Honors Thesis

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Collaboration against Crime: When is diversity beneficial?

Abstract

This study analyzes the interaction of similarity and gender in attempt to better understand when diversity can be leveraged to improve performance. Same-gendered dyads were categorized as high similarity if they had the same major and low similarity if they had different majors. Dyads collaborated to solve a murder mystery case with performance measured by selecting the correct suspect. The preliminary results found that dissimilar male dyads outperform similar male dyads and similar female dyads outperform dissimilar female dyads.

Literature Review

This study focuses on the interaction of similarity and gender. Both aspects are discussed below in order to understand the current research and hypothesize outcomes of their interaction.

Similarity

With an increasingly diverse workforce, business leaders and scholars alike seek to better understand how and when to leverage the effects of diversity in the workplace. While there are many aspects to team decision making and performance, past research has been inconclusive in alluding to when similar or dissimilar teams might outperform the other, frequently referring to diversity as a double-edged sword. Intuitively, similarity in groups likely leads to a more cohesive environment. This idea was reinforced by the similarity-attraction paradigm and social categorization theory in which individuals prefer to collaborate with similar group members (Williams and O'Reilly, 1998). More recently however, studies begin to show that homogenous groups have downsides as well. Katherine Phillips concluded that homogenous groups are prone to delusions of sharing similar knowledge or opinions which leads to a variety of consequences such as less unique information, greater social focus and overconfidence in performance (Phillips

et al, 2012). Knowledge of even surface-level similarity has been shown to promote less preparation in anticipation of interacting with a peer (Loyd et al, 2013). In addition, discussions on a positive relationship between diversity and innovation as well as a potential competitive advantage have become prevalent in the academic world (Basset-Jones, 2005). So when is diversity beneficial? This paper examines an underexplored perspective of suggesting the relationship between similarity and performance may be moderated by gender. Our research isolates this aspect in same-sex dyads to explore the potential effect gender has on performance in similar and dissimilar situations. This analysis can potentially clarify the conflicting research and allow a better understanding of when diversity yields better performance.

Gender

Research confirms that males and females differ in social situations. Therefore, we hypothesize that each gender will perform differently when working with a similar or dissimilar same-gendered peer. Studies show males have a competitive nature and seek to show formidability while females cooperate substantially more often (Charness and Rustichini, 2011). In addition, research suggests that gender triggers, which prompt gender-related behavior responses, may influence performance. (Bowles et al, 2004). Again related to diversity, there is mixed research on gender diversity in teams in relation to performance. While some observe that gender diversity resulted in intragroup conflict and lower performance (Pelled, 1996), others claim a slight superiority of mixed-gender groups related to the benefit of heterogeneity of interaction styles (Wood, 1987). Overall, there is still a lack of research based on same-gender interaction in cooperative situations.

Keeping the current literature in mind, in this study we are basing our hypothesis on attributing the mix in research due to gender. We predict that similar female dyads will be more

cooperative and share more unique information compared to similar males. We also predict that dissimilar male dyads will be more open to conflict and information sharing which will lead to outperformance of similar male dyads.

H1: Female dyads similar in majors will outperform dissimilar female dyads.

H2: Male dyads dissimilar will outperform similar male dyads.

Methodology

This study was conducted through the research lab at Oklahoma State University with participants from the Spears School of Business. For this analysis, each dyad indicated a high sense of familiarity by selecting a "4" or higher in ranking how well they know their partner on a scale from 1 to 7. Each dyad was then categorized into either high or low similarity based on their majors. Dyads with high similarity had the same major while pairs with low similarity had different majors. In this study, participants receive information pertaining to a murder mystery and must work together to decide on a murder suspect. In order to intentionally establish a sense of similarity or dissimilarity, the lab instructor informed the dyads that their first action was to discuss their majors and what they have learned from them for a total of three minutes. After the brief exchange on their majors, the instructor then passed out the murder mystery case which, between both participants, contained all information pertinent to correctly solving the case. Next, each participant was then given an individual pre and post questionnaire. These questionnaires had roughly 20-30 questions which measured each participants feeling towards a variety of aspects such as similarity, trust, confidence, and information sharing with their partner. Options ranged on a seven point Likert Scale indicating a level of strong disagreement or agreement for each statement. Lastly, the pair was given one group decision form to fill out together. This form required the dyad to indicate their chosen suspect as well as their confidence in their selection.

