

ELEVENTH ANNUAL

Colorado Springs Undergraduate Research Forum

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Hosted by
The United States
Air Force Academy

Open to all CC, UCCS &
USAFA Students

Registration begins 1 February
Abstract deadline is 15 March

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MAN'S FLIGHT
THROUGH LIFE IS
SUSTAINED BY THE
POWER OF HIS
KNOWLEDGE.

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UCCS University of Colorado
Colorado Springs

Rural Stereotype Threat: Prejudice within an In-Group
 Melissa L. Barnes and Emily Chan
 The Colorado College, Colorado Springs, CO

Psychology

Background

- Underperformance when stereotype becomes salient
- Decreased cognitive capacity to focus ability on task
- Cognitive bias includes anxiety, self-doubt, stereotype threat
- Many different domains have been studied:
 - Academic, athletic, test, age, sex

Prejudice as Coping Mechanism for Stereotype Threat (Furr & Spalding, 2008)

- Regulatory available resources used to reduce stereotype threat
- Prejudice likely targeted toward member of another minority group
- Fear of rejection by majority group

Prejudice within Groups (Johnson & Weidner, 2007)

- Multi-racial formation:
 - Interaction of degree of threat, identification group and source of threat (self vs. in-group vs. out-group)
 - Threat targeting in-group may lead to reduction of attachment cleaving from group

Current Study

Stereotype threat regarding being Hispanic

- Other vs. rural
- Rural Hispanic identified as less intelligent
- Expect to which an individual's self image is negatively affected when the individual and the target of stigmatization are in-group members
- Strength of attachment threat vs. in-group bias
- Stereotype threat capable to mobilize resources
- Highlights awareness of attachment to in-group and out-group members

Hypotheses

1. Those who identify themselves as rural Hispanic will score lower than those who identify themselves as urban Hispanic on measures of intelligence.
2. Those who identify themselves as rural Hispanic will score lower than those who identify themselves as urban Hispanic on measures of intelligence when the threat of being stereotyped is salient.
3. Those who identify themselves as rural Hispanic will score lower than those who identify themselves as urban Hispanic on measures of intelligence when the threat of being stereotyped is salient and they are in the presence of other rural Hispanic individuals.
4. Those who identify themselves as rural Hispanic will score lower than those who identify themselves as urban Hispanic on measures of intelligence when the threat of being stereotyped is salient and they are in the presence of other rural Hispanic individuals and they are also in the presence of other urban Hispanic individuals.

Method

Participants

- Recruited for 1 country living in rural area or 1 year in or out of area
- Recruited from academic settings through college courses
- N = 26, 18-69 years old, majority 21-34 years old

Independent Variables - 2 x 2

1. Stereotype threat (present or not induced)
2. Rural (20 participants) vs. urban (6 participants)

Dependent Variables

- Intelligence measure
- Attitudes toward rural and urban areas
- Prejudice toward rural and urban areas
- Identification of self and others
- Identification of in-group and out-group

Procedure

1. Participants completed a questionnaire about their identification of rural and urban areas.
2. Participants completed a questionnaire about their attitudes toward rural and urban areas.
3. Participants completed a questionnaire about their identification of self and others.
4. Participants completed a questionnaire about their identification of in-group and out-group.
5. Participants completed a questionnaire about their intelligence.

Results

Participants who identified as rural and were in the presence of other rural individuals scored lower on measures of intelligence than those who identified as urban and were in the presence of other urban individuals.

Participants who identified as rural and were in the presence of other rural individuals also showed more negative attitudes toward rural areas than those who identified as urban and were in the presence of other urban individuals.

Participants who identified as rural and were in the presence of other rural individuals also showed more negative attitudes toward other rural individuals than those who identified as urban and were in the presence of other urban individuals.

Participants who identified as rural and were in the presence of other rural individuals also showed more negative attitudes toward other urban individuals than those who identified as urban and were in the presence of other urban individuals.

Discussion

Implications for Practice

- Implications for rural areas
- Implications for urban areas
- Implications for identification of self and others
- Implications for identification of in-group and out-group
- Implications for intelligence

Conclusion

Participants who identified as rural and were in the presence of other rural individuals showed more negative attitudes toward rural areas, other rural individuals, and other urban individuals than those who identified as urban and were in the presence of other urban individuals.

References

Furr, D. M., & Spalding, T. L. (2008). Prejudice as a coping mechanism for stereotype threat. *Journal of Personality and Social Psychology, 95*, 1031-1041.

Johnson, J. R., & Weidner, M. (2007). Prejudice within groups: The role of identification and attachment. *Journal of Personality and Social Psychology, 92*, 1031-1041.

Ground Sourcing in Technical Communication

University of Colorado Colorado Springs

Abstract

Ground sourcing is a form of crowdsourcing that involves hiring people from the local community to perform tasks that require local knowledge or expertise. This paper explores the benefits and challenges of ground sourcing in technical communication and provides a framework for implementing ground sourcing in technical communication projects.

Introduction

Ground sourcing is a form of crowdsourcing that involves hiring people from the local community to perform tasks that require local knowledge or expertise. This paper explores the benefits and challenges of ground sourcing in technical communication and provides a framework for implementing ground sourcing in technical communication projects.

Benefits of Ground Sourcing

- Access to local knowledge and expertise
- Cost savings
- Increased engagement and loyalty
- Improved quality of work
- Increased flexibility and scalability

Challenges of Ground Sourcing

- Limited resources
- Lack of training and experience
- Inconsistent quality of work
- Limited communication and collaboration
- Limited control over the process

Framework for Implementing Ground Sourcing

1. Identify the tasks that require local knowledge or expertise.
2. Identify the local community members who are best suited to perform these tasks.
3. Develop a plan for recruiting, training, and managing these community members.
4. Implement the plan and monitor the results.
5. Evaluate the results and make adjustments as needed.

Conclusion

Ground sourcing is a powerful tool for technical communication that can provide many benefits to organizations. However, it also has some challenges that must be addressed. By following the framework outlined in this paper, organizations can successfully implement ground sourcing in their technical communication projects.



Eye Patterns in Operations of Raven Remote Piloted Aircraft

Barrett Stone, Garrett Manning, Grant Wilson, Matt Craghan
With LCDR Brian R. Johnson (Mentor)
U.S. Air Force Academy



Figure 1: Raven drone



Figure 2: Operator in a control room

Figure 3: Mission data

MISSION DATA
A collection of data points representing mission parameters and performance metrics. The data is organized into a table with columns for various parameters and rows for individual mission runs.

