CREATIVE PERFORMANCE, CREATIVE PARTNER PREFERENCE, AND CREATIVE PERCEPTION: A TEST OF FISHER'S RUNAWAY SEXUAL SELECTION THEORY

By

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Abstract

Prior research suggests that creativity is a trait women find attractive in potential male romantic partners. This study applied Fisher's theory of runaway sexual selection to creativity. Fisher's theory predicts that when a trait with no apparent adaptive advantage is found sexually attractive, both prevalence of and preference for the trait should increase over evolutionary time. This study hypothesized that creative performance and creative partner preference would be correlated, as predicted by this theory. It was believed that perception of creativity would be necessary if individuals are to successfully identify it in partners, which would then allow for the runaway chain of events identified by Fisher to occur. Creative self-perception was hypothesized to correlate with the creative performance and creative partner preference as well. Study participants (198 heterosexual undergraduate females) were given measures of the three constructs of interest and general intelligence was also assessed. Results supported Fisher's runaway sexual selection theory and the hypothesized relationship between creative performance, creative partner preference, and creative self-perception. This study found that women high in creativity were also more likely to prefer that potential partners be higher in creativity and were also more likely to perceive themselves as creative. Previous findings that creative performance and intelligence are related were also supported. Implications of these findings and future research directions are discussed.

Introduction

Creativity is most often defined as the production of something that fulfills the two-fold requirement of being both novel and useful. Research has increased since 1950, when American Psychological Association president J.P. Guilford called for further study of the nature of creativity, but many more questions than answers remain about exactly what creativity is. For example, should creativity be considered a single trait that applies across multiple domains? Or, alternatively, is it a domain-specific trait that does not generalize; an individual who is verbally creative is not by necessity also a creative dancer and musician or talented at tasks requiring divergent thinking. Research thus far has found support for both stances and remains inconclusive at this time (Conti, Coon, & Amabile, 1996; Plucker, 1999; Reiter-Palmon et al., 2009)

Central to the search to understand creativity are inquiries about both its function and origin. A major focus of evolutionary psychology is the examination of how people make choices between potential mates, and what traits and features shape mate preferences. Previous studies suggest creativity is a trait that women find attractive in a potential male romantic partner (Miller & Haselton, 2006; Prokosch et al., 2009).

Fisher's runaway sexual selection theory posits that when a trait with no obvious survival value is found sexually attractive, a "runaway" chain of events arises (1915; 1930). Individuals with the attractive trait are more reproductively successful than others so the trait becomes more prevalent in the population over evolutionary time and preference for the trait increases. Logically, if selection proceeds as proposed by Fisher, perception of the trait should also increase as well in individuals with preference for the trait. Without accurate perception of the trait in individuals with preference for it, individuals possessing the trait and individuals who do not

posses the trait would have equal sexual, and hence reproductive, success; the runaway chain of events outlined by Fisher could not occur. Consequently, we hypothesize that perception of the trait, preference for the trait, and prevalence of the trait itself should increase together under sexual selection.

Past evolutionary psychology studies of preference for creativity and other studies in the field of creativity research generally rely on single measures of creativity and/or preference. To our knowledge no study investigating the relationship between creativity and preference has incorporated multiple measures of each. This study attempted to begin to address this methodological issue by measuring multiple domains of creative performance and employing multiple measures of creative partner preference and creative perception. It explores how creativity, a trait potentially offering no apparent survival advantage, may have been selected for by applying runaway sexual selection theory to female preference through assessment of 3 aspects of creativity:

1. Creative Performance
2. Creative Partner Preference
3. Creative Self-Perception

Prior studies have found general intelligence to be correlated with creativity, so it was also assessed (Miller, 1998; Miller, 2000; Miller & Tal, 2007). Miller has proposed that this correlation arises because both creativity and intelligence are "fitness indicators" of genetic quality (low mutation load) in a potential mate. It has also been proposed that there is a "critical threshold" between intelligence and creativity, in which up to a certain IQ level the two are correlated, after which they diverge (Plucker & Renzulli, 1999). This argument has received support from preliminary research into the neurobiological underpinnings of creativity and

general intelligence which has found a relationship between creative performance and neurochemicals associated with cognitive function (Jung et al., 2009a). There have also been indications that cortical thickness is related to creativity as well (Jung et al., 2009b)

We hypothesized that creative performance, creative partner preference, and creative self-perception would be correlated, as predicted by runaway sexual selection theory. Women high in creativity should be seen to also have a greater preference for creativity in potential romantic partners and perceive themselves as creative as well. Additionally, we expected that the sets of measures used to assess each of these three constructs should converge upon underlying latent factors for creativity, creative preference, and creative self-perception.

