews, & Kaufman, 2013), they have a higher tendency to be aggressive (Harris, Reiter-Palmon, & Kaufman, 2013), and they invent a higher number of better and more credible lies (Walczyk, Runco, Tripp, & Smith, 2008).

In the present research, there was no hint for the occurrence of a third form of creativity, reuniting the features of psychoticism and ego-strength. The first form of creativity being based on emotional stability and the second one on psychoticism, there should be a third form of creativity appearing in people with outstanding creative potential. According to Eysenck (1995), this exceptional form of creativity results from the convergence of psychoticism and ego-strength (Eysenck, 1995). This ideally brings about genius level creativity (see Figure 4), corresponding to the *Creative* quadrant in Figure 1.

Indeed, the present findings did not confirm this hypothesis. There was no positive correlation between psychoticism and ego-strength in the sample of people with high creative potential. A possible explanation for this finding could be the omission to include truly outstanding creative geniuses in the sample. The inversion of the correlation sign in this specific population cannot be excluded.

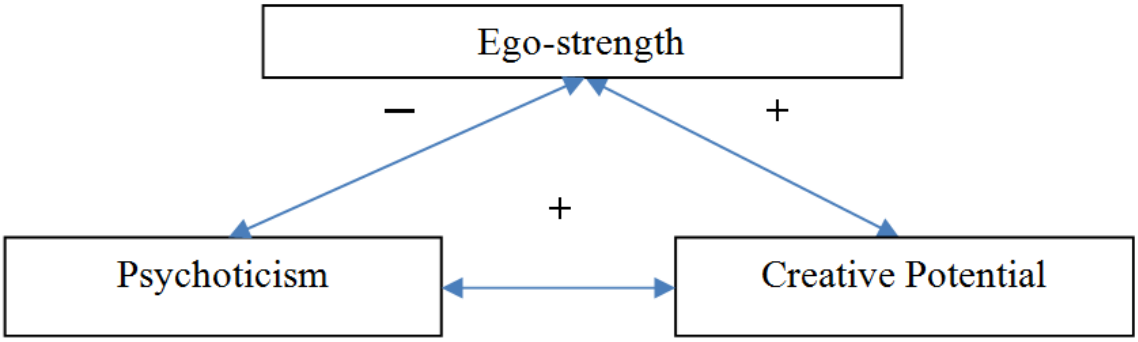

Figure 4: Relation between psychoticism, ego-strength and creative potential.

To conclude, the Furneaux effect (McKenzie, 1989; McKenzie & Tindell, 1993) may not be applicable to psychoticism as personality trait and creative potential as outcome variable. Hence, the theory of Eysenck (1995) eventually needs to be revised and adapted to those specific traits and the considered population. However, the possibility that it could hold true in a population of people with outstanding creative potential cannot be totally excluded.

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