David Stone
U.S. Air Force Academy





The Effect of Arts Training on Emotion Regulation in Young Adults



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Introduction

Regulation is critical for proper social functioning. Individuals must adjust the intensity and expression of emotion in order to achieve socially desirable goals (Davidson & Ekman, 2001; Gross, 2001; Gross & Levenson, 2000; Levenson, Gross, & Bory, 2001). The two most studied strategies are reappraisal (reinterpreting the meaning of the emotion-inducing stimulus) and suppression (preventing the outward expression of the emotion) (Gross & Levenson, 2000).

Empathy Theory of mind: socio-cognitive skills critical for the detection and modulation of social relationships.

Arts training

- Access to the arts allows for strategies (flexible, personal communication) (Gardner, 2006)
- Arts training increases the ability for theory of mind and empathy to a greater degree than the visual art alone for a year of training (Cohen, 2001)
- Elementary and high school students use emotion regulation strategies as an emotion regulation strategy (Lee & Gross, 2001)

Study objectives

- Young adults were tested on their ability to regulate their emotions after watching a recording of a young child with autism-like behavior. The children were instructed to watch their peers interact with their emotions. The children were instructed to watch their peers interacting with their emotions. The children were instructed to watch their peers interacting with their emotions. The children were instructed to watch their peers interacting with their emotions.

Hypotheses

1. Arts and drama will increase the use of cognitive reappraisal strategies and will be compared to use before training.
2. Arts training will increase levels of empathy and theory of mind compared to use before training.
3. Arts training will decrease the use of suppression compared to use before training.
4. Drama will increase the use of suppression compared to use before training.

Method

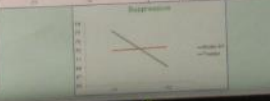
Participants: 18 young adults (10 women, 8 men, M_{age} = 21.9 years, age range: 18-24 years) were recruited from a psychology department at Colorado College. They were all students at Colorado College.

Measures: Cognitive Reappraisal Questionnaire (Davidson & Ekman, 2001) (alpha = .78), Theory of Mind Inventory (Gardner, 2006) (alpha = .88), Empathy Scale (Gardner, 2006) (alpha = .88), and the Big Five Inventory (John & Srull, 1999).

Procedure: Participants were randomly assigned to either an arts training group or a control group. The arts training group received a 10-week program of arts training. The control group received no training.

Results

• The arts training group showed a significant increase in cognitive reappraisal and theory of mind. $F(1, 17) = 10.42, p = .004$.



Discussion

Hypotheses:

1. Cognitive reappraisal strategies were expected to increase in use after training and were not expected to increase in use after training.
2. Empathy Theory of mind was expected to increase in use after training and was not expected to increase in use after training.
3. Suppression strategies were not expected to increase in use after training and were not expected to increase in use after training.

Implications: Findings imply that arts training may increase the use of cognitive reappraisal strategies, which may decrease the use of suppression strategies. However, the current study found no significant results.

Limitations/Future Directions

- Limit 1: Lack of control - The original study used to compare different types of arts training with other arts and non-arts training. Future research should include a control group.
- Limit 2: Age - Findings may be specific to young adults and may not generalize to other age groups.
- Limit 3: Sample size - The sample size used in this study was small and may not be representative of the general population.
- Limit 4: Duration - The current study was a 10-week program. Future research should explore longer durations.
- Limit 5: Measurement - The current study used self-report measures. Future research should use behavioral measures.

Select

Davidson, R. J., & Ekman, P. (2001). The nature of emotion: Trajectories of cognitive reappraisal and suppression. *Journal of Personality and Social Psychology*, 81(4), 811-827.



Can a Drawing Activity Temporarily Influence Spatial Abilities? Exploring the Process of Creating Visual Art

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Introduction
Drawing is a complex activity that involves spatial reasoning and visual-motor coordination. It is a skill that is often taught in schools and is considered an important part of a well-rounded education. However, there is a growing body of research suggesting that drawing may have a positive effect on spatial abilities, which are skills that are important for many careers and everyday life. This poster will explore the process of creating visual art and how it may temporarily influence spatial abilities.

Method
The study was conducted with 30 participants who were randomly assigned to two groups: a drawing group and a control group. The drawing group spent 15 minutes drawing a simple object, while the control group spent the same amount of time on a non-drawing task. After the drawing activity, all participants completed a series of spatial reasoning tests. The results of the tests were compared between the two groups to see if there was a significant difference in performance.

Method (cont.)
The drawing activity was a simple line drawing of a cube. The control group was asked to write a short paragraph about their day. The spatial reasoning tests included a mental rotation task, a spatial visualization task, and a spatial reasoning task. The results of the tests were analyzed using a t-test to see if there was a significant difference between the two groups.

Results
The results of the study showed that the drawing group performed significantly better on the spatial reasoning tests than the control group. This suggests that drawing may have a positive effect on spatial abilities. The effect was most pronounced on the mental rotation task, which is a task that requires the ability to visualize objects in three-dimensional space.

Discussion
The results of this study suggest that drawing may have a positive effect on spatial abilities. This is an important finding because spatial abilities are skills that are important for many careers and everyday life. If drawing can be used as a tool to improve spatial abilities, it could be a valuable tool for students and professionals alike. Further research is needed to explore the long-term effects of drawing on spatial abilities and to see if the effect is specific to certain types of drawing.

Conclusions/Implications
Drawing is a simple activity that can be done by anyone, and it may have a positive effect on spatial abilities. This is an important finding because spatial abilities are skills that are important for many careers and everyday life. If drawing can be used as a tool to improve spatial abilities, it could be a valuable tool for students and professionals alike.

Future Directions
Further research is needed to explore the long-term effects of drawing on spatial abilities and to see if the effect is specific to certain types of drawing. It would also be interesting to see if drawing can be used as a tool to improve spatial abilities in children and young adults.

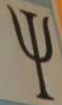
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Hollnagel, E. (1998). Spatial visualization: A review of the literature. *Journal of Experimental Psychology: Applied*, 4(1), 1-14.
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Lehmann, S. (2006). The effects of drawing on spatial ability. *Journal of Experimental Psychology: Applied*, 12(1), 1-14.