Methods

Participants

198 heterosexual female undergraduate students over the age of 18 from the University of Arizona participated in the study. All received credit in partial fulfillment of introductory psychology course requirements or credit in the psychology course they were enrolled in. Only heterosexual females were used because this study sought to further research inroads made by prior studies examining creativity as a trait that heterosexual women specifically desire in potential male romantic partners.

Procedures

Participants completed all questionnaires in person in groups of 7-23 in University of Arizona classrooms under conditions of complete confidentiality and anonymity. All sessions lasted no more than 2 hours.

Creative Performance Measures

Creative Output: Participants produced actual creative output during the study in response to

a series of prompts. Participants were given 4 writing prompts (Appendix A), a representational drawing task set consisting of 4 prompts (Appendix B), and a abstract drawing task set consisting of 4 prompts (Appendix C). These prompts had all been successfully used during a previous study at the University of New Mexico (Miller & Tal, 2007). In the written instructions, participants were told to be creative when formulating their responses and to create their answers in such a way that a potential romantic partner would find them interesting and engaging.

Participants' abstract drawing task sets, representational task sets, and writing responses were all rated on a scale of 1 to 5 (1= Not at all creative, 5= Very creative) by a panel of two raters (the author of this study and a University of Arizona graduate student). The same scoring instructions and criteria were used by the rater panels for both this and the University of New Mexico study. All ratings were done independently without knowledge of any demographic or personal information of the participants. Ratings of the two drawing tasks sets and mean rating of the four writing prompts were averaged to determine an overall creative output score for each participant. The six creative output tasks had a Cronbach's alpha reliability of 0.755.

Creative Achievement: The Creative Achievement Questionnaire (CAQ) used in this study was based upon the original Creative Achievement Questionnaire conceived and validated by Carson, Peterson, and Higgins (2005). Only the second part of the original questionnaire was used. Participants were asked to indicate which creative achievements they had accomplished during their lives in ten different domains of creativity: visual arts, music, dance, architectural design, creative writing, humor, inventions, scientific discovery, theater and film, and culinary arts. Achievements assessed included basic accomplishments such as having taken lessons in the domain of creativity of interest to more advanced accomplishments such as having had a poem or story published. Please see Appendix D for the complete version of the questionnaire used in

this study. As specified by the original creators of the study, more advanced accomplishments received heavier weightings. Total weighted score across all achievements in all creative domains were used to determine an overall creative achievement score.

Each of the ten domains of creativity contained seven items. Cronbach's alphas for the seven items of each of these domains of creativity were as follows: visual arts α=0.633, music α=0.719, dance α=0.698, architectural design α=0.330, creative writing α=0.688, humor α=0.497, inventions α=0.575, scientific discovery α=0.574, theater and film α=0.636, and culinary arts α=0.276. Part-whole correlations between each of the creative achievement domain subscales and the overall creative achievement score are shown in table 1.

Table 1: Part-whole correlations between each creative achievement domain and overall creative achievement score

	Creative Achievement Score
Visual Arts	0.465*
Music	0.367*
Dance	0.711*
Architectural Design	0.472*
Creative Writing	0.744*
Humor	0.419*
Inventions	0.450*
Scientific Discovery	0.525*
Theater and Film	0.510*
Culinary Arts	0.411*

*p<.05

Creative Partner Preference Measures

Partner Preference: Two different measures assessing preference for creativity in a potential male romantic partner were given to the participants. For the first, participants viewed three heterosexual male responses to the same creative output prompts that they received. These male responses were from University of New Mexico undergraduates who consented to having others view and rate their deindividuated data for research purposes during the study conducted by Miller and Tal (2007). The male responses used as stimuli were specifically selected to represent

a range of creative ability, as assessed by University of New Mexico raters. One of the male responses had been rated as highly creative, one as somewhat creative, and one as not at all creative during the previous study.

After viewing all of the responses of an individual male, participants were asked to indicate how much they thought they would enjoy being in a relationship with him on a scale of -3 to +3 (-3= Absolutely would NOT enjoy, +3= Definitely would enjoy). For each male, the mean of the ratings a participant assigned to the 6 creative output items for each male was calculated. This mean was multiplied by the participant's preference score for the male to calculate a preference score weighted by how creative the participant believed the male to be. The weighted scores of the three males were then totaled to create an overall partner preference score. The three weighted scores had an alpha of 0.551.

Achievement Preference: The second preference measure used was a version of the CAQ modified to reflect participant preference for a long-term romantic partner to accomplish each of the achievements in the ten domains of creativity participants had also been asked about themselves (CAQ-Pref). Participants were asked to rate importance of their partner accomplishing each achievement on a scale from -3 to +3 (-3= Strongly prefer my partner NOT accomplish this, +3= Strongly prefer my partner DOES accomplish this). The sum across all achievements was used to determine an overall creative achievement preference score.