After reading the murder mystery case, the dyad had 30 minutes to discuss and come to an agreement on the murderer. See Figures 1, 2, and 3 for full questionnaires.

Results

A univariate analysis of variance (UNIANOVA) was performed to compare the mean differences in performance (selecting the correct suspect) across high and low similarity dyads in all female or all male teams. The analysis showed the following results for each category: High Similarity Male Dyads (M=.3750), Low Similarity Male Dyads (M=.5294), High Similarity Female Dyads (M=.5217), Low Similarity Female Dyads (M=.3226). These results did not prove statistically significant with p =.066. In summary, the results showed high similarity female dyads outperforming low similarity female dyads and vice versa for the male dyads represented by Figure 4 and 5. Additionally, a binomial linear regression was performed because of the dichotomous dependent variable.

Discussion

While the findings for the preliminary results were not statistically significant, for the purpose of educational practice, I will discuss potential theories as if the findings were significant. A potential theory of dyads behaving in conformance with gender stereotypes, women are more cooperative and therefore are potentially less willing to disagree or cause conflict during dissimilar situations compared to similar situations. Men are aware of their competitiveness in dissimilar situations and are more willing to discuss alternatives views than in similar situations where it may jeopardize a relationship. Evidence of this theory is provided throughout the study. For example, when comparing the mean response to frequently discussing alternative viewpoints, male dyads answered to a higher degree of agreeance in low similarity than high similarity pairings. For female dyads, the mean was slightly higher in high similarity

than low similarity pairings. The interaction was statistically significant with p=.027. Another question asking agreeance in the importance of getting along with their partner rather than getting the answer correct had a statistically significant interaction between gender and performance (p=.001). While female dyad's responses were overall higher than males', similar male dyad's responses were higher than dissimilar male dyad's responses. See Figure 6 and 7 for full statistical analysis of these responses. These outcomes are an indication of potential differences in how male and females interact in similar and dissimilar situations.

Application

With further analysis, this study can provide insight on how to leverage diversity in the workplace. The average performance by each category of dyad provides an opportunity to understand when similarity or diversity is most beneficial. This information can be utilized when assembling work pairs or teams to achieve the best results. I believe that aspects of this study can also be applied to work interactions such as with bosses or mentorship pairings, any chance to improve the outcome or performance of collaboration. In regard to the mean performances, I think it is especially important to avoid situations that decrease success. In industries such as IT or accounting, which likely have less variability in degrees, it may be beneficial to be aware of the pitfalls of similarity in teams. However, in something like a start-up company, there may be a more diverse education background, so it would be important to be aware of when similarity has benefits. In a broader sense, however, these results can be applied when making decisions for team collaboration in the workplace to produce the most success.

Implications for Future Research

While this preliminary analysis was condensed due to time and ability constraints, initial findings indicate the need for a deeper analysis for conclusive results. In this study, there are

numerous factors that can influence the results as well as numerous ways to analyze them. Statistically, the R-Squared values were very small which indicates a high level of variability that is not explained by the model. While this study was analyzed on a basis of similarity in major, that may not be an easily distinguishable aspect of diversity in the workplace. In addition, there could also be surface-level diversity such as age or race in play during this study which were captured in the questionnaires, but not yet analyzed. The other important piece is that participants in this study were categorized as highly familiar with one another which may also have an influence in how they make decisions, strangers may interact completely differently. Overall, there remain questions in the outcomes of this study that are currently not explained by present research. Gender and similarity interactions remain an underexplored area in research could shed light on the controversial findings related to each individual aspect.