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The Effect of Stereotype Threat on Student-Athlete Math Performance

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Introduction

Stereotype Threat & Academic Performance

- Anxiety felt by members of any group for which there is a negative stereotype regarding their performance in a domain (Steele & Aronson, 1995)
- Inhibits performance on tasks related to the threatened domain
- Has been found in minorities in leadership (Steele & Aronson, 1995), as well as non-athletes and women in mathematics (Aronson et al., 1999; Keller, 2007)
- Subtle cues of evaluation or the basis of negative characterizations can have significant effects on domain-related performance

Student-Athletes & Stereotypes

- Athletes and student-athletes for college student-athletes have positive effects on well-being (Waters-Jones, 2006) but the identities are diverging (overlooked through college)
- Documented prejudice toward student-athletes in higher education among both faculty (Spitzer, Barkdale, & Kivimaki, 1995) and students (Spitzer & Barkdale, 1991)
- Athletes range from campus hero to "dumb jock" who thrives, studied as a proxy for low academic competence
- Student-athletes perceive an pro-athlete culture if dominant (because both that college athletes have higher academic success than their peers (Spitzer, 2007))
- Female student-athletes have stronger academic and weaker athletic identities and higher graduation rates than their peers (Sturm, Jetté, & Olson, 2011)
- May be more easily stereotype threatened because academically engaged athletes are the most vulnerable
- NCAA Division II (DII) athletes who are white males are most and presumably place less importance on athletic identity
- DII student-athletes may be better able to resist athletic and student identities and maintain academic success than Division I (DI) peers

Current Study

- Proving student-athletes with athletic identity are positively affected performance on math tests
- Current study examined differing effects of stereotype threat on student-athletes of different genders with a different level of NCAA competition

Selected References

Aronson, J., & Steele, C. (2001). Stereotype threat and academic achievement. *Annual Review of Psychology*, 52, 1-29.

Spitzer, J. L., Barkdale, D. R., & Kivimaki, M. (1995). The academic success of student-athletes: A review of the literature. *Journal of Sport Management*, 7, 1-10.

Steele, C. M., & Aronson, J. A. (1995). Stereotype threat and the intellectual performance of African Americans. *Journal of Personality and Social Psychology*, 69, 297-311.

Waters-Jones, L. (2006). The impact of student-athlete identity on well-being. *Journal of Sport Management*, 18, 1-10.

Hypotheses

- Student-athletes exposed to a pro-athlete identity during a math test will perform more poorly on a math test than students who did not receive the pro-athlete identity
- Student-athletes with athletic identity, female student-athletes will show greater performance decrements than male student-athletes due to higher anxiety and lower athletic identification
- Female student-athletes with athletic identity who are DI peers will show greater performance decrements than DI peers

Method

Participants

- Male (50%) and female (50%) student-athletes from the Colorado College intercollegiate sports teams
- Members of either the NCAA Division II (DII) or Division I (DI) (N = 100) at the University of Colorado Springs (UCS)

Variables

- The primary variable is a 20-item math test
- Gender (male or female)
- Stereotype threat (athletic identity or pro-athlete identity)
- The secondary variable was anxiety (via self-reported state anxiety)
- Level of NCAA competition (DI or DII)
- Whether they had received athletic identity or not

Procedure

- Participants completed a survey with questions about their identity as either a DII or DI peer and the type of the highest level of competition they participated in (DI or DII)
- In the pre-test section, participants were presented the athletic identity or pro-athlete identity (via self-reported state anxiety) and then completed the NCAA math test
- The math test was a 20-item math test consisting of 10 multiple-choice questions and 10 short-answer questions
- Participants were then asked to complete a survey about their experience with the math test

Statistical Analysis

- The data were analyzed using a 2 (gender) x 2 (stereotype threat) x 2 (level of NCAA competition) ANOVA
- Results are reported in terms of main effects and interactions
- Significant interactions are reported in terms of simple effects



Results

Main Effects

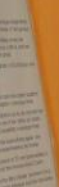
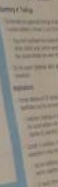
- The main effect of gender was significant, $F(1, 99) = 10.1, p < .01$.
- The main effect of stereotype threat was significant, $F(1, 99) = 10.1, p < .01$.
- The main effect of level of NCAA competition was significant, $F(1, 99) = 10.1, p < .01$.

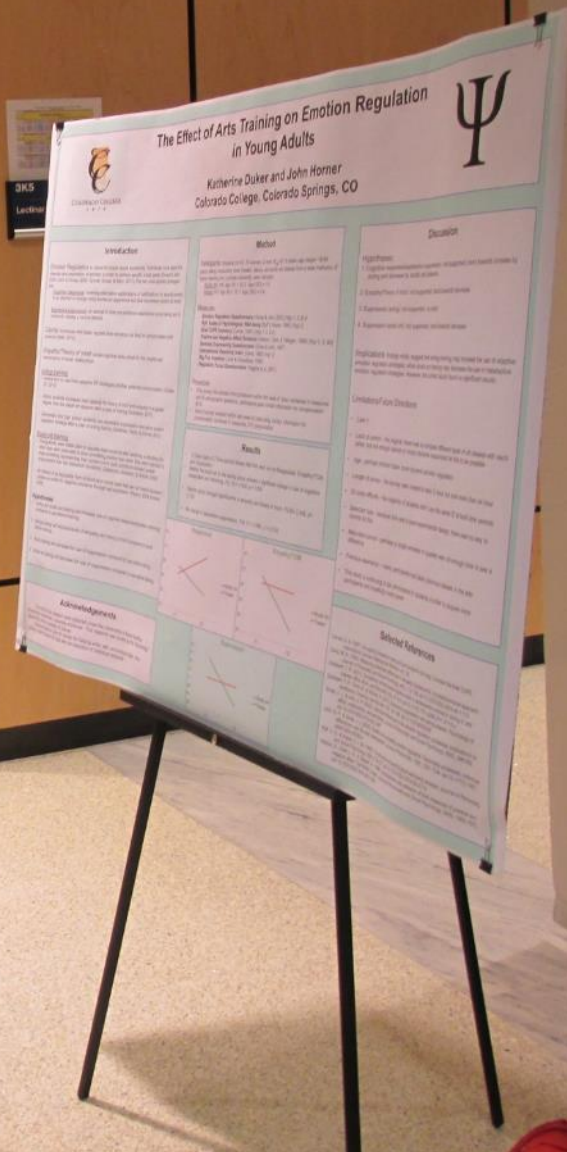
Simple Effects

- The simple effect of gender was significant, $F(1, 99) = 10.1, p < .01$.
- The simple effect of stereotype threat was significant, $F(1, 99) = 10.1, p < .01$.
- The simple effect of level of NCAA competition was significant, $F(1, 99) = 10.1, p < .01$.

NCAA Status Effect

- The NCAA status effect was significant, $F(1, 99) = 10.1, p < .01$.
- The interaction of gender and NCAA status was significant, $F(1, 99) = 10.1, p < .01$.
- The interaction of stereotype threat and NCAA status was significant, $F(1, 99) = 10.1, p < .01$.
- The interaction of gender and stereotype threat was significant, $F(1, 99) = 10.1, p < .01$.
- The interaction of gender, stereotype threat, and NCAA status was significant, $F(1, 99) = 10.1, p < .01$.





A young woman with blonde hair and glasses, wearing a white lace dress and black boots, is engaged in a conversation. She is gesturing with her hands as she speaks. She is standing in a hallway with wood-paneled walls. In the background, there is a doorway leading to another room with a desk and chairs. To the left, a person in a black jacket and a green bag is partially visible, looking towards the woman in the white dress.



