The Dual-Factor Model of Creativity and its Relationship with Conformity

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Abstract

Research that has investigated the relationship between creativity and conformity has provided mixed results. The present study aims to address discrepancy by conducting a more complex investigation of this relationship. Therefore, the current study examined the relationship between creative potential and conformity while also exploring the relationship between creative achievement and conformity. This study also aimed to examine whether creative potential and/or creative achievement predicts conformity. It was hypothesised, that creative potential and creative achievement would both have a significant association with conformity. Furthermore, it was hypothesised that both creative potential and creative achievement would predict conformity. Participants were recruited through social media using convenience sampling (N=73) and completed an online survey that involved a demographics section, the Conformity Scale, the Creative Personality Scale, and the Creative Achievement Questionnaire. Results showed that while creative potential has a small, negative association with conformity, creative achievement had no association with conformity. Furthermore, creative potential did predict conformity, but, creative achievement did not. This study indicates that the main factor of creativity that influences the relationship between creativity and conformity is creative potential. These findings suggest that future research should utilise the dual-factor model of creativity (creative potential and creative achievement) when investigating the relationship between conformity and creativity.

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Introduction

During the 1950s and 60s, psychologists argued that the social phenomenon of conformity was diametrically opposed to the personality trait of creativity (Barron, 1953; Barron, 1955; Crutchfield, 1955; Birney & Houston, 1961). However, more recently, a new argument has emerged which suggests that conformity may enhance creativity in certain conditions (Kaplan et al., 2009; Goncalo & Guguid, 2012; Okada & Ishibashi, 2016; Magni & Manzoni, 2020). This newly posited relationship suggests that societal institutions, such as education, that are moving more towards creativity-based structures may benefit from harnessing conformity to aid the creative process (Donnelly & Barrett, 2008; Tan Seng, 2015; O'Brien, 2019). However, there are still gaps in our understanding of the relationship between creativity and conformity. Overall, there is a lack of research that examines this relationship and a large portion of the studies that have been conducted have significant methodological flaws. These gaps must be addressed to understand this area more clearly as these two constructs are arguably the two primary contributors to human evolution and progress (Morgan & Laland, 2012; Montuori, 2017; Fuentes, 2017). Perhaps now more than ever, with threats of climate change, political unrest, and overall global destruction looming, understanding the relationship between creativity and conformity is paramount. Before delving into the literature examining this relationship, however, let us first take a look at the two constructs individually.

Conformity

Conformity is the tendency of a person to change their behaviour to mirror another person (Cialdini & Goldstein, 2004). Early studies of conformity included Asch's line experiment and Sherif's autokinetic experiment (Asch, 1951; Sherif, 1935). These studies both demonstrate how an individual's perception can be altered due to the voiced perception of others. In other words, these studies demonstrate that in situations where a person is unsure

of the answer, they may look to others for guidance and conform to group response. This type of conformity is known as informational conformity. In 1955, Deutsch and Gerard identified a second type of conformity known as motivational influence. Here, an individual will mirror others to gain group acceptance, regardless of whether they believe the information they are repeating is correct.

Research has demonstrated children will develop conforming behaviours at around the age of six (Sun & Yu, 2016). Following this development, their levels of conformity will increase from the preadolescent age (7-9) until the adolescent stage (11-13), and from here will then decrease when moving through the late adolescent stage (15-17) and early adulthood (19-21) (Costanzo & Shaw, 1966). A study conducted by Pasupathi (1999), showed that from the early adulthood stage conformity will continue to decline throughout the lifespan with the ages represented in this study ranging from 18 to 85. There are studies however that contradict the conformity trends represented by the research cited above. One such study conducted by Walker & Andrade (1996), demonstrated that not only can conformity be found in children as young as 3, but conformity is highest at the age of 3 and will decline steadily until late adolescence. These contradictory findings may be a result of the use of different tasks used to measure conformity. While Walker & Andrade (1996) utilised the original Asch line experiment, Sun & Yu (2016) used a task based on the participants' rating attractiveness of models. This distinction of tasks may point towards a difference in the types of conformity demonstrated in each study. The use of Asch's line experiment indicates that the results found in the Walker & Andrade (1996) study represent informational influence. While the results from the Sun & Yu (2016) study may represent motivational influence as the task does not contain correct and incorrect answers. Therefore, the participants would only conform to gain group acceptance rather than to acquire a correct answer.

Research has also investigated differences in levels of conformity amongst individualistic cultures and collectivist cultures. These studies found that people from collectivist cultures were significantly higher in levels of conformity than people from individualistic cultures (Hofstede, 1980; Triandis, 2001; Oh, 2013). This social phenomenon can be explained through many traits of collectivism such as social norms and rigid societal roles as these cultural pillars require a significant level of conformity to maintain (Hofstede & Bond, 1984). These findings would infer, that studies measuring conformity may find discrepancies in results based on the predominant cultural background featured in the sample.

The basis of conformity is highly debated in the literature with multiple different theories providing evidence for the origins of the construct. The original researchers of conformity approached it as a purely social phenomenon therefore one of the earliest theoretical frameworks for conformity was the social impact theory (Latane, 1981). This theory posited that social influence was a force similar to one of a physical nature such as gravity. This force is said to be influenced by the strength and immediacy of the source of social influence and the number of sources of social influence. While this theory does account for the findings in the early studies of Asch and Sherif, the situations that participants were placed into in these studies are not entirely ecologically valid. These studies had confederates give incorrect answers that were clearly incorrect and while this demonstrates conformity in this carefully crafted setting, it does not explain conformity as it appears in the context of evolution.