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Appendix

Figure 1 **Pre Discussion Questionnaire:** Individually completed before group discussion begins.

Part I. Please answer the following questions related to the upcoming discussion.

1. It is important to me for my group to correctly solve the murder mystery.

1	2	3	4	5	6	7
not at all		slightly		moderately		Extremely

2. I am open to listening to the other person's opinion during the upcoming discussion of the murder.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

3. I think the other person will be interested in what I have to say.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

4. I think the other person will be open to listening to my opinions during the upcoming discussion.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

5. I feel that it is more important for us to get the right answer to the Murder Mystery than for us to get along.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

6. I would prefer to work with a different person.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

7. I feel that my partner is knowledgeable about the murder suspects.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

8. I feel that my partner is competent in his/her ability to determine the best suspect.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

9. I will enjoy working with the other person.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

10. I feel that it is more important for us to get along than for us to get the right answer to the Murder Mystery.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

Figure 1 Cont. **Pre Discussion Questionnaire**

Part II. Please answer the following questions regarding the other person.

1. I feel that I will probably _____ this person.

1	2	3	4	5	6	7
very much dislike	dislike	slightly dislike	neither like or dislike	slightly like	like	very much like

2. I feel that the other party will probably _____ me.

1	2	3	4	5	6	7
very much dislike	dislike	slightly dislike	neither like or dislike	slightly like	like	very much like

3. I feel that I will probably _____ working with this person.

1	2	3	4	5	6	7
very much dislike	dislike	slightly dislike	neither like or dislike	slightly like	like	very much like

4. I feel that the other person will probably _____ working with me.

1	2	3	4	5	6	7
very much dislike	dislike	slightly dislike	neither like or dislike	slightly like	like	very much like

Part III. The following questions relate to your identification with your college major. Below each statement, please circle the number that corresponds to the degree to which you feel each statement.

1. I am pleased with my major.

1	2	3	4	5	6	7
Strongly disagree	disagree	slightly disagree	neutral	slightly agree	agree	strongly agree

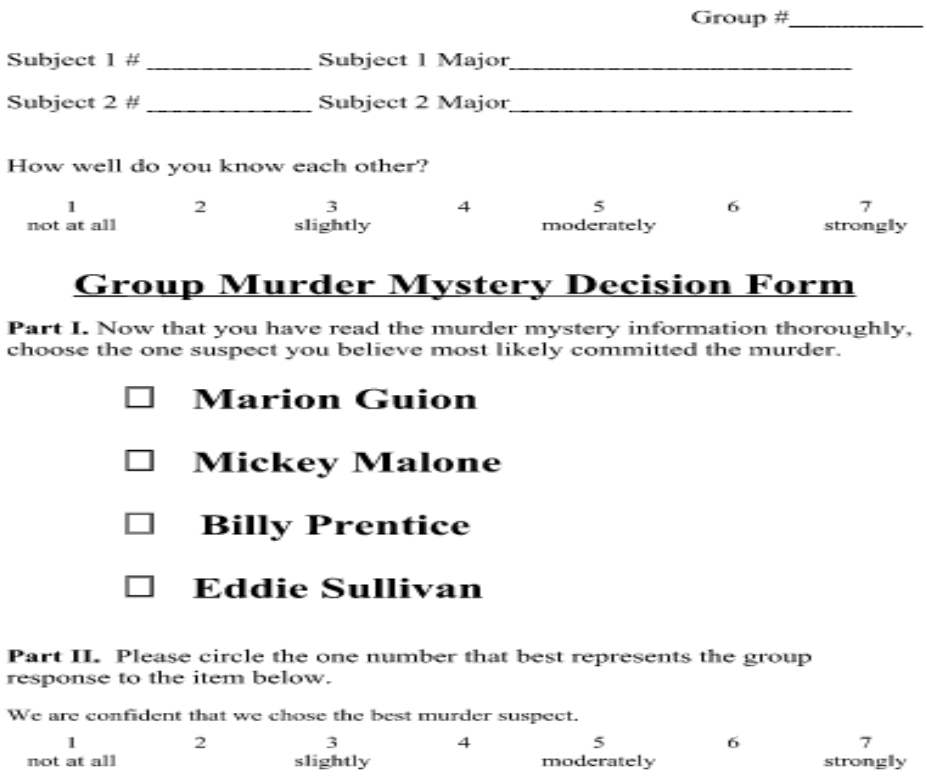
2. I feel strong ties to my major.