Stereotype Threat: Prejudice within an In-Group

Melissa L. Barnes and Emily Chan
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Method

Participants
Self-identified as: 1) currently living in rural area or 2) grew up in rural area
Recruited from academic settings through college contacts
N = 25, 18-59 years old (majority 20-24 years old)

Independent Variables = 2 x 2

1. Stereotype threat: induced or not induced
 - Induced threat: before verbal test asked whether they grew up in rural or urban area
2. Rural job candidate file or urban job candidate file
 - Job description
 - Candidate resume
 - Minor in agricultural economics or urban economics
 - Picture of candidate
 - Difference in neckline and hair/braid
 - One minute clip of job interview

Dependent Variables

1. Performance on GRE-type verbal test
 - 20 questions
2. Self-evaluation questionnaire (Heatherton & Polivy, 1991)
 - I feel good about myself
 - I feel inferior to others at this moment
 - I feel dissatisfied with myself
 - I tend to feel depressed
3. Evaluation of job candidate, a = .50
 - Job competency
 - Trusts others
 - Goal focused
 - Self-confident
 - Self-aware

Procedure

Threat manipulation
GRE-type verbal test
Self-evaluation questionnaire

Results

Performance on GRE-type verbal test

- 2x2 ANCOVA found no main effect of stereotype threat, $F(1,22) = 1.46, p = .24$
- However, non-significant threat x job candidate interaction effect on self-evaluation, $F(1,22) = 11.52, p < .01$
- Participants ($M_{score} = 10.27, SD = 2.13$)
- Non-significant main effect of candidate background
- Non-significant interaction effect found

Self-Evaluation

- 2x2 ANCOVA found significant main effect of stereotype threat on self-evaluation, $F(1,22) = 8.41, p < .01, \eta^2 = .27$
- Stereotype threat participants showed a decrease in self-evaluation ($M = 10, SD = 7$)
- Non-threat participants showed an increase in self-evaluation ($M = 11.5, SD = 8$)
- Non-significant main effect of candidate background
- Non-significant interaction between stereotype threat and candidate background

Job Candidate Evaluation

- 2x2 ANCOVA found non-significant main effect of stereotype threat on overall job candidate evaluation, $F(1,22) = 1.04, p = .32$
- Non-significant main effect of candidate background on overall job candidate evaluation, $F(1,22) = 1.04, p = .32$
- Non-significant interaction between stereotype threat and candidate background, $F(1,22) = 1.04, p = .32$
- Participants who were exposed to threat had lower scores on overall job candidate evaluation ($M = 10.27, SD = 2.13$)
- Participants who were not exposed to threat had higher scores on overall job candidate evaluation ($M = 11.52, SD = 2.13$)

Discussion

Support for Hypothesis 1?

1. Verbal test scores were not significantly affected by stereotype threat
2. Threat participants showed lower self-evaluation scores
3. Threat participants showed lower self-evaluation scores when evaluating rural candidates
4. Stereotype threat induced negative self-evaluation scores for rural candidates
5. Stereotype threat induced negative self-evaluation scores for urban candidates
6. Control participants rated rural candidates higher than urban candidates
7. In-group bias

Conclusions/Implications

- People from rural areas not obligated to see themselves as rural
- Exposure to rural-themed frameworks (Chapters & headings, 2007)
- Threat combined with lesser performing being an in-group member for candidates
- Openness toward less-stigmatized rural
- Stigmatized rural candidates with significantly better scores on verbal test
- Decrease in self-evaluation when using job candidate or threat participants
- Need more research on urban living conditions of threat participants
- Self-evaluation self-evaluation
- Non-significant interaction between job candidate and self-evaluation
- Self-evaluation measures was affected by threat
- Need
- Aid of manipulating verbal test scores and self-evaluation scores

Limitations

- Small sample size
- Verbal test scores were not significantly affected by stereotype threat
- Verbal test scores were not significantly affected by stereotype threat
- Verbal test scores were not significantly affected by stereotype threat
- Verbal test scores were not significantly affected by stereotype threat


Future Research

- Research on whether threat participants were more likely to be rural or urban
- Research on whether threat participants were more likely to be rural or urban
- Research on whether threat participants were more likely to be rural or urban
- Research on whether threat participants were more likely to be rural or urban



Effectiveness of Movement Therapy for Parkinson's Disease

Claire R. McNeilan
Kristi Erdel
The Colorado College, Colorado Springs, CO



Abstract and Clinical Studies of PT

Clinical Studies of Dance, Aerobic Exercise, strength, flexibility, balance

What is your research?

Future Directions

Colorado College

Controlling Parkinson's Disease

Diagnosis & Safety

Research Results



Determination of Growth Conditions of Bacteria in Extraterrestrial Environments

Ray J. McAllen and Katherine...

Department of Biology, Colorado State University





The Effects of Prenatal Stress and FGFR2 on Anxiety, Locomotion and GABAergic Cell Density in the Mouse Hippocampus

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The Colorado College, Colorado Springs, CO, Yale School of Medicine, New Haven, CT



Introduction

Prenatal Stress and Psychiatric Disorders

Associated with the development and exacerbation of psychological impairments.
Linked to autism spectrum disorder (ASD), attention-deficit hyperactive disorder (ADHD), bipolar disorder (BPD), and schizophrenia.

Goal

To gain a better understanding of the effects of PE and FGFR2 on GABAergic development in the hippocampus, anxiety and locomotion by using two environmental and genetic factors inherent in psychiatric disorders.

Hippocampal GABA, PS, and Psychopathology

Epigenetic modifications induced by PE downregulate the expression of GABAergic cells, resulting in a GABAergic phenotype in mice.
Increased GABA, binding and decreased GABA_A binding in the hippocampus in schizophrenia.

Fibroblast Growth Factor Receptor 2 (FGFR2)

Downregulated expression of FGFR2 in postnatal brains of individuals with major depression.
Regulation of FGFR2 by psychotropic drugs and antidepressants.
A single nucleotide polymorphism near the FGFR2 gene is associated with schizophrenia.
 $PS \rightarrow FGFR2 \rightarrow Hippocampal GABA \rightarrow Psychopathology$

Study Design

1. Stress: Prenatal Stress (PS) or Prenatal Unstress (PU)
2. FGFR2 status: Wildtype (WT) or Knockout (KO)

Outcome Variables

1. Anxiety: Elevated Plus Maze
2. Locomotion: Open Field Test
3. GABAergic cell density in the hippocampus

Hypotheses

- Anxiety:
 - FGFR2 KO: increased anxiety compared to WT FGFR2
 - PS: increased
- Locomotion:
 - FGFR2 KO: hyperactivity compared to WT FGFR2
 - PS: hyperactivity compared to WT FGFR2
- GABAergic cell density in hippocampus:
 - FGFR2 KO: decreased density compared to WT FGFR2
 - PS: decreased density compared to WT FGFR2

Method

Subjects and Treatments

Mice from WT (control) FGFR2 levels or gene knockout group.
Mice with WT FGFR2, PS and WT FGFR2, PU and FGFR2 KO, PS and FGFR2 KO, PU.