Each of the ten domains of creativity contained seven items. Cronbach's alphas for the seven items of each of these domains of creativity were as follows: visual arts α=0.897, music α=0.907, dance α=0.909, architectural design α=0.934, creative writing α=0.910, humor α=0.876, inventions α=0.872, scientific discovery α=0.909, theater and film α=0.889, and culinary arts α=0.905. Part-whole correlations between each of the creative achievement domain

subscales and the overall creative achievement score are shown in table 2.

Table 2: Part-whole correlations for each for creative achievement preference domains and overall achievement preference score

	Achievement Preference Score
Visual Arts	0.707*
Music	0.737*
Dance	0.485*
Architectural Design	0.707*
Creative Writing	0.716*
Humor	0.587*
Inventions	0.710*
Scientific Discovery	0.612*
Theater and Film	0.737*
Culinary Arts	0.756*

*p<.05

Creative Self-Perception Measures

Self Ratings: The first measure used to gauge creative self-perception was an assessment of a participant's perception of her own creative performance. Participants provided ratings of their responses to the drawing and writing prompts using the same scale as the rater panel.

Creative Ability Comparison: Participants also completed the Creative Ability Comparison (CAC) survey. This survey was based upon the original Cognitive Ability Comparison survey, but modified to allow for creative rather than cognitive ability comparison (Ross & Figueredo, 2009). In this survey they were asked to rate their creative abilities in twelve different creative ability domains: artistic, music, dance, architectural design, creative writing, humor, divergent thinking and inventive, scientific, theater and film, culinary, sexual and relationship, and social orchestration. They ranked their abilities in comparison to ten people from five different reference groups and out of one hundred people from five additional reference groups (Appendix E).

Cronbach's alphas for the ten items of each of these domains of creative ability were as follows: artistic α=0.935, music α=0.969, dance α=0.966, architectural design α=0.967, creative

writing α=0.955, humor α=0.944, divergent thinking and inventive α=0.970, scientific discovery α=0.974, theater and film α=0.972, culinary α=0.966, sexual and relationship α=0.958, social orchestration α=0.964. Part-whole correlations between each of the creative ability domain subscales and the overall creative ability comparison score are shown in table 3.

Table 3: Part-whole correlations between creative ability domains and overall creative ability comparison score

	Creative Ability Comparison Score
Artistic	0.500*
Music	0.475*
Dance	0.507*
Architectural Design	0.601*
Creative Writing	0.630*
Humor	0.569*
Divergent Thinking and Inventive	0.755*
Scientific Discovery	0.647*
Theater and Film	0.597*
Culinary	0.556*
Sexual and Relationship	0.350*
Social Orchestration	0.420*

*p<.05

Measures of General Intelligence

Raven's APM-18 Short Form: The 18-item version of Raven's Advanced Progressive Matrices (APM-18) was used to assess general intelligence (Gladden, Figueredo, & Jacobs, 2008). The 18 items of the measure had an alpha of 0.740.

Statistical Analysis

We tested our hypotheses using a statistical model that treated each of the two measures of the three hypothesized latent constructs, Creative Performance, Creative Partner Preference, and Creative Self-Perception, as manifest indicators. The model allowed for a correlated residual between Creative Ability Comparison and Creative Achievement scores. Because both are global, domain-general self-assessments of creativity, it was believed that they may share some method bias. SAS version 9.2 was used to test this structural equation model using PROC

CALIS and the hypothesized correlations between variables as well.

Results

Descriptive Statistics. Table 4 shows the correlations between the individual measures of creative performance, creative partner preference, and creative self-perception. As hypothesized, the two measures of creative performance were significantly positively correlated with the two measures of creative self-perception as well as creative partner preference as assessed by Partner Preference. They were not, however, significantly correlated with Achievement Preference. Partner Preference was also significantly positively correlated with Self Ratings of creativity, but not Creative Ability Comparison score or Achievement Preference. None of measures were significantly correlated to general intelligence scores from the APM-18 except Creative Output ($r=0.253$, $p<0.001$).

Table 4: Pearson's Correlation Matrix for Measures of Creative Performance, Creative Partner Preference & Creative Self-Perception