1	2	3	4	5	6	7
Strongly disagree	disagree	slightly disagree	neutral	slightly agree	agree	strongly agree

3. I identify with other members that share my major.

1	2	3	4	5	6	7
Strongly disagree	disagree	slightly disagree	neutral	slightly agree	agree	strongly agree

Figure 2 **Group Decision Form:** One form completed together after discussing the case.



Group #_____

Subject 1 # _____ Subject 1 Major_____

Subject 2 # _____ Subject 2 Major_____

How well do you know each other?

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

Group Murder Mystery Decision Form

Part I. Now that you have read the murder mystery information thoroughly, choose the one suspect you believe most likely committed the murder.

- ☐ **Marion Guion**
- ☐ **Mickey Malone**
- ☐ **Billy Prentice**
- ☐ **Eddie Sullivan**

Part II. Please circle the one number that best represents the group response to the item below.

We are confident that we chose the best murder suspect.

1	2	3	4	5	6	7
not at all		slightly		moderately		strongly

Figure 3 **Post Discussion Questionnaire:** Individually completed after group decision reached.

Part 1. Considering your interaction as a whole...

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
We constantly bickered.	☐	☐	☐	☐	☐	☐	☐
We did not respect each other.	☐	☐	☐	☐	☐	☐	☐
We have feelings which tend to pull us apart.	☐	☐	☐	☐	☐	☐	☐
We frequently argued about the pros and cons of different opinions.	☐	☐	☐	☐	☐	☐	☐
We frequently discussed evidence for alternative viewpoints.	☐	☐	☐	☐	☐	☐	☐
We frequently engaged in debates about different opinions or ideas.	☐	☐	☐	☐	☐	☐	☐
We informed each other about work-related issues.	☐	☐	☐	☐	☐	☐	☐
The quality of information exchange was good.	☐	☐	☐	☐	☐	☐	☐
We got new facts, insights, and ideas from each other.	☐	☐	☐	☐	☐	☐	☐

Figure 3 Cont. **Post Discussion Questionnaire**

Considering your interaction with the other person...

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I frequently argued about the pros and cons of different opinions.	☐	☐	☐	☐	☐	☐
I frequently discussed evidence for alternative viewpoints.	☐	☐	☐	☐	☐	☐
I frequently engaged in debates about different opinions or ideas.	☐	☐	☐	☐	☐	☐
I bickered with this person.	☐	☐	☐	☐	☐	☐
I did not respect this person.	☐	☐	☐	☐	☐	☐
I had feelings which tend to pull us apart.	☐	☐	☐	☐	☐	☐
I informed this person about work-related issues	☐	☐	☐	☐	☐	☐
The quality of information I exchanged with this person was good	☐	☐	☐	☐	☐	☐
I got new facts, insights, and ideas from this person	☐	☐	☐	☐	☐	☐
This member and I exchanged information	☐	☐	☐	☐	☐	☐
This member and I kept information from one another	☐	☐	☐	☐	☐	☐
This member and I had a close relationship	☐	☐	☐	☐	☐	☐
This member and I agreed with each other	☐	☐	☐	☐	☐	☐
This member and I trusted each other	☐	☐	☐	☐	☐	☐
This member and I know each other well	☐	☐	☐	☐	☐	☐
This member and I are familiar with each other	☐	☐	☐	☐	☐	☐
We share similar work ethics.	☐	☐	☐	☐	☐	☐
We have similar work habits.	☐	☐	☐	☐	☐	☐
We have similar	☐	☐	☐	☐	☐	☐

Figure 3 Cont. **Post Discussion Questionnaire**

communication styles.