The cultural evolution model suggests that conformity evolved in humans as a method of learning information by mirroring others and adopting the majorities' ideas and decisions (Boyd & Richerson, 1985). This model fits well with the idea of informational conformity as it is based on using conformity to acquire knowledge. However, there is some evidence to suggest that the cultural evolution model may also account for motivational conformity. It

has been suggested that humans evolved to use conformity to adapt to ingroup behaviours and mannerisms to gain acceptance into the said group (Richerson & Boyd, 2005; Kendal, Giraldeau, & Laland, 2009). Overall, both conformity theories described here contribute to the knowledge around conformity. While the cultural evolution model provides the basis and origins of conformity, the social impact highlights the specific ways in which conformity can be manipulated and the specific conditions that increase or decrease conformity. Given the benefits of conformity to humans highlighted in the cultural evolution model, it is surprising that we have also developed ways to express our individuality and differences. One way we achieve this is through creativity.

Creativity

One of the early explorations of creativity was in Wallas' book, The Art of Thought (Wallas, 1926). Wallas attributed creativity to evolution, claiming it allowed humans to be adaptable when facing new challenges and environments. The evolutionary basis of creativity was also supported by Simonton (1999) who cited multiple human and animal studies in his book. Simonton attributed the development of creativity to sexual selection, stating that humans who engaged in creativity had greater chances of reproducing. This claim was supported and expanded on by Gabora & Kaufman (2010) who claimed that humans who engaged in creativity had enhanced survival and therefore greater reproductive fitness. An example of creative output in early humans that enhances survival would be the development of weapons to hunt and defend themselves from predators. However, this basis of creativity does not account for expressions of creativity that do not directly enhance survival such as art, music, and humour. Mithen (2006) provided evidence in his book The Singing Neanderthals: The Origins of Music, Language, Mind, and Body, that certain forms of singing were significant in creating and maintaining social relationships in early humans as the melodies would manipulate emotions. This gives a possible explanation for this type of

creativity being evolved for the purpose of group bonding. However, while the evolutionary basis of creativity seems to account for most aspects of creativity, it has been contested by researchers who claim creativity is mediated and constructed by society and culture.

A group of 20 researchers and theorists in the field of creativity constructed a manifesto that contained multiple principles about creativity as a construct (Glaveanu, et al., 2019). These principles posited a sociocultural view of creativity as they suggested that creativity is a social phenomenon that is culturally mediated. Elisondo (2016) carried out a study that supports the claims within the sociocultural basis of creativity and explored the specific social and cultural mediators of creativity. It was found in this study that creativity was predominantly influenced by individuals' social interaction with peers, colleagues, family, and professors and that these interactions would enhance their creative process and output. These results were found in both the general population and a small group of prominent figures who have received national or international recognition for their work in a creative domain. However, while this study does present support for sociocultural factors mediating creativity, it does not provide evidence to suggest that creativity is a socially constructed phenomenon. Therefore, it is possible that similar to conformity, the origins of creativity can be explained through evolution but, the creative process and output of any given individual are heavily influenced by the sociocultural factors that surround them.

Some research has suggested that creativity decreases over the lifespan with one study finding that school children will increase in certain aspects of creativity (Curiosity, Complexity, Risk-taking, and Imagination) as they move from 4th grade to 9th grade (Claxton, et al., 2005). Another study found that creativity will decrease between early adulthood and old adulthood but also, that other factors can affect this trajectory such as their educational goals and social roles (Ruth & Birren, 1985). However, a systematic review conducted by Restrepo et al., (2019) found that the research on the relationship between age

and creativity is not clear and there is a significant amount of research suggesting that creativity increases with age, significant amounts that suggest it decreases with age, and some suggesting there is no relationship between age and creativity. This discrepancy is likely a result of these studies using a wide variety of methods for measuring creativity such as scales, interviews, and tasks. As well as this, most of these studies measure a specific age group or a small number of age groups which will not result in a clear picture of the relationship between creativity and age over the entire lifespan. However, if creativity does in fact increase with age until early adulthood and then slowly decrease from then on, this could suggest that there is a negative association between creativity and conformity. Research cited earlier suggests that conformity follows the exact opposite trajectory to creativity concerning age.

The Relationship Between Conformity and Creativity

Understanding the relationship between conformity and creativity is significant to the advancement of psychological research in an area that lacks consensus, the development of theory, and society overall. Early theorists and researchers posited that creativity and conformity are diametrically opposed based on studies that investigated the relationship between the two constructs (Barron, 1953; Barron, 1955; Crutchfield, 1955; Birney & Houston, 1961). Research that examined personality correlates with each of these variables also supports this position, as it found creativity to be positively related with extraversion and openness to experiences (Furnham & Bachtiar, 2008), and conformity being negatively associated with both of these variables (DeYoung, Peterson, & Higgins, 2002). As well as this, conformity has been found to be positively associated with emotional stability, agreeableness, and conscientiousness while no association between creativity and these three traits has been found (Furnham & Bachtiar, 2008; Furnham, et al., 2008). However, more

recent research has suggested that conformity and creativity can be positively related to each other under certain conditions.

One study found that conformity is positively related to creativity in individuals who score higher in conscientiousness (Magni & Manzoni, 2020). Other studies have found that when individuals conform to a set of guidelines or structure, their creative output is at a greater standard, as opposed to having no guidelines at all and complete creative freedom. (Kaplan, Brooks-Shesler, King, & Zacaro, 2009; Okada & Ishibashi, 2016). While this research does not directly contradict the research that suggests a negative association between conformity and creativity, it does provide a more complex view of the relationship between these two constructs. Creativity may be enhanced when individuals are in an environment that encourages a specific balance of conformity and creative freedom. However, while this may be the case, there is very little research on this topic and the research that does exist lacks overall consensus around the nature of the relationship between conformity and creativity. This makes it difficult to establish a comprehensive theory on how these two constructs relate to each other.