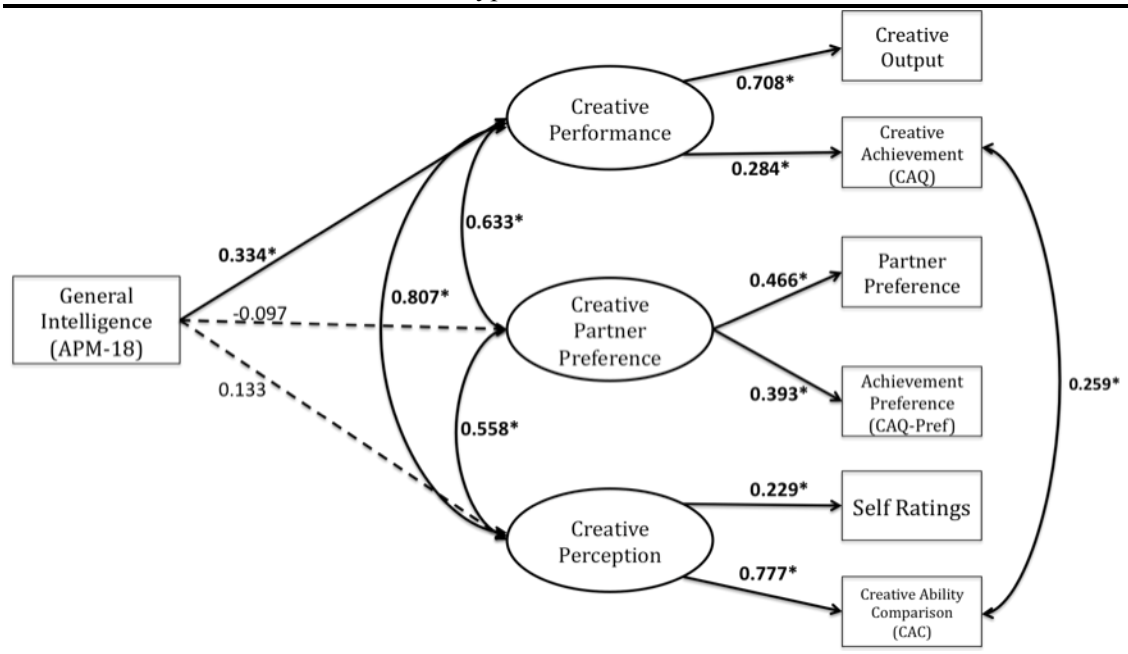
	1	2	3	4	5	6
Creative Performance Measures						
1. Creative Output	_	**0.204***	**0.161***	0.123	**0.397***	**0.178***
2. Creative Achievement		_	0.126	**0.143***	**0.202****	**0.206***
Creative Partner Preference Measures						
3. Partner Preference			_	**0.184***	**0.245***	0.000
4. Achievement Preference				_	0.071	0.021
Creative Self-Perception Measures						
5. Self Ratings					_	**0.190***
6. Creative Ability Comparison						_

*p<.05

The Factor-Analytic Structural Equations Model. The hypothesized model depicting the relationship between the three proposed latent factors and the manifest variables used as indicators is shown in Figure 1 with the standardized path coefficients. The model was acceptable by the strict statistical criterion, and the practical and parsimonious indices of fit ranged from acceptable to excellent ($\chi^2[8]=10.018$; p= .2638; *NFI*= 0.907, *CFI*=0.977; *RMSEA*=0.039).

The Measurement Model. The factor loadings of the latent Creative Performance factor on both Creative Output (β= 0.708) and Creative Achievement (β=0.302), of the latent Creative Partner Preference factor on both Partner Preference (β=0.469) and Achievement Preference (β=0.393), and of the latent Creative Self-Perception factor on both Self Rating (β=0.777) and Creative Ability Comparison (β=0.229) were all statistically significant and generally high. As

Figure 1: Path diagram of factor model with standardized structural coefficients (straight, single-headed arrows) and correlations between measures Curved , double-headed arrows represent the residual covariances specified within the model. Dashed arrows are not statistically significant, but were retained in the model to estimate and test these hypothesized effects.



*p<.05

anticipated, the residual covariance between Creative Achievement and Creative Ability Comparison was significant ($p<0.05$).

The Structural Model. The effect of General Intelligence on Creative Performance was also statistically significant and positive (β=0.334), but there were no significant effects of General intelligence on Creative Partner Preference or on Creative Self-Perception. As predicted by Fisher's theory of runaway sexual selection, the three latent factors representing *Creative Performance*, *Preference*, and *Perception* were all significantly correlated with each other, and these correlations were quite large. However, because these were *residual* correlations that were specified among the three latent factors, they cannot be explained as *spurious* and instead attributable to the effects of General Intelligence as a common causal influence.

Discussion

Overall, the findings of this study support the predictions put forth by Fisher's theory of runaway sexual selection, as applied to human creative performance and creative partner preference. The hypothesis that creative self-perception would be correlated with creative performance and creative partner preference was also supported. The results from the structural equations model support the hypothesized model's proposed three separate latent factors, Creative Performance, Creative Partner Preference, and Creative Self-Perception. These latent factors all loaded significantly onto the manifest indicators used in this study.

Measures of creative performance, creative partner preference, and creative self-perception were all significantly correlated. Additionally, the three latent factors we constructed out of these measures, representing Creative Performance, Creative Partner Preference, and Creative Self-Perception, were also all significantly correlated. In both cases, this study found that women high in creativity were also more likely to prefer that potential partners be higher in creativity and

were also more likely to perceive themselves as creative.