Considering your interaction with the other person...

	Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
We have similar interaction styles.	☐	☐	☐	☐	☐	☐
We have similar personalities.	☐	☐	☐	☐	☐	☐
We come from similar cultural backgrounds.	☐	☐	☐	☐	☐	☐
We are from the same country.	☐	☐	☐	☐	☐	☐
We share similar ethnic backgrounds.	☐	☐	☐	☐	☐	☐

Please tell us generally how you think the discussion went, and whether you think you chose the right suspect in the murder mystery task.

Figure 3 Cont. **Post Discussion Questionnaire**

Part II. Demographic Questions. Please answer the following questions about yourself. All information will be kept confidential.

How old are you? _____

What is your gender?

1. Male 2. Female

What is your major?

1. Accounting
2. Economics and Legal Studies
3. Entrepreneurship
4. Finance
5. General Business
6. International Business
7. Management
8. Management Science and Information Systems
9. Marketing
10. Other (Specify): _____

What year are you in school?

1. Freshman
2. Sophomore
3. Junior
4. Senior
5. Graduate Student
6. Other (Specify): _____

What is your nationality?

1. American
2. Canadian
3. Mexican
4. Other (Specify): _____

How many years have you lived in the United States? _____

What state are you from? _____

What is your ethnicity?

1. Black or African Descent
2. East Asian (China, Japan, Korea, etc.)
3. Hispanic
4. Native American
5. South Asian (e.g., Indian)
6. South East Asian (e.g., Malaysian, Vietnamese)
7. White or European Descent
8. Other (Specify): _____

Is English your first language?

1. Yes 2. No

How many years have you spoken English? _____

Do you feel comfortable communicating in English?

1. Yes 2. No

Figure 4 **UNIANOVA Results**

Descriptive Statistics

Dependent Variable: Correct

Sim	grp_gen1	Mean	Std. Deviation	N
LS	MM	.5294	.50664	34
	FF	.3226	.47519	31
	Total	.4308	.49904	65
HS	MM	.3750	.49454	24
	FF	.5217	.51075	23
	Total	.4468	.50254	47
Total	MM	.4655	.50317	58
	FF	.4074	.49597	54
	Total	.4375	.49831	112

Tests of Between-Subjects Effects

Dependent Variable: Correct

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.954[a]	3	.318	1.290	.282
Intercept	20.829	1	20.829	84.542	.000
Sim	.014	1	.014	.055	.814
grp_gen1	.025	1	.025	.100	.753
Sim * grp_gen1	.851	1	.851	3.456	.066
Error	26.609	108	.246		
Total	49.000	112			
Corrected Total	27.563	111			

a. R Squared = .035 (Adjusted R Squared = .008)