Problems with Previous Research on The Relationship Between Conformity and Creativity

Overall, the research investigating the relationship between conformity and creativity lacks unanimity in its findings. Some studies have found a positive relationship between the two variables, some have found a negative relationship, and others found no significant relationship at all. Through extensive investigation of this literature, three main methodological flaws have been identified which may be contributing to the discrepancy in results: lack of generalisability of participant groups, use of categorical measures, and a lack of clarification on what type of creativity was being measured.

The most common methodological flaw within the studies in this area is a lack of generalisability of participant groups and this can be seen in studies ranging from some of the earliest studies on conformity and creativity to the studies conducted in recent years. These early studies used all-male samples which are not generalisable across gender (Barron, 1953; Birney & Houston, 1961), as well as one study which utilised an all-male sample of US Air Force Pilots which is even less generalisable than the general male samples (Barron, 1955). These studies found a strong negative correlation between conformity and creativity. Later studies did address this lack of generalisability in relation to gender, however, these studies focused on school children which creates an issue of generalisability around age (Yamamoto & Genovese, 1965; Kaltsounis & Higdon, 1977; Rosenthal & Conway, 1980). No significant relationship was found between creativity and conformity in these studies. One later study did find that creativity in school children is negatively associated with conformity (Guncer & Oral, 1993). However, these results were based on teachers' perceived conformity of their students which may not be generalisable to an individuals' overall level of conformity across all environments.

The second methodological flaw identified was also featured in a study focused on school children which found that either extremely high or extremely low conformity resulted in low creativity (Hook & Tegano, 2002). As well as this study only being generalisable to school children, the reason for the results found is likely as a result of the use of a categorical measure for conformity. Participants could only be categorised as either high conformity or low conformity which may have led to misrepresentation of participants' results. This study also highlighted the final methodological flaw which spans most of the research in this area which is the lack of clarification on what type of creativity is being measured. Hook & Tegano (2002) did clarify that in their study they were specifically measuring creative potential which was the first time that the dual-factor model of creativity was highlighted in

this area of research. This model is made up of both creative potential and creative achievement.

Creative Potential and Creative Achievement

Creative potential and creative achievement were first highlighted by Eysenck (1993) in his creativity theory. Eysenck described the dynamic between the two variables as creative potential being the personality trait for creativity and creative achievement being the external awards and accolades that someone has achieved through utilising their creative potential in certain creative fields. Research into creativity previous to this theory focused on a generalised trait of creativity which was examined using mostly personality-based measures (Rosen, 1955; Torrance, 1974).

Studies have shown that creative potential can be predicted by the personality trait openness to experience (McCrae, 1987; Leung & Chiu, 2008), which is categorised by the sub-traits such as imaginative, flexible, and inquisitive. Similar to creative potential, creative achievement can be predicted by the personality trait of openness to experience (Helson, Roberts, & Argonick, 1995). Studies have displayed that certain personality traits such as general intelligence, emotional intelligence, and emotional creativity mediate the successful application of creative potential to reach higher levels of creative achievement (Sordia, Martskvishvili, & Neubauer, 2019; Jauk, Benedek, & Neubauer, 2013). Creative achievement also follows a highly skewed distribution with the majority of the population showing low levels of creative achievement and a very small minority displaying high creative achievement (Eysenck, 1995).

While some studies have investigated creative potential and conformity together, no study has investigated both creative potential and creative achievements' relationship to conformity. In doing so, a more accurate picture of how each of these variables relates to conformity would be achieved as the measure of conformity would be standardized and the

participants would have all taken part in the study under the same conditions. Furthermore, this would allow for a more comprehensive understanding of the relationship between conformity and creativity overall as the specific factor/factors of creativity that mediate its relationship to conformity would be identified.

The Current Study

Previous research has investigated the relationship between creativity and conformity only to find varying results. Some studies found a strong negative relationship, some found a strong positive relationship, and others found no significant relationship at all. As well as this, these studies used samples that either only applied to school children or only applied to male adults. Only one of these studies by Hook and Tegano (2002), clarified that they were specifically measuring creative potential rather than stating that they were measuring general creativity. No study has specified their creativity variable to be creative achievement and therefore no study has measured both creative potential and creative achievement against conformity. Furthermore, no study to date has investigated causality within the relationship between creativity (or creative potential and creative achievement) and conformity.

Therefore, the present study aims to provide a greater understanding of the relationship between creativity and conformity. This study aims to investigate the relationship between creative potential and conformity. This study also aims to investigate the relationship between creative achievement and conformity. Finally, this study aims to investigate how creative potential and/or creative achievement predict conformity. These research aims result in the following research questions and hypotheses:

Research Question 1: Is there a relationship between creative potential and levels of conformity? Hypothesis for Research Question 1: There will be a significant relationship between creative potential and conformity.

Research Question 2: Is there a relationship between creative achievement and levels of conformity? Hypothesis for Research Question 2: There will be a significant relationship between creative achievement and conformity.

Research Question 3: Will creative potential predict levels of conformity? Hypothesis for Research Question 3: Creative potential will predict levels of conformity.

Research Question 4: Will creative achievement predict levels of conformity? Hypothesis for Research Question 4: Creative achievement will predict levels of conformity

Method

Participants

The original sample within this study consisted of 75 participants between the ages of 18-70. However, two of these participants had to have their data redacted from their study as some of their responses were inconsistent with other responses they had given within the study. Therefore, a final sample size of 73 participants was used. Convenience sampling was utilised to recruit participants for the study via the researcher's social media accounts (Instagram and Snapchat). Participants were required to provide informed consent before taking part in the study. The sample comprised mostly of females (48), followed by males (23), and then the "other" category (2) respectively. The "other" category consisted of one individual who identified as Non-Binary (They/Them) and another individual who identified as human. The mean age of the sample was 35.96 (SD = 16.56) with a range of 18-67.