The relationship between general intelligence and creativity found here mirrored findings and expectations put forth in previous studies. APM-18 scores were significantly correlated with Creative Output scores. General Intelligence was also significantly correlated with the latent factor Creative Performance. General intelligence did not, however, explain the correlations between creative performance, creative partner preference, and creative self-perception or the three latent factors. This suggests that while general intelligence and creative performance may be related, creative partner preference and creative self-perception are not directly related to general intelligence.

It is believed the nonsignificant correlations between some of the measures used in this study may be due in part to the fact that subjects were all mostly young undergraduate females. It is unlikely that many of these participants have reached an age where some of the more advanced creative achievements covered in the Creative Achievement and Achievement Preference measures here are realistic. Consequently, they may not have achieved many of these themselves, not relate to them, and thus not value them highly in potential partners as of yet.

A number of directions for future research are possible. In future studies, creativity in romantic partners should be evaluated to test whether self-reported preference for creativity is manifested in real-life romantic choices and to provide an additional manifest indicator of Creative Preference. Conventionally, three or more manifest indicators of a latent factor are desirable. Expanding the manifest indicators of each of the latent factors tested in this study should to strengthen conclusions.

Further examination of whether or not there is a general factor of creativity is merited. This can continue to be explored by utilizing a wider range of creativity measures, including those

typically employed in current literature. These measures should ideally span numerous creative domains beyond artistic and verbal creativity that are the standards for evaluation. To this end, additional valid and reliable measures of a wider array of domains of creativity may need to be developed.

While Fisher's theory of runaway sexual selection received strong support in this study, competing theories should be tested as well. One possible avenue for future research is to take the focus of this current study on runaway sexual selection for creativity and expand it in scope to include a runaway social selection component. It may be the case that creativity is a trait individuals seek out and value not only in romantic partners, but also social companions as well. The possibility that creativity confers objective, non-sexual advantages must also be considered as that would be an indication that creativity is a trait that was selected for through natural selection.

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Appendices

Appendix A: Writing Prompts

Writing task 1: Cloud-strings

Imagine that all clouds had really long strings hanging from them – strings hundreds of feet long. What would be the implications of that fact for nature and society?

In the lines below, please list as many different implications as you can for strings hanging from clouds. Use a new line for each new idea, and take about two minutes for this task.

Writing task 2: Sex changes

Imagine that every person could change their sex – male or female – whenever they wanted to, just by dreaming about it for one night. A person could wake up with an opposite-sex version of their own face and body, but would keep all their personality traits, skills, memories, and sense of personal identity. What would be the implications of that fact for society?

In the lines below, please list as many different implications as you can for spontaneous sex changes. Use a new line for each new idea, and take about two minutes for this task.

Writing task 3: Self-description words

Imagine that your internet dating agency lists people by brief self-descriptions – you can use just ten words to catch the attention of possible dates. In the lines below, please list the ten individual words that would describe you most creatively, and that would provoke the most interest from people you might want to meet. You don't have to be honest, just imaginative and intriguing. Take about two minutes for this task.

Writing Task 4: Animal for a Day

Imagine that your internet dating agency asks everyone to write brief answers to the following

question. Please write brief, creative response that would provoke the most interest from people you might want to meet. Take about two minutes to answer this question.

Question: “If you could experience what it’s like to be a different kind of animal for a day, what kind would of animal would you want to be, and why?”

Appendix B: Representational Drawing Task Set Prompts

Prompt 1

Please draw an abstract symbol, pattern, or composition that represents the taste of pure, rich, dark chocolate.

Prompt 2

Please draw an abstract symbol, pattern, or composition that represents your happiness as a child doing a favorite activity.

Prompt 3

Please draw an abstract symbol, pattern, or composition that represents intense sexual desire and erotic yearning.

Prompt 4

Please draw an abstract symbol, pattern, or composition that represents your soul, spirit, or essence.

Appendix C: Abstract Drawing Task Set Prompts

Prompt 1

In the space below, please draw an animal that you admire for its strength, grace, speed, or beauty.

Prompt 2

Please draw a tree that represents how you feel today.

Prompt 3

Imagine that you are walking around a foreign city in the winter snow, and you see an intriguing house that must have been designed by a very imaginative architect. It looks warm inside, with candles glowing, and the sound of a happy dinner party. Please draw the house.

Prompt 4

Please draw what an alien civilization might look like, on a distant planet.

Appendix D:

Creative Achievement Questionnaire

A. Visual Arts (painting, sculpture)

__1a. I have taken lessons in this area.

__2a. People have commented on my talent in this area.

__3a. I have won a prize or prizes at a juried art show.

__4a. I have had a showing of my work in a gallery.

__5a. I have sold a piece of my work.

__6a. My work has been critiqued in local publications.

*____7a. My work has been critiqued in national publications.

