

The Impact of Personality on Creativeness and Concentration

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Abstract. Personality has a profound and wide-ranging effect on individuals. This article discusses the impact of personality on individual creativeness and concentration levels. By analyzing past articles in psychology journals, it was found that the Openness/Intellect factor among the Big Five factors is consistently correlated with creativeness, regardless of how it was measured. Extroversion is inconsistently correlated with creativeness, and exhibits significant correlations only when the task measures verbal creativity or the fluency of divergent thinking skills. Personality is also correlated with concentration levels. The conscientiousness factor among the Big Five factors is consistently positively correlated with concentration levels, while neuroticism is negatively correlated with concentration. All experiments conducted in the research papers use different methods to test their hypothesis, and the results vary slightly according to the scale and the measurements being used. This paper provides integrative evidence for further understanding of the effects of personality on creativity and concentration.

Keywords: Big Five factors, creativity, concentration, motivation.

1. Introduction

The Big Five personality types include five dimensions: Openness, agreeableness, conscientiousness, extroversion, and neuroticism. Over the past few years, more and more research papers have looked into the topic of how personality influences cognitive performance. One of the most researched topic is the correlation between creativity and personality. Creativity is one of the central features that distinguishes human beings from other animal species. By understanding the mechanisms behind creativity and potential factors that causes an influence, researchers might obtain a key to unlocking the secret behind human evolution, and find out the possible reasons for why humans evolved in a certain direction rather than the other.

Also, one interesting facet of the “Openness” trait is the absorption factor. Absorption is a personality trait in which a person becomes absorbed in their mental imagery. A person high in absorption might be susceptible to hypnosis and more easily concentrate. Concentration, like creativity, is also a crucial factor that receives a lot of attention from researchers. The “flow” state of the human mind, which is deep, effortless concentration, is said to be related to absorption and the Big Five factors. In the 21st century, with the rapid development of internet technology, people get more and more easily distracted due to the sheer amount of information flooding in everyday. Therefore, deep concentration is more important than ever if people were aiming to achieve efficiency and success. People with different personalities have different degrees of susceptibility towards outside stimulation, meaning that some people are naturally easily disturbed compared to others. Therefore, it is crucial that the link between personality and concentration is studied, so that people with different personalities could seek out environments in which they function best and shield distractions as much as possible.

The research topic of the essay is the impact of personality on creativity and concentration. The essay will look into several papers regarding this topic, and write a review and generate new conclusions from previous studies. Personality is specifically referred to as the Big Five factors in the essay.

2. Basic Concepts

Scientists used a lexical approach to develop the Big Five factors, which includes openness, agreeableness, conscientiousness, extroversion, and neuroticism. The Big Five factors can be further generalized into the “Huge Two,” stability and plasticity. The Stability trait includes agreeableness, conscientiousness and neuroticism, while the plasticity trait includes extroversion and openness. Stability relates to the need to maintain stable structures to achieve goals, whereas plasticity relates to the need to incorporate novel information to make changes to the preexisting system [1].

Creativity is heavily influenced by the plasticity trait. The openness factor is referred to as openness/intellect, and includes facets such as apophenia, artistic creativity, scientific creativity, and intelligence. People who score high in openness/intellect take interest in novelty and complexity. In the essay, creativity and concentration is both heavily correlated with openness/intellect factor. Extroversion also has minor to middle correlations with creativity, although some research denies this fact by stating that extroversion impact creativity only in certain art-related fields. Overall, the plasticity factor positively correlates with creativity, and high scores in stability traits negatively correlates with measured creativity.

Concentration can be related to the popular psychology term “flow.” Flow refers to the state of deep concentration and low self-awareness that occurs during active task performance. Research articles have shown that “flow” proneness is more related to personality instead of intelligence [2]. Long hours of concentration requires mental effort and is associated with conscientiousness scores [2]. Conscientiousness, being one of the fundamental traits of the Big Five factors, reflects the tendency to be responsible, organized, goal-directed, and industrious. Conscientiousness can be divided into order and industriousness, order being the level of organization and industriousness reflecting the efficiency in pursuing a goal.