Measures

Demographics

Participants were asked to provide their age and indicate their gender using the options of male, female, and other. If participants selected other for gender, they were able to specify their gender identity in a text box. See Appendix I for further detail.

The Conformity Scale

The Conformity Scale (Mehrabian & Stefl, 1995) was utilised to determine how much an individual engages in conformity. This scale is an 11-item self-report measure and required participants to read statements pertaining to themselves and indicate their agreement or disagreement with the accuracy of the statement. This was facilitated via a 7-point Likert scale from 1 (Not at all true of me) to 7 (Extremely true of me). Items 2, 7, 9, and 11 were reverse scored. An example of one of the positively scored statements is as follows: I often rely on and act upon, the advice of others. An example of one of the reverse-scored

statements is as follows: I would be the last one to change my opinion in a heated argument on a controversial topic. Each individual score is computed by adding up the answers to all 11 items. The highest achievable score is 77 and the lowest is 11. If an individual has a higher score this indicates that they are more conforming. The scale has been found to have satisfactory reliability as the original Cronbach's alpha score is 0.77 (Mehrabian & Stefl, 1995). As well as this, the reliability score for the current study was also satisfactory (α = .71). See Appendix II for further detail.

The Creative Personality Scale

The Creative Personality Scale (Gough, 1979) was used to determine individuals' inherent creative potential. This scale is a 30-item self-report measure and required participants to read a list of adjectives, tick the ones that they felt described themselves, and leave blank the ones that they felt did not describe them. 12 of the adjectives were reverse-scored and some examples of these adjectives are as follows: Artificial, Cautious, and Conventional. Some examples of the positively scored adjectives are as follows: Capable, Original, and Egotistical. Each individual score is computed by adding up the values of the adjectives ticked by the participant. The highest achievable score is 18 and the lowest is -12. If an individual has a higher score this indicates that they have higher creative potential. The original Cronbach's alpha score for this scale was generally found to be between .73 and .81 (Gough, 1979). The Cronbach's alpha for the current study was not obtained due to the data for this particular questionnaire being presented as one large variable, rather than a series of individual scores that can be computed into one total score. See Appendix III for further detail.

The Creative Achievement Questionnaire

The Creative Achievement Questionnaire (Carson, Peterson, & Higgins, 2005) is a self-report measure that was utilised to determine individuals' level of achievement in domains of creativity. This is divided into two sections: Section 1 and Section 2.

Section 1: This section contains a list of 13 domains of creativity that are to be ticked if feel you have more talent, ability, or training than the average person. Some examples of these domains are as follows: Visual Arts (painting, sculpture), Music, and Dance.

Section 2: This section contains statements that are categorised into 10 of the 13 domains listed in Section 1. Each domain has 7 statements which are worth the number of points represented by the number beside the statement. For example, in the Visual Arts domain, the first statement is as follows: 0. I do not have training or recognized talent in this area. (Skip to Music). The second statement in the Visual Arts domain is as follows: 1. I have taken lessons in this area. Statements marked with an asterisk have an additional follow up question which asks how many times the corresponding statement has occurred in your life. An example of one of these statements taken from the Visual Arts domain is as follows: *7. My work has been critiqued in national publications. The total score for this statement is calculated by multiplying the number beside the statement (In this case it is 7 points) by the number of times that has been indicated in the follow-up question. Each individual score is computed by adding up the scores from all ten of the domains listed in Section 2. The lowest score that can be achieved in this scale is 0 and there is no set highest achievable score because of the multiplication aspect of the scoring method mentioned earlier.

The following statement was missing from the current study due to an error on behalf of the researcher: My musical talent has been critiqued in a local publication. This statement was part of the music domain and was worth 4 points. The implications of this missing statement will be explored further in the discussion section of the paper. The original reliability score for this scale is .96 (Carson, Peterson, & Higgins, 2005). The Cronbach's

alpha score of the current study is (a). For the same reasons as the creative personality scale, the Cronbach's alpha for the current study was not obtained due to the nature of the data. See Appendix IV for further detail.

Design

The research design of the current study is a cross-sectional design as all data was collected at one specific point in time. This study was also quantitative therefore survey research was utilised to collect this data. The first and second hypotheses were assessed using Spearman's Rho correlations. The first correlational analysis examined the association between conformity and creative potential and the second correlational analysis examined the association between conformity and creative achievement. The third hypothesis was assessed using a simple linear regression which contained one criterion variable (CV) in conformity and one predictor variable (PV) in creative potential.

Procedure

Data was collected through an anonymous online questionnaire hosted by Google Forms. The questionnaire was accessible via a link posted on the researcher's social media account (Instagram). When a participant decided to take part in the research and access the questionnaire, they would first be provided with an information sheet that explained the study itself, the participant's involvement in the study, their right to withdraw at any point before submission of their data, the risks and benefits of the study, confidentiality around their data, and the use of the result of the study. It also contained an approximation for the amount of time it would take to complete the study which was 15 minutes. See Appendix V for further detail. Once they had read the information sheet, they were then required to tick a box that indicated that they understood all aspects of the information sheet and based on that are providing informed consent to participate in the research. If they did not tick this box, they could not access the next part of the study which is the questionnaire section.

In the questionnaire section, the participants were required to complete three separate questionnaires as well as a short demographics section in the following order: Demographics Section, The Conformity Scale, The Creative Personality Scale, and The Creative Achievement Questionnaire. Once they had completed all aspects of the questionnaire section of the study, they proceeded to the Debriefing Section.