B. Music

__1b. I sing or play one or more musical instruments proficiently.

__2b. I sing or play with a recognized orchestra or band.

__3b. I have composed an original piece of music.

__4b. My musical talent has been critiqued in a local publication.

__5b. My composition has been recorded.

__6b. Recordings of my composition have been sold publicly.

*____7b. My compositions have been critiqued in a national publication.

C. Dance

__1c. I dance while out at a club or party.

__2c. I have taken a dance class.

__3c. I have choreographed an original dance number.

__4c. I have had choreography performed publicly.

__5c. I have choreographed dance professionally.

__6c. My choreography has been recognized by a local publication.

*____7c. My choreography has been recognized by a national publication.

D. Architectural Design

__1d. I have designed an original structure.

__2d. A structure designed by me has been constructed.

__3d. I have sold an original architectural design.

__4d. A structure that I have designed and sold has been built professionally.

__5d. My architectural design has won an award or awards.

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

*____7d. My architectural design has been recognized in a national publication.

E. Creative Writing

__1e. I have written an original short work (poem or short story).

__2e. My work has won an award or prize.

__3e. I have written an original long work (epic, novel, or play).

__4e. I have sold my work to a publisher.

__5e. My work has been printed and sold publicly.

__6e. My work has been reviewed in local publications.

*_____7e. My work has been reviewed in national publications.

F. Humor

__1f. People have often commented on my original sense of humor.

__2f. I have created jokes that are now regularly repeated by others.

__3f. I have written jokes for other people.

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

__5f. I have worked as a professional comedian.

__6f. I have worked as a professional comedy writer.

____7f. My humor has been recognized in a national publication

G. Inventions

__1g. I regularly find novel uses for household objects.

__2g. I have sketched out an invention and worked on its design flaws.

__3g. I have created original software for a computer.

__4g. I have built a prototype of one of my designed inventions.

__5g. I have sold one of my inventions to people I know.

*__6g. I have received a patent for one of my inventions.

*__7g. I have sold one of my inventions to a manufacturing firm.

H. Scientific Discovery

__1h. I often think about ways that scientific problems could be solved.

__2h. I have won a prize at a science fair or other local competition.

__3h. I have received a scholarship based on my work in science or medicine.

__4h. I have been author or coauthor of a study published in a scientific journal.

*__5h. I have won a national prize in the field of science or medicine.

*__6h. I have received a grant to pursue my work in science or medicine.

__7h. My work has been cited by other scientists in national publications.

I. Theater and Film

__1i. I have performed in theater or film.

__2i. My acting abilities have been recognized in a local publication.

__3i. I have directed or produced a theater or film production.

__4i. I have won an award or prize for acting in theater or film.

__5i. I have been paid to act in theater or film.

__6i. I have been paid to direct a theater or film production.

*__7i. My theatrical work has been recognized in a national publication.

J. Culinary Arts

__1j. I often experiment with recipes.

__2j. My recipes have been published in a local cookbook.

__3j. My recipes have been used in restaurants or other public venues.

__4j. I have been asked to prepare food for celebrities or dignitaries.

__5j. My recipes have won a prize or award.

__6j. I have received a degree in culinary arts.

*__7j. My recipes have been published nationally.

Appendix E: Creative Ability Comparison Survey

Ability Comparison Survey:

The purpose of this questionnaire is to gauge your opinion of your various abilities in relation to different peer groups. Try to think of real people you know when answering, rather than a hypothetical group of people.

At the beginning of each set of 10 questions is a description of a type of ability, consider carefully the specific type of ability referred to while answering each question set.

In some questions you are asked how you rank in a group of 10 people. Responding that you are in the top 10 means that you rank lowest (no higher than anyone else). Responding that you are in the top 1 means that you rank highest (higher than all of the others).

Similarly when asked to consider a group of 100 people responding that you are in the top ten puts yourself at the highest rank, and responding that you rank in the top 100 means that you are in the lowest rank.

Example:

1. Out of 100 people who attended your elementary school, what is your relative rank in artistic ability?

If you think you rank in the top 30, mark as follows:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
1. … attended your elementary school?			**X**							

The next 10 questions of this survey refer specifically to artistic abilities. This ability has to do with creating art such as paintings, drawings, sculpture, and photography. People who are highly creative artists often have unique ways of looking at the world and are interested in creating visual representations of their ideas and point of view. They may create realistic or abstract portrayals of people, objects, and ideas. They can translate their artistic ideas into two-dimensional and/or three-dimensional representations.

What is your relative rank in artistic ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
1. ... attended your elementary school?										
2. ... attended your high school?										
3. ... attend your college?										
4. ... work at your same occupation, but might work for different employers?										
5. ... shop at the grocery store where you shop?										