Figure 5 **Graph of Mean Comparisons**

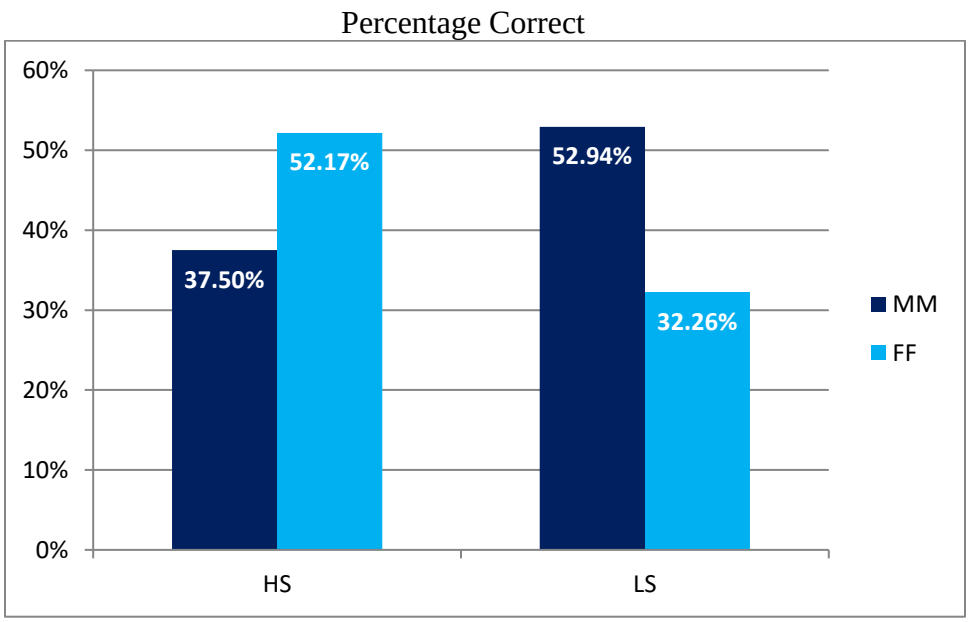


Figure 6 **Alternative Views Discussion**

Descriptive Statistics

Dependent Variable: We frequently discussed evidence for alternative viewpoints.

Sim	grp_gen1	Mean	Std. Deviation	N
LS	MM	5.25	1.507	170
	FF	5.15	1.632	170
	Both	5.05	1.713	128
	Total	5.16	1.609	468
HS	MM	4.84	1.712	94
	FF	5.28	1.633	83
	Both	5.49	1.622	70
	Total	5.17	1.676	247
Total	MM	5.10	1.592	264
	FF	5.19	1.630	253
	Both	5.21	1.690	198
	Total	5.16	1.631	715

Tests of Between-Subjects Effects

Dependent Variable: We frequently discussed evidence for alternative viewpoints.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	20.872[a]	5	4.174	1.575	.165
Intercept	17057.567	1	17057.567	6436.363	.000
Sim	.390	1	.390	.147	.701
grp_gen1	6.120	2	3.060	1.155	.316
Sim * grp_gen1	19.255	2	9.628	3.633	.027
Error	1878.983	709	2.650		
Total	20964.000	715			
Corrected Total	1899.855	714			

a. R Squared = .011 (Adjusted R Squared = .004)

Figure 7 **Importance of Getting Along**

Descriptive Statistics

Dependent Variable: I feel that it is more important for us to get along than for us to get the right answer to the Murder Mystery.

Sim	grp_gen1	Mean	Std. Deviation	N
LS	MM	4.45	1.675	170
	FF	5.02	1.685	170
	Both	5.18	1.554	128
	Total	4.86	1.673	468
HS	MM	4.69	1.838	94
	FF	5.14	1.522	84
	Both	4.94	1.433	70
	Total	4.92	1.631	248
Total	MM	4.53	1.735	264
	FF	5.06	1.631	254
	Both	5.10	1.513	198
	Total	4.88	1.658	716

Tests of Between-Subjects Effects

Dependent Variable: I feel that it is more important for us to get along than for us to get the right answer to the Murder Mystery.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	56.277[a]	5	11.255	4.186	.001
Intercept	15352.566	1	15352.566	5710.243	.000
Sim	.286	1	.286	.106	.745
grp_gen1	38.593	2	19.297	7.177	.001
Sim * grp_gen1	6.237	2	3.118	1.160	.314
Error	1908.907	710	2.689		
Total	18996.000	716			
Corrected Total	1965.184	715			

a. R Squared = .029 (Adjusted R Squared = .022)