The Debriefing Section reiterated to the participants how their data would be used for the current research and that their data could not be withdrawn or used to identify them as it was anonymised. The contact details of the researcher and the researcher's supervisor were also attached in this section as well as links to mental health services such as HSE Mental Health Services, Mental Health Ireland, and Spectrum Mental Health. See Appendix VI for further detail.

Results

The sample for the current study was collected from (73) participants. As can be seen in Table 1, the participants were categorised based on gender. In this study the majority of participants were female. The category for other was made up of one participant who identified as Non-Binary (They/Them) and another who identified as human.

Table 1

Descriptive statistics for categorical variables of gender. (n=73)

Variable	Frequency	Valid %
Gender		
Females	48	65.8%
Males	23	31.5%
Other	2	2.7%

Descriptive statistics for each measured variable in the current study are presented in Table 2. Preliminary analyses indicated that the continuous variables of age, conformity, and creative achievement violated the assumption of normality. All three of these variables violated the Kolmogorov-Smirnov test of normality as the significance level for these variables were under .05. While the histograms and q-q plots for age and creative achievement clearly violated normality, the histogram and q-q plot for conformity seemed to follow somewhat of a normal trend. Therefore, the boxplot for conformity was inspected and displayed multiple outliers which are most likely the reason for the violation of normality for this variable.

Table 2

Descriptive statistics of continuous variables of age, conformity, creative potential, and creative achievement. (n=73)

Variable	*M[95%CI]*	*SD*	Range
Age	35.96[32.09-39.82]	16.56	18-67
Conformity	37.89[35.88-39.90]	8.6	19-62
Creative Potential	3.59[2.77-4.40]	3.5	-5-11
Creative Achievement	12.97[7.84-18.10]	22	0-150

The relationship between creative potential and conformity was investigated using a Spearman's Rank Order correlation coefficient. There was a small, negative correlation between the two variables ($r = -.23$, $n = 73$, $p = .047$). Results indicate that higher levels of creative potential are associated with lower levels of conformity.

The relationship between creative achievement and conformity was investigated using a Spearman's Rank Order correlation coefficient. There was no significant correlation between the two variables ($p = .283$). Results indicate that there is no relationship between creative achievement and conformity.

To investigate whether creative potential predicts conformity a simple linear regression was conducted. The predictor was creative potential and the outcome was conformity. The predictor variable was found to be statistically significant [B = -.78, C.I. (-1.33 - -.22), $p = .007$], indicating that for every one unit increase in creative potential, conformity changed by -.78 units. The model explained approximately 9.9% of the variability [R-squared = .099]. Therefore, the null hypothesis is rejected and the alternative hypothesis is retained.

To summarise, there is a significant negative correlation between creative potential and conformity, and there is no correlation between creative achievement and conformity. Creative potential does predict conformity however, creative achievement does not predict conformity. Creative potential explains 9.9% of the variance in conformity.

Discussion

In the current study, the association between conformity and creativity was explored. This study aimed to provide a greater understanding of the relationship between conformity and creativity by examining how two specific factors of creativity (creative potential and creative achievement) relate to conformity. This study also sought to investigate the degree to which creative potential and/or creative achievement predict conformity.

The first hypothesis was supported as results showed that creative potential had a small, negative association with conformity, which indicates that individuals who had higher creative potential were lower in conformity. The second hypothesis was not supported as results showed that creative achievement was not significantly correlated with conformity. The third hypothesis was supported as results showed that creative potential did predict conformity. Creative potential accounted for 9.9% of the variance in conformity. The fourth hypothesis was not supported as results indicated that creative achievement was not predictive of conformity.

Findings are somewhat consistent with previous research which has suggested that conformity has a negative association with creativity (Barron, 1953; Barron, 1955; Birney & Houston, 1961; Guncer & Oral, 1993). As no previous study has differentiated between creative potential and creative achievement it is not directly clear how the findings of the current study relate to previous research. However, in the current study, creative potential was found to have a negative association with conformity, which may indicate that creative potential is the significant factor within the general variable of creativity that dictates the relationship between creativity and conformity. This result is not consistent with the one other study that investigated the relationship between creative potential and conformity (Hook & Tegano, 2002). However, this is most likely as a result of the use of categorical measures in this study which categorised participants as either being in the high conformity

group or low conformity group. Therefore, the results cannot be explicitly compared to the results of the current study. Furthermore, as creative achievement was found to have no significant relationship with conformity, it may be the case that creative achievement does not affect the relationship between general creativity and conformity. At the time of the current study, there is no other research that has investigated the relationship between creative achievement and conformity. Therefore future studies should aim to fulfil this research gap to build upon the findings of the current study.

The issue of a lack of research also applies to the prediction results of this study. It was found that creative potential did predict 9.9% of the variance in conformity and while there are no other studies that investigated this specific dynamic, this result can be compared to other personal predictors of conformity. Deyoung et al., (2002) found that the big five personality traits of emotional stability, agreeableness, conscientiousness, extraversion, and openness explained a total of 34% of the variance in conformity. Considering that all five traits were predictive of conformity, the findings of the current study are quite significant as one trait was found to explain almost a third of the amount of variance explained by the entire big five personality model in the study by Deyoung et al., (2002).

Implications

Findings obtained in the current study have significant implications for research domains, theory development, and society overall. Importantly, the findings in the current study highlight the requirement for a distinction between creative potential and creative achievement in creativity research. Results indicate that these two factors of creativity have different relationships with conformity which stresses the importance of this differentiation as, without it, the findings of future studies cannot be interpreted accurately. For example, future studies which have found creativity to have no association with conformity may be measuring creativity in a manner that is predominantly or entirely focused on creative

achievement rather than general creativity. Furthermore, as the current findings suggest that it is optimal to adopt the dual-factor approach to creativity research, this also indicates that investigating a general creativity construct may not be useful to obtain accurate findings in future research.