What is your relative rank in artistic ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
6. ... were on the public transportation system you've used most recently?										
7. ... are your 10 closest relatives?										
8. ... are your 10 closest neighbors?										
9. ... are your 10 closest friends?										
10. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to musical abilities. This ability has to do with playing a musical instrument and/or singing, writing songs and musical compositions. People high in musical ability may want to be musicians professionally, start a local band, or spend time on their own playing music. When playing a song, they often go beyond the original song and add their own solos or interpretations into the music.

What is your relative rank in musical ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
11. ... attended your elementary school?										
12. ... attended your high school?										
13. ... attend your college?										
14. ... work at your same occupation, but might work for different employers?										
15. ... shop at the grocery store where you shop?										

What is your relative rank in musical ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
16. ... were on the public transportation system you've used most recently?										
17. ... are your 10 closest relatives?										
18. ... are your 10 closest neighbors?										
19. ... are your 10 closest friends?										
20. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to dancing abilities. This ability has to do with creativity of self expression through movement. It is not simply a matter of physical coordination. People who are high in this ability may take dance classes, choreograph or perform pieces of dance. They know how to put together interesting ways of movement, often to tell a story. They may also enjoy dancing at clubs and learning new forms of dance. While dancing, they make the dance their own.

What is your relative rank in dance ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
21. ... attended your elementary school?										
22. ... attended your high school?										
23. ... attend your college?										
24. ... work at your same occupation, but might work for different employers?										
25. ... shop at the grocery store where you shop?										

What is your relative rank in dance ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
26. ... were on the public transportation system you've used most recently?										
27. ... are your 10 closest relatives?										
28. ... are your 10 closest neighbors?										
29. ... are your 10 closest friends?										
30. ... are your closest co-workers?										

The next 10 questions architectural design ability. This ability has to do with designing original architectural structures. People who are high in this ability create sketches of and blueprints for new architectural structures. They are interested in finding new, innovative ways to use building materials and space when exploring structural possibilities. They are often interested in pursuing academic and professional careers in architecture.

What is your relative rank in architectural design ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
31. ... attended your elementary school?										
32. ... attended your high school?										
33. ... attend your college?										
34. ... work at your same occupation, but might work for different employers?										
35. ... shop at the grocery store where you shop?										

What is your relative rank in architectural design ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
36. ... were on the public transportation system you've used most recently?										
37. ... are your 10 closest relatives?										
38. ... are your 10 closest neighbors?										
39. ... are your 10 closest friends?										
40. ... are your closest co-workers?										

The next 10 questions in this survey refer specifically to creative writing abilities. This ability has to do with writing of fiction, non-fiction, and poetry that exceeds writing expected in work and academic settings. Examples of this type of writing include poems, short stories, novels, plays, screenplays, and autobiographical pieces. People who are highly creative writers may be interested in studying literature and poetry, learning new writing techniques, and becoming writers themselves in the future. They write during their free time, even when it is not an assignment for a class or required for work.

What is your relative rank in creative writing ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
41. ... attended your elementary school?										
42. ... attended your high school?										
43. ... attend your college?										
44. ... work at your same occupation, but might work for different employers?										
45. ... shop at the grocery store where you shop?										

What is your relative rank in creative writing ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
46. ... were on the public transportation system you've used most recently?										
47. ... are your 10 closest relatives?										
48. ... are your 10 closest neighbors?										
49. ... are your 10 closest friends?										
50. ... are your closest co-workers?										

The next 10 questions in this survey refer specifically to humor abilities. This ability has to do with knowing how to make people laugh and having an original sense of humor. People high in this ability often know how to make any situation humorous and can see what is funny about it and play off of that. They may be interested in pursuing a career as a comedian or humor cartoonist. Types of humor these people use can vary. They may be witty, dry humored, sarcastic, use puns, and tell jokes.

What is your relative rank in humor ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
51. ... attended your elementary school?										
52. ... attended your high school?										
53. ... attend your college?										
54. ... work at your same occupation, but might work for different employers?										
55. ... shop at the grocery store where you shop?										

What is your relative rank in humor ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
56. ... were on the public transportation system you've used most recently?										
57. ... are your 10 closest relatives?										
58. ... are your 10 closest neighbors?										
59. ... are your 10 closest friends?										
60. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to divergent thinking and inventive abilities. These abilities have to do "thinking outside the box"- coming up with new, novel ways of accomplishing activities or putting ideas together. Examples include being able to come up with new uses for an object that would otherwise be thrown out or figuring out a way to fix a problem with only the items on hand rather than the tools typically required. People high in this ability are often seen as inventors or "MacGyvers" who can adapt to unexpected situations or solve problems creatively. They may create new inventions or computer software that can successfully address previously unsolved problems.