Procedure

All animals were subjected to half of the treatment for 14 days after birth.

Elevated Plus Maze (EPM)

Pre-trial sessions: animals habituated to location of maze right in open area before trial runs.



Open Field Test (OFT)

Animals were habituated to the location of the OFT arena before trial runs.



Cell Density

Animals were sacrificed and brains were sectioned. The number of GABAergic cells was counted in the hippocampus.

Results

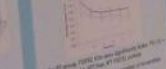
Control Plus Maze

Significant main effect of genotype on the number of entries into the open arms ($F(1, 12) = 10.0, p < 0.01$). No main effect of treatment, main effect of sex, or any interaction.



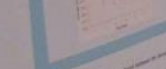
Open Field Test

No genotype or treatment effect on the number of entries into the open arms.



Cell Density

Significant main effect of genotype on the number of GABAergic cells in the hippocampus ($F(1, 12) = 10.0, p < 0.01$). No main effect of treatment, main effect of sex, or any interaction.



Discussion

Summary

FGFR2 KO mice exhibit higher anxiety than WT animals in the EPM.

PS increased anxiety in WT FGFR2 KO mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit hyperactivity in the OFT.

PS increased hyperactivity in WT FGFR2 KO mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit decreased GABAergic cell density in the hippocampus.

PS decreased GABAergic cell density in the hippocampus of WT FGFR2 mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit increased anxiety in the EPM.

PS increased anxiety in WT FGFR2 KO mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit hyperactivity in the OFT.

PS increased hyperactivity in WT FGFR2 KO mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit decreased GABAergic cell density in the hippocampus.

PS decreased GABAergic cell density in the hippocampus of WT FGFR2 mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit increased anxiety in the EPM.

PS increased anxiety in WT FGFR2 KO mice, but not in WT FGFR2 mice.

FGFR2 KO mice exhibit hyperactivity in the OFT.

PS increased hyperactivity in WT FGFR2 KO mice, but not in WT FGFR2 mice.




Selected References

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Gender Differences in the Proprioceptive Effects of Tilt

Jenny Wool and Tomi-Ann Roberts
The Colorado College, Colorado Springs, CO



Introduction

Poster Title: Gender Differences in the Proprioceptive Effects of Tilt

Poster Authors: Jenny Wool and Tomi-Ann Roberts

Poster Institution: The Colorado College, Colorado Springs, CO

Poster Abstract: The purpose of this poster is to investigate gender differences in the proprioceptive effects of tilt. We hypothesized that men would be more accurate than women in their judgments of tilt. We tested this hypothesis by having participants judge the tilt of a horizontal bar. We found that men were more accurate than women in their judgments of tilt.

Method

Participants: 20 men and 20 women, all students at The Colorado College.

Procedure: Participants were seated at a table and were asked to judge the tilt of a horizontal bar. The bar was tilted at 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000 degrees.

Results

Men were more accurate than women in their judgments of tilt. The difference was significant for all tilt angles except 0 degrees.

Conclusions

Men are more accurate than women in their judgments of tilt. This suggests that there are gender differences in the proprioceptive effects of tilt.

Future Directions

Future research should investigate the underlying mechanisms of these gender differences.

References: Wool, J., & Roberts, T. A. (2010). Gender Differences in the Proprioceptive Effects of Tilt. *Journal of Experimental Psychology: Applied*, 16(1), 1-10.

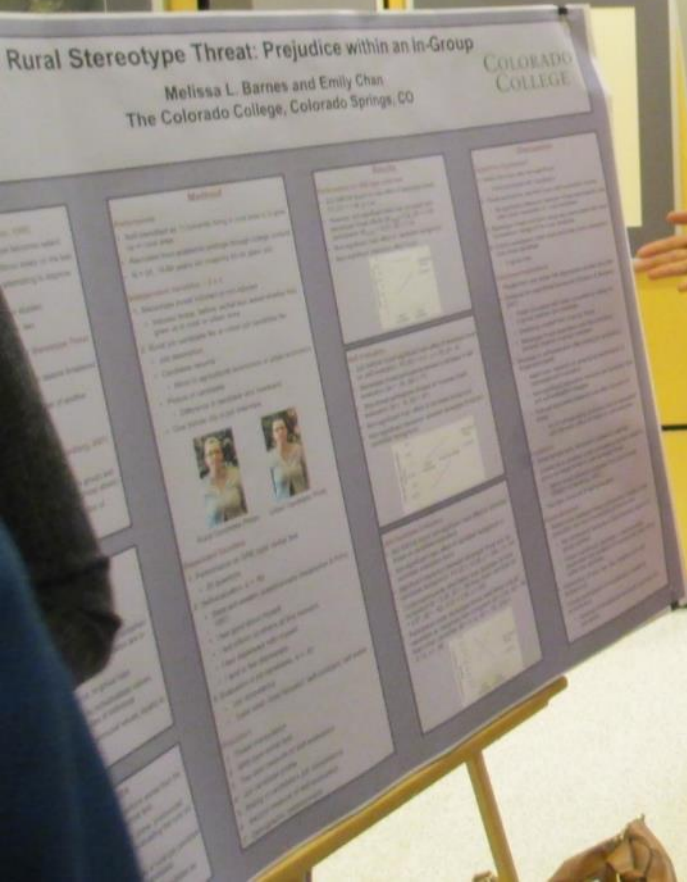
Rural Stereotype Threat: Prejudice within an In-Group
Melissa L. Barnes and Emily Chan
The Colorado College, Colorado Springs, CO

Colorado College

Method

Results

Conclusions



Therapy for Parkinson's Disease

L. McNeilan
A. Erdal*
Colorado Springs, CO

Clinical Studies of Drugs - Aerobic Exercise, strength, flexibility, balance

- Exercise has been shown with long-term benefits to reduce falls, improve walking and gait, and improve quality of life.
- Target: Therapeutic walking, improved gait, balance, strength.
- Recent findings:
 - 1. Exercise improves walking speed and gait.
 - 2. Exercise improves balance.
 - 3. Exercise improves quality of life.
 - 4. Exercise improves cognitive function.

Multi-Domain: Exercise, cognitive training, and social support

Neuro Studies of Drugs - More than just an antioxidant approach?

Neuro Studies - Targeted

- 1. Dopamine replacement in Parkinson's disease: A review of the literature.
- 2. Dopamine replacement in Parkinson's disease: A review of the literature.
- 3. Dopamine replacement in Parkinson's disease: A review of the literature.
- 4. Dopamine replacement in Parkinson's disease: A review of the literature.