The findings of the current study have important theoretical implications which are closely linked to the research implications explored above. The separation of creativity as a construct into the categories of creative potential and creative achievement is a relatively new theoretical advancement (Kozbelt, Beghetto, & Runco, 2010). While some studies have adopted this categorisation in creativity and conformity research (Hook & Tegano, 2002), they are in the very small minority. This indicates that while the theory for the dual-factor model of creativity has been established, it has not been established as a theoretical base for creativity and conformity research. However, the findings of the current study should contribute to the strength of the dual-factor theory and in doing so, establish this theoretical model as the base for all creativity and conformity research.

The findings of the current study have significant societal implications, which are broader than the other implications discussed earlier. The relationship between creativity and conformity if well understood can be utilised in several societal institutions. Firstly, the fostering of creativity in educational settings is one of the most important aspects of education overall (Ryhammar & Brolin, 1999; Jeffrey & Craft, 2001). Creativity is a necessary component for learning and composing new ideas in school environments (Karwowski, et al., 2020), and is positively associated with higher academic achievement (Gajda, et al., 2016). However, creativity alone as a driving force for learning and education has its limits and this is where the relationship between creativity and conformity has its significance. While creativity should be fostered and influenced by educators, a degree of structure based on previously established knowledge is key to allowing the creative output to

develop into a solid, comprehensible, and understandable form (Craft, 2003). Furthermore, adhering to these established structures requires a certain level of conformity (Schimmelpfennig, et al., 2021). Research has shown that this dynamic between creativity and conformity also applies to business settings (Okada & Ishibashi, 2016), and artistic settings (Kaplan, et al., 2009). The findings of the current study contribute to the literature around the relationship between creativity and conformity and in doing so provide support for the existing studies on how the creativity and conformity relationship can be utilised in societal institutions. Furthermore, more research should be established to investigate whether the trait of conformity mediates the relationship between creative potential and creative achievement as has been demonstrated in a very small number of previous experimental studies (Kaplan, et al., 2009; Okada & Ishibashi, 2016).

Strengths and Limitations

The current study identifies multiple limitations. First, there was one missing item from the creative achievement questionnaire for all participants. This item was a statement that was worth 4 points in the music domain. This error indicates that overall scores for individuals whose creative achievement heavily involved music would be lower. While this difference is will have impacted the analysis to a certain degree, as the range of scores was quite large, a factor of 4 points mostly likely did not impact the analysis of the relationship between creative achievement and conformity.

Second, the distribution of creative achievement is heavily skewed in the general population (Carson, et al., 2005). The trend of creative achievement follows an inverted “J” shaped curve which indicates that only a small minority of individuals will score high in this construct and most people will score very low scores or even 0. Furthermore, obtaining a representative sample of individuals who demonstrate this distribution (especially at the high end of scores) requires a significantly large sample size. While this study did exceed the

recommended sample size based on Tabachnick & Fidell's (2019) sample size formula, future research that utilises the creative achievement questionnaire should aim for a much larger sample size to obtain a more representative sample.

Third, every measure utilised in the current study was a self-report scale and this introduces the possibility of self-selecting bias in participants. This indicates that individuals' answers may have been influenced by how they view themselves or how they want to be perceived rather than an accurate view of themselves. As well as this, the creative achievement questionnaire asks participants to list their creative accolades and as most of the population score low on this scale, it is possible that participants may have exaggerated their creative achievements as a result of being embarrassed by their lack or perceived lack of creative accolades. To address this limitation, future research may benefit from employing an experimental research design to limit self-selecting biases as this has been conducted successfully in a limited amount of previous research (Kaplan, et al., 2009; Okada & Ishibashi, 2016).

Finally, as stated earlier, it was not possible to calculate the Cronbach's alpha reliability scores for the creative personality scale and the creative achievement questionnaire in the current study as the data for each of these measures was presented as one variable rather than a set of individual scores that can be computed into a total score. Future studies that utilise these measures should take the precaution that the format in which your questionnaires are set up will allow for distinct scores that can be computed and in doing so, allow for a calculation of Cronbach's alpha reliability scores.

This study did have multiple strengths as well as limitations. First, the present study expands upon previous literature in a novel way. While previous studies have investigated the relationship between creativity and conformity using a general creativity construct. The current study separated creativity into creative potential and creative achievement which

allowed for a more complex analysis of the relationship between creativity and conformity. This approach did prove to be beneficial as creative potential was found to have an association with conformity, however creative achievement was not found to be associated with conformity. This is the first time these findings have been identified in the research area.

Second, this study obtained a far more generalisable sample than previous studies in this area. Research investigating the relationship between creativity and conformity to date have utilised very specific samples such as school children (Yamamoto & Genovese, 1965; Kaltsounis & Higdon, 1977; Rosenthal & Conway, 1980; Guncer & Oral, 1993), male adults (Barron, 1953; Birney & Houston, 1961), and all-male samples specific to one occupation (US Air Force Captains) (Barron, 1955). This study addressed this lack of generalisability and utilised a sample of individuals including all genders and with an age range of 18-70.

Conclusions

Overall, the current study provides evidence that the negative relationship that has been found between creativity and conformity in the existing literature is due to an association between creative potential and conformity but not as a result of an association between creative achievement and conformity. The current study contributes to previous literature by examining both factors of creativity. As this study is the first of its kind in that it examined both creative potential and creative achievement concerning conformity, it is difficult to compare it to previous literature. However, it highlights the need for future creativity and conformity research to focus on both creative potential and creative achievement as individual constructs. Furthermore, this future research is essential to understanding how the relationship between creativity and conformity can be harnessed to improve the fostering of creative output in education, businesses, and the arts.