What is your relative rank in divergent thinking and inventive ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
61. ... attended your elementary school?										
62. ... attended your high school?										
63. ... attend your college?										
64. ... work at your same occupation, but might work for different employers?										
65. ... shop at the grocery store where you shop?										

What is your relative rank in divergent thinking and inventive ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
66. ... were on the public transportation system you've used most recently?										
67. ... are your 10 closest relatives?										
68. ... are your 10 closest neighbors?										
69. ... are your 10 closest friends?										
70. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to scientific abilities. This ability has to do using science to solve problems and answer questions. People high in this ability are talented at bringing together known evidence as a means of solving a scientific problem. They may be able to come up with unique research designs. They are interested in understanding the world and may come up with new ways of conceiving of phenomena and figuring out how things work. They are often interested in pursuing careers in fields that will allow them to conduct new, innovative scientific research.

What is your relative rank in scientific ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
71. ... attended your elementary school?										
72. ... attended your high school?										
73. ... attend your college?										
74. ... work at your same occupation, but might work for different employers?										
75. ... shop at the grocery store where you shop?										

What is your relative rank in scientific ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
76. ... were on the public transportation system you've used most recently?										
77. ... are your 10 closest relatives?										
78. ... are your 10 closest neighbors?										
79. ... are your 10 closest friends?										
80. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to theater and film abilities. People with this ability have often acted in plays or movies and may have taken acting classes. These people enjoy the challenge of "becoming" a character. They are able to successfully convince audiences of the authenticity of this character. They may also be interested in directing or producing theatrical or film productions and are able to help actors improve their performances. People high in this ability may desire to pursue careers in the entertainment industry as actors, producers, and directors.

What is your relative rank in theater and film ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
81. ... attended your elementary school?										
82. ... attended your high school?										
83. ... attend your college?										
84. ... work at your same occupation, but might work for different employers?										
85. ... shop at the grocery store where you shop?										

What is your relative rank in theater and film ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
86. ... were on the public transportation system you've used most recently?										
87. ... are your 10 closest relatives?										
88. ... are your 10 closest neighbors?										
89. ... are your 10 closest friends?										
90. ... are your closest co-workers?										

The next 10 questions of this survey refer specifically to culinary abilities. This ability has to do with knowing how to cook in a way that exceeds simply being able to follow a recipe. People high in this ability often add their own variations to recipes, make up their own recipes, and experiment while cooking. They are not afraid to try out new flavor and ingredient combinations and do so successfully.

What is your relative rank in culinary ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
91. ... attended your elementary school?										
92. ... attended your high school?										
93. ... attend your college?										
94. ... work at your same occupation, but might work for different employers?										
95. ... shop at the grocery store where you shop?										

What is your relative rank in culinary ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
96. ... were on the public transportation system you've used most recently?										
97. ... are your 10 closest relatives?										
98. ... are your 10 closest neighbors?										
99. ... are your 10 closest friends?										
100. ... are your closest co-workers?										

The next 10 question in this survey refer specifically to sexual and relationship ability. This ability has to do with keeping a relationship exciting both in and out of the bedroom. People high in this ability go out of their way to find creative ways of making sure their partners are enjoying themselves. They do not stick to a clockwork-like, predictable routine and are not afraid to try new things in order to improve mutual experiences for their partners and themselves. Overall, people high in this ability are very skilled at making their partners happy.

What is your relative rank in sexual and relationship ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
101. ... attended your elementary school?										
102. ... attended your high school?										
103. ... attend your college?										
104. ... work at your same occupation, but might work for different employers?										
105. ... shop at the grocery store where you shop?										

What is your relative rank in sexual and relationship ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
106. ... were on the public transportation system you've used most recently?										
107. ... are your 10 closest relatives?										
108. ... are your 10 closest neighbors?										
109. ... are your 10 closest friends?										
110. ... are your closest co-workers?										

The next 10 questions in this survey refer specifically to social orchestration ability. This ability has to do with a very specific set of social skills. People high in this ability are able to go into a group of individuals who vary in temperament, personality, and skills and unite them towards a common purpose or goal successfully. They are highly skilled at social facilitation and lead groups well. Friends may say they know how to work a room, get along with others, and persuade others to help them.

What is your relative rank in social orchestration ability out of 100 people who:

	Highest									Lowest
In The Top:	10	20	30	40	50	60	70	80	90	100
111. ... attended your elementary school?										
112. ... attended your high school?										
113. ... attend your college?										
114. ... work at your same occupation, but might work for different employers?										
115. ... shop at the grocery store where you shop?										

What is your relative rank in social orchestration ability out of 10 people who:

	Highest									Lowest
In The Top:	1	2	3	4	5	6	7	8	9	10
116. ... were on the public transportation system you've used most recently?										
117. ... are your 10 closest relatives?										
118. ... are your 10 closest neighbors?										
119. ... are your 10 closest friends?										
120. ... are your closest co-workers?										