Neuro Studies - Antioxidants

- 1. Antioxidants in Parkinson's disease: A review of the literature.
- 2. Antioxidants in Parkinson's disease: A review of the literature.
- 3. Antioxidants in Parkinson's disease: A review of the literature.
- 4. Antioxidants in Parkinson's disease: A review of the literature.

Neuro Studies - Mitochondria

- 1. Mitochondria in Parkinson's disease: A review of the literature.
- 2. Mitochondria in Parkinson's disease: A review of the literature.
- 3. Mitochondria in Parkinson's disease: A review of the literature.
- 4. Mitochondria in Parkinson's disease: A review of the literature.

Neuro Studies - Synaptic Function

- 1. Synaptic function in Parkinson's disease: A review of the literature.
- 2. Synaptic function in Parkinson's disease: A review of the literature.
- 3. Synaptic function in Parkinson's disease: A review of the literature.
- 4. Synaptic function in Parkinson's disease: A review of the literature.

Neuro Studies - Neuroinflammation

- 1. Neuroinflammation in Parkinson's disease: A review of the literature.
- 2. Neuroinflammation in Parkinson's disease: A review of the literature.
- 3. Neuroinflammation in Parkinson's disease: A review of the literature.
- 4. Neuroinflammation in Parkinson's disease: A review of the literature.

Neuro Studies - Neurogenesis

- 1. Neurogenesis in Parkinson's disease: A review of the literature.
- 2. Neurogenesis in Parkinson's disease: A review of the literature.
- 3. Neurogenesis in Parkinson's disease: A review of the literature.
- 4. Neurogenesis in Parkinson's disease: A review of the literature.

Neuro Studies - Neuroprotection

- 1. Neuroprotection in Parkinson's disease: A review of the literature.
- 2. Neuroprotection in Parkinson's disease: A review of the literature.
- 3. Neuroprotection in Parkinson's disease: A review of the literature.
- 4. Neuroprotection in Parkinson's disease: A review of the literature.

COLORADO COLLEGE

Content

Methods

Results

Discussion & Future Directions

Conclusions



Celebrating Springs in Hydrogeology Research Platform



Can a Drawing Activity Temporarily Influence Spatial Abilities? Exploring the Process of Creating Visual Art

Ariana Gentile Polesa and John Horner
Colorado College, Colorado Springs, CO

Introduction
Spatial abilities are the ability to visualize objects in three-dimensional space and to manipulate them mentally. They are important for many professions, including engineering, architecture, and design. This study explores the relationship between drawing and spatial abilities.

Methods
1. 20 college students (10 male, 10 female) participated in the study.
2. The study was conducted in two phases: a pre-test and a post-test.
3. The pre-test consisted of a spatial ability test (SST) and a drawing test (DT).
4. The post-test consisted of the same SST and DT, but with a drawing activity (DA) in between.

Results
The results of the SST and DT are shown in the following graphs. The SST results show a significant increase in scores from the pre-test to the post-test. The DT results show a significant increase in scores from the pre-test to the post-test.

Discussion
The results of this study suggest that drawing activity can temporarily influence spatial abilities. This finding has implications for education and training in fields that require spatial abilities.

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305
Lecture 1



How Shame Affects Writing

Taryn Miller

Common Emotions Writers Now In Sharing Their Work

Exicted

Share in: proud that what's passed my heart and soul actually flowed and thinned. --Anonymous response


ology: on of 44 students and former students, mostly from UCCO. 2 UCCO English were reinterviewed about their writing process as time came into it. Coping strategies were used

to walk away... Too often, when I start feeling, it's usually based on self-worth or fear. I can't walk away and then come back. At least I can't walk away that often... And it's not good for me in the morning... --Anonymous with...

The Efficacy of Movement Therapy for Parkinson's Disease

Claire R. McNellan
Kristi Erdal*


The Colorado College, Colorado Springs, CO



COLORADO COLLEGE

Parkinson's Disease

- Lateral nucleus of hypothalamus (LH)
- Dopamine (released from LH)
- Basal ganglia
- Motor cortex
- Ability to plan, initiate, execute
- Affects fine motor, automatic actions
- Healthy brain is a "dopamine" source in basal ganglia of the motor cortex
- "Parkinson's" is a dopamine-producing deficiency in the basal ganglia



Exercise and Animal Models of PD

- Limited amount of L-DOPA synthesis in striatum leads to a 10% response in striatal dopamine levels
- Exercise showed that exercise is a coping strategy
- Dopamine and L-DOPA levels increased in striatum
- Dopamine transporter activity in the striatum
- Dopamine transporter changes
- Regulation of L-DOPA levels
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Clinical Studies of Dance: Aerobic fitness, strength, flexibility, balance

- Dance had positive effects on all of body weight, aerobic fitness, strength, flexibility, balance
- Single: Three week-long, intensive program
- Effects:
 - Reduced body mass
 - Improved balance
 - Increased walking speed
 - Improved executive function
 - Improved motor learning
- Had better posture, improvement of steps and posture in the group environment
- Results suggest that dance exercise

What if I can't dance?

- Challenges in goals of activity
- Current work (2013):
 - Participants with Parkinson's disease
 - Geriatric center (dementia, dementia, mild cognitive impairment)
 - Working and learning with a cognitive, motor, and sensory deficit
 - All groups included changes in the
 - Future (2014)
 - Possible for integration of movement in the
 - dance activity

Does Exercise Help Humans with PD?

- Exercise shows positive effects on motor, cognitive, and non-motor symptoms
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Neuro Studies of Dance: More than just well-practiced exercise?

- Neural benefits: Visual
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Neural Benefits: Auditory

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Future Directions

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

The Basal Ganglia

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Motor Benefits

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Neural Benefits: Visual

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

Neural Benefits: Auditory

- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex
- Dopamine transporter, motor cortex

MEASURING UP

Department of Geography and Environmental Science

Context

The study of urban growth provides numerous areas:

- Sustainability and environmental awareness
- Quality of life - improving the quality of life in parks and open space, reducing traffic congestion
- Resource allocation - performing the most efficient allocation of resources

Study Site



Data

QUALITY OF LIFE IDENTIFYING THE DATA SOURCE

- Plan 20 Path
- Road 1-6 and 7-10
- Colorado Springs
- Colorado Springs
- Colorado Springs



The Effects of Prenatal Stress and FGFR2 on Anxiety, Locomotion and GABAergic Cell Density in the Mouse Hippocampus

Abigail Sawyer, Hanna Stevens, and Lori Driscoll
The Colorado College, Colorado Springs, CO; Yale School of Medicine, New Haven, CT



Introduction
 and Psychiatric Disorders
 development and exacerbation of anxiety.
 (ADHD), bipolar disorder (BD), and
 schizophrenia (SCZ).