In several of the research papers mentioned in the essay, the researchers used “divergent thinking tasks” as an important measure of creativity. Divergent thinking abilities refers to an individuals’ ability to develop multiple solutions to open-ended questions. The divergent thinking tasks are graded according to fluency, flexibility, elaboration, and originality. Fluency is scored according to the number of solutions generated within a time limit. Flexibility is scored based on the number of different themes conveyed. Elaboration is associated with the level of detail. Originality is correlated with the novelty of an idea. Divergent thinking scores are generated based on these four standards.

3. Relation between personality and creativity

Prior studies examining the impact of creativity measurements on the obtained results reveal that the use of different scales does affect the measured relationship between creativity and personality traits [3].

A large number of studies has reported significant correlations between openness and creativity, which is measured through various kinds of divergent thinking questions. Some studies also report correlations between extroversion and creativity, but the researchers hypothesized that the level of correlation is heavily reliant on the type of divergent thinking test. Participants with high extroversion scores mostly excelled in fluency and not the quality of the ideas generated, and they were better at unusual-use and verbal fluency tasks rather than artistic tasks such as drawing. Therefore, the correlation between extroversion and creativity depends on the rating criteria and the kinds of tasks. Divergent thinking scores and the conscientiousness, neuroticism, and agreeableness scores are inconsistently correlated. Participants with high neuroticism scores tend to perform better at figural divergent thinking tasks compared to verbal divergent thinking tasks, which utilizes different parts of the human brain.

The researchers also tested the participants’ level of creativity through creative accomplishments. Creative achievements are tested using the Creative Achievement questionnaire (CAQ). Researchers discovered that openness factor is significantly correlated with creative accomplishments. Both scientists and artists score high in terms of openness. However, scientists score higher in terms of

positive aspects of conscientiousness compared to regular people, while artists score lower in conscientiousness compared to the average person. Also, greater verbal creativity and low conscientiousness combine to produce the most creative achievements.

Overall, creativity has different aspects, and different parts of creativity correlates with each of the Big Five factors in a different way. Therefore, the tests and the rating standards used to test creativity can influence its observed relationships with the Big Five factors.

The following study examines the impact of nostalgia on creativity [4]. Nostalgia has been characterized as “a sentimental longing or wistful affection for the past” according to Werman. Nostalgia had been introduced in the 17th century and was initially regarded as a cerebral disease. By the 19th century, nostalgia was regarded as a form of depression. It was fairly recent when nostalgia was finally distinguished from mental diseases and homesickness. Positive emotions feature centrally in prototypical nostalgic experiences, while negative emotions only exist peripherally [5]. This suggests that nostalgia is more positive than negative in terms of emotional experiences [5]. Nostalgia is triggered by aversive stimulus and, in turn, fosters positive behaviors which elevates mood and sub-serves psychological homeostasis [5]. In other words, nostalgia facilitates the change from avoidant motivation to approach motivation. For example, nostalgia helps people to realize “what they lack,” and leads people to seek positive things such as social connections, which then fosters an optimistic outlook for the future. It encourages people to be less conservative and to try out multiple new options, which is correlated with openness factor in the Big Five. Openness leads to creativity. This leads to the conclusion that nostalgia can foster creativity.

In the experiment, the researchers randomly assigned 175 undergraduate students to the nostalgia condition and the control condition in experiment one and experiment two. In the nostalgia condition, participants were instructed to think of a nostalgic event in their lives and write down their experiences for 5 minutes. In the control condition, participants were required to remember a normal event in their past and write down the experience. The participants in the control condition rated themselves as feeling less nostalgic compared to individuals in the nostalgic condition. Subsequently, participants received lined papers to write a creative story. In experiment one, participants were required to write a story that included “princess, cat, and race car.” In experiment two, participants were required to write a story starting with “One cold winter evening, a man and a woman were alarmed by a sound.” Both stories tested individual creativity levels. The experiment found a correlation between nostalgia and creativity.

Next, the researchers conducted experiment three, in which participants repeated the procedures in experiment one and two, and then took the 10-item openness to experience subscale and the 12-item creativity scale. Participants in the nostalgic condition scored higher both in terms of creativity and openness. The researchers conducted a mediation analysis and found that the effect of nostalgia on creativity is mediated by openness.

The experiment proved that nostalgia spurs creativity, and that the boosting effect of nostalgia on creativity is mediated by openness to experience.