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Appendices

Appendix I

Demographics Section

Please state your age

Please indicate your gender

- Male
- Female
- Other

If you selected other for gender please specify

Appendix II

Conformity Scale

Please use the following scale to indicate the degree of your agreement or disagreement with each of the statements below. Select your answer to each statement by clicking one of the seven options provided for each statement. Try to describe yourself accurately and generally (that is, the way you are actually in most situations ~ not the way you would hope to be).

(1 = *Not At All True of Me*, 7 = *Extremely True of Me*)

1. I often rely on, and act upon, the advice of others.
2. I would be the last one to change my opinion in a heated argument on a controversial topic.*
3. Generally, I'd rather give in and go along for the sake of peace than struggle to have it my way.
4. I tend to follow family tradition in making political decisions.
5. Basically, my friends are the ones who decide what we do together.
6. A charismatic and eloquent speaker can easily influence and change my ideas.
7. I am more independent than conforming in my ways.*
8. If someone is very persuasive, I tend to change my opinion and go along with them.
9. I don't give in to others easily.*
10. I tend to rely on others when I have to make an important decision quickly.
11. I prefer to find my own way in life rather than find a group I can follow. *

* Reverse-Scored Items

Appendix III

Creative Personality Scale

Please indicate which of the following adjectives best describe yourself.

Check all that apply.

_____ Capable	_____ Honest
_____ Artificial	_____ Intelligent
_____ Clever	_____ Well-mannered
_____ Cautious	_____ Wide interests
_____ Confident	_____ Inventive
_____ Egotistical	_____ Original
_____ Commonplace	_____ Narrow interests
_____ Humorous	_____ Reflective
_____ Conservative	_____ Sincere
_____ Individualistic	_____ Resourceful
_____ Conventional	_____ Self-confident
_____ Informal	_____ Sexy
_____ Dissatisfied	_____ Submissive
_____ Insightful	_____ Snobbish
_____ Suspicious	_____ Unconventional

Scoring Key:

___+___ Capable	___-___ Honest
___-___ Artificial	___+___ Intelligent
___+___ Clever	___-___ Well-mannered
___-___ Cautious	___+___ Wide interests
___+___ Confident	___+___ Inventive
___+___ Egotistical	___+___ Original
___-___ Commonplace	___-___ Narrow interests
___+___ Humorous	___+___ Reflective
___-___ Conservative	___-___ Sincere
___+___ Individualistic	___+___ Resourceful
___-___ Conventional	___+___ Self-confident
___+___ Informal	___+___ Sexy
___-___ Dissatisfied	___-___ Submissive
___+___ Insightful	___+___ Snobbish
___-___ Suspicious	___+___ Unconventional

-12 to +18

Appendix IV

Creative Achievement Questionnaire

I. Place a check mark beside the areas in which you feel you have more talent, ability, or training than the average person.

___ Visual Arts (painting, sculpture)

___ Music

___ Dance

___ Individual Sports (Tennis, Golf)

___ Team Sports

___ Architectural Design

___ Culinary Arts

___ Entrepreneurial Design

___ Creative Writing

___ Humour

___ Inventions

___ Scientific Inquiry

___ Theatre and Film

II. Place a check mark beside sentences that apply to you. Next to sentences with an asterisk (*), write the number of times this sentence applies to you.

A. Visual Arts (painting sculpture)

__ 0. I have no training or recognized talent in this area. (Skip to Music).

__1. I have taken lessons in this area.

__2. People have commented on my talent in this area.

__3. I have won a prize or prizes at a juried art show.

__4. I have had a showing of my work in a gallery.

__5. I have sold a piece of my work.

__6. My work has been critiqued in local publications.

*__7. My work has been critiqued in national publications.

B. Music

__0. I have no training or recognized talent in this area (Skip to Dance).

__1. I play one or more musical instruments proficiently.

__2. I have played with a recognized orchestra or band.

__3. I have composed an original piece of music.

__4. My musical talent has been critiqued in a local publication.

__5. My composition has been recorded.

__6. Recordings of my composition have been sold publicly.

*__7. My compositions have been critiqued in a national publication.

C. Dance

__0. I have no training or recognized talent in this area (Skip to Architecture)

__1. I have danced with a recognized dance company.

__2. I have choreographed an original dance number

__3. My choreography has been performed publicly.

__4. My dance abilities have been critiqued in a local publication.

__5. I have choreographed dance professionally.

__6. My choreography has been recognized by a local publication.

*__7. My choreography has been recognized by a national publication.

D. Architectural Design

__0. I do not have training or recognized talent in this area (Skip to Writing).

__1. I have designed an original structure.

__2. A structure designed by me has been con- structed.

__3. I have sold an original architectural design.

__4. A structure that I have designed and sold has been built professionally.

__5. My architectural design has won an award or awards.

__ 6. My architectural design has been recognized in a local publication.

*__7. My architectural design has been recognized in a national publication.

E. Creative Writing

__0. I do not have training or recognized talent in this area (Skip to Humour).

__1. I have written an original short work (poem or short story).

__2. My work has won an award or prize.

__3. I have written an original long work (epic, novel, or play).

__4. I have sold my work to a publisher.

__5. My work has been printed and sold publicly.

__6. My work has been reviewed in local publications.

*__7. My work has been reviewed in national publications.