Method
 Subjects and Treatments
 Mice were either stressed (PST) or non-stressed (NST) during pregnancy.
 FGFR2 KO mice were compared to WT FGFR2 mice.
 FGFR2 KO mice were compared to WT FGFR2 mice.
 FGFR2 KO mice were compared to WT FGFR2 mice.

Results
 Elevated Plus Maze
 Anxiety-like behavior was assessed using the elevated plus maze (EPM) test.
 Open Field Test
 Anxiety-like behavior was assessed using the open field test (OFT).
 GABAergic Cell Density
 GABAergic cell density was assessed using immunohistochemistry (IHC) for GABAergic cells in the hippocampus.

Discussion
 Summary
 FGFR2 KO mice showed increased anxiety-like behavior compared to WT FGFR2 mice.
 FGFR2 KO mice showed decreased locomotion compared to WT FGFR2 mice.
 FGFR2 KO mice showed decreased GABAergic cell density in the hippocampus compared to WT FGFR2 mice.

Selected References
 [List of references]







The Effects of Prenatal Stress and FGFR2 on Anxiety, Locomotor Activity, and GABAergic Cell Density in the Mouse Hippocampus

Advisor: Hanna Stevens, and Lori Driscoll
The Colorado College, Colorado Springs, CO, Yale School of Medicine, New Haven, CT

Introduction
Prenatal stress (PS) is a major risk factor for anxiety and depression. The effects of PS on the hippocampus, a brain region involved in learning and memory, are not fully understood. We investigated the effects of PS on anxiety, locomotor activity, and GABAergic cell density in the mouse hippocampus. We used a mouse model of PS (PS mice) and a mouse model of FGFR2 deficiency (FGFR2^{-/-} mice). We also used a mouse model of PS and FGFR2 deficiency (PS; FGFR2^{-/-} mice).

Methods
Mice were divided into four groups: PS, FGFR2^{-/-}, PS; FGFR2^{-/-}, and control (CON). Anxiety was measured using the open field exploration (OFE) test. Locomotor activity was measured using the open field exploration (OFE) test. GABAergic cell density was measured using immunohistochemistry (IHC) for GABAergic cells in the hippocampus.

Results
PS mice showed significantly higher anxiety levels (OFE) compared to CON mice. FGFR2^{-/-} mice showed significantly lower anxiety levels (OFE) compared to CON mice. PS; FGFR2^{-/-} mice showed significantly lower anxiety levels (OFE) compared to PS mice. PS mice showed significantly higher locomotor activity (OFE) compared to CON mice. FGFR2^{-/-} mice showed significantly lower locomotor activity (OFE) compared to CON mice. PS; FGFR2^{-/-} mice showed significantly lower locomotor activity (OFE) compared to PS mice. PS mice showed significantly higher GABAergic cell density in the hippocampus compared to CON mice. FGFR2^{-/-} mice showed significantly lower GABAergic cell density in the hippocampus compared to CON mice. PS; FGFR2^{-/-} mice showed significantly lower GABAergic cell density in the hippocampus compared to PS mice.

Conclusion
Prenatal stress (PS) increases anxiety and locomotor activity in the mouse hippocampus. FGFR2 deficiency (FGFR2^{-/-}) decreases anxiety and locomotor activity in the mouse hippocampus. PS; FGFR2^{-/-} mice show significantly lower anxiety and locomotor activity compared to PS mice. PS increases GABAergic cell density in the mouse hippocampus. FGFR2 deficiency (FGFR2^{-/-}) decreases GABAergic cell density in the mouse hippocampus. PS; FGFR2^{-/-} mice show significantly lower GABAergic cell density compared to PS mice.




The Efficacy of Movement Therapy for Parkinson's Disease

**Claire R. McNellan
Kristi Erdal***
The Colorado College, Colorado Springs, CO

Parkinson's Disease

- Central symptoms of Parkinson's disease (PD):
 - Tremor (rest, action, posture)
 - Muscle rigidity
 - Slowing down
- Cognitive decline (not in older people)
- Ability to swallow decrease
- Cognitive decline (not in older people)
- Ability to swallow decrease
- Affects basal ganglia (substantia nigra)
- Affects basal ganglia (substantia nigra)
- Affects basal ganglia (substantia nigra)



Exercise and Animal Models of PD

- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD
- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD
- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD
- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD
- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD
- 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) animal model of PD

Clinical Studies of Dance: Aerobic fitness, strength, flexibility, balance


- Dance that involves vigorous shifts of body weight, external posture, center, and fluid feeling are most effective
- **Target:** Slow-motion walking, improvisation, movement
- **Results:**
 - Reduced falls
 - Improved balance
 - Improved walking speed
 - Improved executive function
 - Improved mental imagery
- **High-Dance:** Requires incorporation of high and natural control group environment
- **Results:** Aerobic, traditional exercise

What if...

- Observation of...
- Control...
- ...

Does Exercise Help Humans with PD?

- Evidence about exercise conducted primarily by scientists
- Clinical outcomes of dopamine replacement
- Self-reported quality of life
- Cognitive
- Balance
- Strength
- Flexibility
- Endurance
- ...



Neuro Studies of Dance: More than just well-rounded exercise?

Neural Benefits: Visual

- Post-discovery of the dopamine
- Set of neurons activated when you perform an action and when you watch another perform it
- Activated by watching a dance instructor or following a barre
- Observation-based dance leads to increased neural changes

Neural Benefits: Auditory

- Auditory cortex
- E.g., instrumental improvisation, free tapping, vocal improvisation
- Types of improvisation
- Reduced hypokinesia
- Improved quality of life
- Reduction of sleep target after walking
- Types of improvisation
- Increased goal setting
- Reduced fall risk
- Improved ability to shift gear
- ...

COLORADO COLLEGE

MEASUREMENTS

CONCEPTS

STUDY

DATA

**Can a Drawing Activity Temporarily Influence Sp...
Exploring the Process of Creating Visu...**

Arianna Gentile Polese and John Horne
Colorado College, Colorado Springs, CO

Introduction

Observational Drawing: Drawing Realistically From Life

An underlying goal is to identify the aspects of scene that are most difficult to draw (e.g., shading, color, texture, etc.).

Participants completed two sessions of four distinct tasks (Barnes, 1987):

1. Copying the drawing.
2. Drawing what participants perceived.
3. Drawing the drawing.
4. Drawing the drawing.

Participants were instructed to draw what they perceived, not what they knew.

Participants were instructed to draw what they perceived, not what they knew.

Participants were instructed to draw what they perceived, not what they knew.