This study examined the relationship between tested creativity-personality scores and the type of creativity measured during tests [6]. In other words, the experiment tested the question of whether the type of creativity-personality relationship depends on different creativity conceptions or measurement schemes.

Research questions:

#Research question one: How do the personality-creativity relationship differ when creativity is measured through creative potential VS. creative achievement.

#Research question two: How do the personality-creativity relationship differ when adopting self-reported creativity scores VS. external raters of creativity?

#Research question three: How do the personality-creativity relationship differ when different elements of the divergent thinking tests, such as fluency and flexibility, are taken into consideration?

The research revealed that indeed there are correlations between creativity-personality relationships and the ways in which people test individual creativity.

Motivation, the driving force behind people's actions, also seems to be correlated to individual creativity [7]. There are two kinds of motivation: extrinsic motivation and extrinsic motivation. The experiment examined how intrinsic motivation mediated the process through which openness enhances creativity. In the end, it was found that individuals whose actions are driven by intrinsic reasons rather than extrinsic properties seems to exhibit more creative behaviors, and also score higher in divergent thinking tasks.

4. Relation between personality and concentration

This study examined the impact of personality and intelligence on one's proneness to enter flow [8]. The experiment confirmed that proneness for flow was more associated with personality and less with intelligence. There are no apparent associations between intelligence and flow proneness. However, neuroticism was proven to have consistent negative correlations with proneness of flow, and conscientiousness had consistent positive correlations with flow proneness.

In the following study, the researchers re-examined the flow concept and explored its relations with inattention, absorption, and personality [9]. The absorption factor is also a personality trait which had been extensively researched in recent decades.

In previous studies, flow was thought to be a combination of multiple facets, each contributing equally to the success rate of flow. Typical facets of flow include: a balance between challenge and skill, immediate feedback, focused attention, merging of action and awareness, intrinsic motivation, and time distortions. However, "flow is more than the sum of its parts." The main facets of flow mentioned above can be divided into "precursor facets" and the "consequence facets." The precursor facets, when modulated, can lead to variations in the likelihood and the depth of flow, whereas the consequence facets are results of an already induced flow state, such as "distortion in time," and "low self-consciousness." In other words, a high score in one of the consequence factors of flow would not necessarily "cause" higher probability to experience flow. Furthermore, evidence shows that increase in one of the facets did not cause any measurable change in people's performance of flow, that is, "deepness" and "effortlessness" of their concentration levels. In turn, people's description of various feelings and characteristics of their flow experiences rarely included all the facets of flow.

Nowadays more and more scientists are beginning to regard flow as "an emergent property of the nine facets." Therefore, the researcher decided to define flow as a single, core concept known as "deep, effortless concentration." With a more focused definition of the flow concept, scientists developed new measures to test "deep, effortless concentration." Scientists asked a group of students about their concentration levels during different tasks, and whether that concentration is "effortless," which measures flow according to the new definition. The researchers discovered that students were much likely to enter flow when the task at hand was of their own preferences. They enter flow more easily when they are doing something they "want to," not something they "have to."

Scientists used the MAAS-LO scale to measure participant's level of absentmindedness, and the SART scale to measure sustained attention. The Spontaneous Mind Wandering Scale (MWS) and the Deliberate Mind Wandering Scale (MWD) were used to assess the frequency with which people experience mind wandering during tasks. The Swedish Flow Proneness Questionnaire (SFPQ) measures the individual tendency to experience flow during work, when doing chores, and during leisure activities. The Tellegen Absorption Scale (TAS) is used to assess absorption personality.

In terms of Big Five factors and how it correlates to proneness of flow, scientists have found that conscientiousness is a significant positive indicator of flow proneness, while extroversion only vaguely correlates with flow. People with low agreeableness and low neuroticism are more likely to enter states of flow.

Involuntary forms of inattention is significantly negatively correlated with flow proneness, but positively correlated with TAS scores. However, it was proven that inattentiveness is positively correlated with TAS scores. People who score high in absorption factors tend to experience more

flow, and yet these people also score high in inattentiveness, which is negatively correlated with flow proneness. The results of the experiment seems to contradict itself.

As a conclusion, absorption levels and the Big Five factors are all correlated with one's tendency to enter flow. In general, innate personality traits does affect one's ability to experience deep concentration.