F. Humour

__0. I do not have recognized talent in this area (Skip to Inventions).

__1. People have often commented on my original sense of humour.

__2. I have created jokes that are now regularly repeated by others.

__3. I have written jokes for other people.

__ 4. I have written a joke or cartoon that has been published.

__5. I have worked as a professional comedian.

__6. I have worked as a professional comedy writer.

__7. My humour has been recognized in a national publication.

G. Inventions

__0. I do not have recognized talent in this area.

__1. I regularly find novel uses for household objects.

__2. I have sketched out an invention and worked on its design flaws.

__3. I have created original software for a computer.

__4. I have built a prototype of one of my designed inventions.

__5. I have sold one of my inventions to people I know.

*__6. I have received a patent for one of my inventions.

*__7. I have sold one of my inventions to a manufacturing firm.

H. Scientific Discovery

__0. I do not have training or recognized ability in this field (Skip to Theatre)

__1. I often think about ways that scientific problems could be solved.

__2. I have won a prize at a science fair or other local competition.

__3. I have received a scholarship based on my work in science or medicine.

__4. I have been author or co-author of a study published in a scientific journal.

*__5. I have won a national prize in the field of science or medicine.

*__6. I have received a grant to pursue my work in science or medicine.

__7. My work has been cited by other scientists in national publications.

I. Theatre and Film

__0. I do not have training or recognized ability in this field.

__1. I have performed in theatre or film.

__2. My acting abilities have been recognized in a local publication.

__3. I have directed or produced a theatre or film production.

__4. I have won an award or prize for acting in theatre or film.

__5. I have been paid to act in theatre or film.

__6. I have been paid to direct a theatre or film production.

*__7. My theatrical work has been recognized in a national publication.

J. Culinary Arts

__0. I do not have training or experience in this field.

__1. I often experiment with recipes.

__2. My recipes have been published in a local cook book.

__3. My recipes have been used in restaurants or other public venues.

__4. I have been asked to prepare food for celebrities or dignitaries.

__5. My recipes have won a prize or award.

__6. I have received a degree in culinary arts.

*__7. My recipes have been published nationally.

Scoring of the Creative Achievement Questionnaire

1. Each check marked item receives the number of points represented by the question number adjacent to the checkmark.
2. If an item is marked by an asterisk, multiply the number of times the item has been achieved by the number of the question to determine points for that item.

3. Sum the total number of points within each domain to determine the domain score.

4. Sum all ten domain scores to determine the total CAQ score

Appendix V

Information Section

The Dual-Factor Model of Creativity and its Effect on Conformity

You are being invited to take part in a research study. Before deciding whether to take part, please take the time to read this document, which explains why the research is being done and what it would involve for you. If you have any questions about the information provided, please do not hesitate to contact me using the details at the end of this sheet.

About this Study

I am a final year student in the BA in Psychology programme at National College of Ireland. As part of our degree, we must carry out an independent research project. For my project, I aim to investigate the relationship between creative potential and conformity while also investigating the relationship between creative achievement and conformity. The supervisor of this study is Dr April Hargreaves who is a lecturer at National College of Ireland.

Taking Part in the Study

If you decide to take part in this research, you will be asked to complete three short online questionnaires. These questionnaires will include the topics of conformity, creative potential, and creative achievement respectively. The time it takes to complete your participation in this study should be approximately 15 minutes.

Can you take part?

You can take part in this study if you are between the ages of 18-70 years old. There are no other criteria to take part.

Do I have to take part?

Participation in this research is voluntary; you do not have to take part, and a decision not to take part will have no consequences for you. If you do decide to take part, you can withdraw from participation at any time before submitting the results of the questionnaire by closing the page on whatever device you are using. Once you have submitted the first questionnaire, it will not be possible to withdraw your data from the study, because the questionnaire is anonymous and individual responses cannot be identified.

Risk and Benefits of taking part

There are no direct benefits to you for taking part in this research. However, the information gathered will contribute to research that helps us to understand the relationship between creativity and conformity. There is a small risk that some of the questions within the study could cause you negative feelings as they do assess your likelihood to conform and your ability and achievement in relation to creativity. If these are difficult subjects for you consider your participation in relation to your mental well-being.

Your Data and Confidentiality

The questionnaire is anonymous, it is not possible to identify a participant based on their responses to the questionnaire. All data collected for the study will be treated in the strictest confidence. Responses to the questionnaire will be stored securely in a password protected/encrypted file on the researcher's computer. Only the researcher and their

supervisor will have access to the data. Data will be retained for 5 years in accordance with the NCI data retention policy.

Study Results

The results of this study will be presented in my final dissertation, which will be submitted to National College of Ireland. They may also be presented at a student conference run by the Psychological Society of Ireland.

Contact Details for Further Queries

Researchers Details

Name – Jamie O'Rourke

Email – x19302636@student.ncirl.ie

Supervisors Details

Name – Dr April Hargreaves

Email – April.Hargreaves@ncirl.ie

Please tick to indicate that you have read carefully and understood the information sheet above and that you consent to participate in this study based on that information ☐

Appendix VI

Debriefing Section

Thank you for your participation in this study. Your answers will now be kept secure with the researcher and will then be analysed and written as part of a research project. Once your answers have been submitted, they cannot be withdrawn from the study or be used to identify you as a participant as the data will be anonymised. If you have any further queries, please contact the researcher at the email attached below:

Researcher: Jamie O'Rourke Email: x19263630@student.ncirl.ie

Supervisor: Dr April Hargreaves Email: April.Hargreaves@ncirl.ie

The results of this study will in all likelihood be available around October 30th 2022. If you would like access to the completed study, please contact the email mentioned above.
If any of this study caused you mental distress or upset, please feel free to contact the following mental health services:

HSE Mental Health Services - https://www.hse.ie/eng/services/list/4/mental-health-services/

Mental Health Ireland - https://www.mentalhealthireland.ie/mental-health-services/

Spectrum Mental Health - https://mentalhealth.ie/counselling