Method

1 x 2 Mixed Design
30 people participated April 10-19

Independent Variables

- 1. Drawing task (2D vs 3D)
- 2. Degree of rotation (0, 45, 90, 135, 180)
- 3. Degree of rotation of MST system

Dependent Variables

- 1. MST performance
- 2. Response time (seconds)
- 3. Accuracy

Material Rotation Test (MRT)

Participants were instructed to rotate whether they perceived objects were the same or different regardless of response time (in milliseconds) and accuracy (percent correct) over the trials.

All participants completed ten sessions of the MRT.

Method (cont.)

Procedure

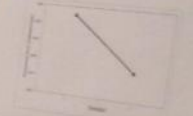
1. Participants completed 12 practice trials of the MRT for 100 rotated trials.
2. Participants completed one of the trials undergoing the three rotation (groups were randomly assigned).
3. Participants completed the second session of the MRT, which consisted of 48 trials.
4. Participants completed a brief questionnaire on demographic information, art experience, and time spent playing video games.

Results

Participants had a shorter mean response time in the second session of the MRT.


Response Time

- Significant main effect of session.



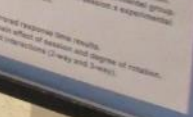
Accuracy

- No significant main effect of degree of rotation.
- Significant main effect of session (accuracy increased).



Results (cont.)

Participants' response time on the MRT increased as the degree of rotation increased.



No significant main effect of experimental group.

No significant interaction of session x degree of rotation.

The significant three-way interaction of session x experimental group x degree of rotation.

Accuracy

- No significant main effect of experimental group.
- Significant main effect of session and degree of rotation.
- No significant interactions (2-way and 3-way).

9K5
Lecturer 5
1 hour/minute

ARIANNA GENTILE POLESE
Colorado College

Participant (left) with glasses and a red bag, looking at the poster.



Gender Differences in the Proprioceptive Effects of Tilted Faces

Jenny Wool and Tomi-Ann Roberts
The Colorado College, Colorado Springs, CO



Introduction

Proprioceptive postures decrease cortisol and increase testosterone, risk-taking behaviors of power/masculinity (Carne, Cohen, & Yoo, 2010). Power felt from manipulating posture affects cognitive functioning more than gender. High/low power roles in real-world instances of high/low power (dominated body manipulation also affect feelings of power). Making a fist increased assertiveness and power for males (but not females) (Simons and Kirby, 2010).

Differences in Body Feedback

Low evolutionary value contexts, men and women "naturally" adopt those power-associated various postures associated postures and postures. Studies suggest gender plays a significant role in body feedback (Hurst & Krause, 2007). For males, receiving success feedback in an upright posture increased performance satisfaction and pride; for females, receiving success feedback in a slumped posture increased performance satisfaction and pride.

The Proprioceptive Effects of Tilted the Head Upward or Downward

The differential power-associated consequences of tilting the head in one area of power posing rely with questions of gender's influence. It is evaluated postures as more intimidating when the photograph target, males of gender, had their face tilted either upward or downward (Peterson, 2015). Upward tilting was more effective than downward tilting in increasing perceived intimidation.

Participants spontaneously tilted their heads up when asked to pose as intimidating-looking (as possible, probably, like to outward expectations). People perceive downward tilted female faces as less feminine and attractive than upward tilted female faces (Buche & Sulikowski, 2016). Factors perceive women as more intimidating who their heads tilted up, so actually that more intimidating than assuming such a posture?

Upward but not downward head tilt condition would exhibit tendencies of men and women to tilt their heads up, so actually that more intimidating than assuming such a posture? Head-masking and increased risk-taking.

Jenny Wool
Ph.D. Student Psychology
Colorado College

Method

Female n = 37
All years old
To Head 130 Condition (Up, Down)

The study explored the ergonomic effects of different working postures. Participants completed the participant's head tilt condition in a 30 s or 60 s condition. The study explored the ergonomic effects of different working postures. Participants completed the participant's head tilt condition in a 30 s or 60 s condition.



Method Continued

Duce-Roetiger-Moternot (DM) Face Recognition Paradigm

Measurements of correct timing
• Participants saw 100 words for face names each
• They then completed a recognition test consisting of 40 old faces and 20 new faces
• Of the new faces, 25 were potential distractors and 15 were critical faces (i.e., words not previously shown but similar to old faces)
• We examined the number of falsely selected critical faces, indicator of remembering general groupings of words more so than specific individual words
• We also measured performance levels for performance on the recognition tests for each gender subset (e.g., old faces, unrelated distractors, and critical faces)

Positive and Negative Affect Schedule (PANAS)

Twenty self-report mood items spanning two mood states, one measuring positive affect (e.g., happy and the other negative affect (e.g., sad), Completed in between the two sides of the diaphanous looking task. Identified how participants felt at the present moment. We assessed positive mood, negative mood, and a power mood score. For power mood, we selected six items ("Excited", "Strong", "Determined", "Active", and "Assertive") (n = 6)

Simulated Blackjack Game

Measurements of betting action
• Participants were instructed to pretend they were at a blackjack table in Las Vegas and used a description of the game's rules
• They then chose whether or not to take another card in a betting situation

Results

Manipulation Checks
• A t-test revealed no significant differences between the two head postures in terms of comfort, difficulty, and ease of manipulating them
• There were also no significant differences between the two genders in terms of comfort, difficulty, and ease of manipulating the postures

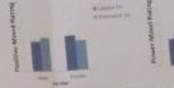
Alphabet Writing, Risk Taking, and Mean Rate

Results did not support the hypothesis concerning alphabet writing and risk. Through a significant interaction effect emerged for gender for the blackjack game betting, though a significant interaction effect emerged for gender for the blackjack game betting, though a significant interaction effect emerged for gender for the blackjack game betting.

Mood Ratings

To test Hypotheses 1 and 2, a 2 (Gender) x 2 (Head Tilt) ANOVA was performed on composite positive, negative, and power mood. A 2 (Gender) x 2 (Head Tilt) ANOVA was also performed on several single item mood items we identified as important components of power and powerlessness. Consistent to our prediction, men in the downward condition felt more proud, inspired, and active than men in the upward condition, while women in the upward condition felt more proud, inspired, and active than women in the downward condition.

Results Continued



Discussion

Conclusions and implications
• This study's mixed results point to the need for more evolutionary valid experiments of power and power posing
• The results also suggest problems with typical measures used to assess power (e.g., making one's arms behind the back, standing with feet apart, etc.)
• Our study also provides additional evidence to the literature that power posing can affect physiological measures such as cortisol levels and testosterone levels

Future Directions

• It is important to explore power posing in the field in a more natural setting
• We hope to investigate how power posing affects performance in a real-world setting

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THE EFFECTS OF LEARNING ORIENTATIONS ON MOTIVATION AND TEST PERFORMANCE

Roshni Patel, Erica Hoffman, Laura DiRusso, Nico Ravitch



CSURF

2014