The next experiment examined the autotelic personality and the various factors that influence one's likelihood of developing this personality [10]. Individuals with autotelic personality tend to have a greater ability to frequently enter a state of flow by finding a balance between skill and challenge. They are always able to focus on the pieces of information that are just far enough ahead to remain manageable. These individuals often have an inner drive to complete a task, and relies more on intrinsic motivation rather than extrinsic motivation. In addition, "flow" means periods of intense concentration which are referred to as "effortless effort" and "disinterested interest". People with autotelic personalities, because of their talent to consciously match their abilities to various tasks, are more likely to enter flow. Individuals experiencing flow often report decreased self-consciousness, distortion of time, and high efficiency.

Research results show that high consciousness and low neuroticism in the Big Five factors are correlated to autotelic personalities. Individuals high in fear of failure might avoid risky tasks, which makes them avoid skill-challenge balance and prevents them from entering the flow state.

Scientists have developed various ways to measure autotelic personalities. One of the ways is to present participants with questionnaires, asking them the frequency with which they experienced typical flow characteristics. However, the presence of these characteristics doesn't necessarily lead to flow experiences, or proneness for deep concentration. The other method is to distinguish autotelic traits, or proneness to flow, by comparing talented people with non-talented people. It was assumed that autotelic traits might help individuals to better exploit their talents, so talented people are more likely to possess autotelic traits than non-talented individuals. However, autotelic traits does not necessarily lead to flow states. In other words, autotelic traits does not necessarily mean that individuals will better exploit their talents through hyper-concentration. The experience of flow not only depends on innate traits, but also the environment in which the individual lives in. If the environment is not supportive enough, chances are that even individuals with autotelic traits would not be able to develop their talents and become categorized in the "non-talented" group. This method of detecting autotelic personality is also not reliable enough. Compared to its long research history, flow and autotelic personality both has really poor operationalized definitions, and scientists still have a long way to go in perfecting the experiments.

In short, autotelic personality enables individuals to more easily enter flow state. Autotelic personality is also influenced by a lot of factors such as the Big Five factor and Maslow's triangle. So personality do correlates with one's abilities to concentrate and focus.

Because the Five Factor model (FFM) is generated through a lexical approach, so autotelic personality must be a combination of various facets from different factors, and must fall within the context of the FFM. This means that possible correlations can be found between autotelic personality and certain dimensions of the FFM [11].

According to research, autotelic personality is positively correlated with extroversion and conscientiousness, and is negatively correlated with agreeableness and neuroticism. This conclusion reinforces the topic that personality does affect one's likelihood of entering the flow state, or experiencing intense concentration.

5. Conclusion

According to the above researches, it can be stated that creativity and concentration levels are both correlated with individual personality. Studies from both context experienced difficulties in terms of definition and measurement. When testing creativity, there were different types of creativity tasks that tested divergent thinking skills, story-generating abilities, and creative accomplishments in real

life. When only testing one facet of creativity, such as verbal fluency, or the speed at generating new ideas, creativity is positively correlated to extroversion. However, when testing figural divergent thinking tasks instead of verbal divergent thinking tasks, extroversion was not confirmed of having any correlations with creativity. This suggests that extroversion is correlated to creativity in certain contexts. However, the openness/intellect factor is consistently correlated with creativity, regardless of the forms of the creativity tests. When testing facets of concentration, researchers faced difficulties with defining the flow process. They also weren't able to directly detect flow, especially internal flow. Regarding flow as "deep, effortless concentration" instead of the combination of multiple factors helped to some degree in accurately measuring flow. Researchers found that flow proneness was correlated with conscientiousness and neuroticism of the Big Five personality traits. Also, higher absorption scores indicated higher levels of flow proneness. Research results also showed that concentration was exclusively related to personality, while creativity was both related to intelligence and personality, since the openness facet in the Big Five factor is originally called openness/intellect.

One of the major problems about these studies is that each researcher used different scales and methods to measure creativity and flow proneness. The psychologists failed to reach a consensus for psychological definitions such as "flow", which caused varying research methods and diverse conclusions. In future research, psychologists would need to do a meta-analysis on the various definitions of creativity and concentration used during previous experiments, and divide the research papers according to various definitions. They would also have to make clear what specific qualities different scales measure to minimize the inconsistency caused by the use of various scales and diagrams.

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