

THE ROLE OF GENDER NON-CONFORMITY IN
COOPERATION:
EVIDENCE FROM THE PRISONER'S DILEMMA

By

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THE ROLE OF GENDER NON-CONFORMITY IN
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DILEMMA

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Abstract: This study examined the relationship between gender conforming individuals and cooperative behavior when participants are partnered with a gender conforming or non-conforming "partner". Cooperation has been a key development in human advancement (Argyle, 1991; Johnson & Johnson, 2011; Tyler, 2011). The ability to put aside conflicts and differences to create a workable and productive atmosphere is foundational to our success as a species. Many experimental methods exploring cooperation have involved social and economic dilemma games, such as the Prisoner's Dilemma Game (PDG), pitting partners against each other to investigate when cooperation occurs and when it does not (Argyle, 1991; Balliet, Li, Macfarlan & Yan, 2011; Balliet & Lang, 2013; Tucker, 1983).

Much of the research on cooperation has focused on those elements that determine noncooperation, such as in-group/out-group behavior. Conformity to group norms or social identities, such as race or religion, have been found to be contributors to determining ingroup/out-group bias (Turner, 1987; Williams, 2001). One social norm that can affect ingroup/out-group dynamics is gender conformity (Horn, 2007; Marques, Abrams & Serodio, 2001; Stenberg, Beall & Eagly, 2004). Individuals who are not perceived as gender-conforming can face rejection from their peers (Lamb, Easterbrooks & Holden, 1980; Sternberg et al., 2004; Zucker, Wilson-Smith, Kunita & Stern, 1995).

The present research study investigated the relationship between gender conforming individuals and cooperative behavior when partnered with a gender non-conforming individual. This research explored whether conformity to gender norms played a distinct role in the in-group/out-group dynamic, utilizing the Prisoner's Dilemma Game and its cooperative choices paradigm. Participants were recruited through the online system SONA and randomly assigned to one of four possible conditions (a prompt introducing a partner who is either male gender conforming, male gender non-conforming, female gender conforming, female gender non-conforming). Initial analysis evaluating correlational relationships between femininity/masculinity scores and choice revealed that for women scoring higher in femininity, they were less likely to cooperate with a male non-conforming partner.

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CHAPTER I

INTRODUCTION

Cooperation has been a key development in human advancement (Argyle, 1991; Johnson & Johnson, 2011; Tyler, 2011). As part of human evolutionary history, the unique cooperation between groups was a necessary driving force in developing as the social creatures we are now, capable of complex cognition and prosocial behaviors (Boyd & Richerson, 2009; Tomasello, Melis, Tennie, Wyman & Herrmann, 2012; Burkart et al., 2014). The ability to put aside conflicts and differences to create a workable and productive atmosphere is foundational to our success as a species. Many experimental methods exploring cooperation have involved social and economic dilemma games, such as the Prisoner's Dilemma Game (PDG), pitting partners against each other to investigate when cooperation occurs and when it does not (Argyle, 1991; Balliet, Li, Macfarlan & Yan, 2011; Balliet & Lang, 2013; Tucker, 1983).

Much of the research on cooperation has focused on those elements that determine when people will or will not cooperate, such as in-group/out-group behavior. Conformity to group norms or social identities, such as race or religion, have been found to be contributors to determining ingroup/out-group bias (Fu et al., 2012; Turner, 1987; Williams, 2001). One social norm that can affect in-group/out-group dynamics is gender conformity (Horn, 2007; Marques, Abrams & Serodio, 2001; Stenberg, Beall & Eagly, 2004).

Individuals who are not perceived as gender-conforming can face rejection from their peers (Lamb, Easterbrooks & Holden, 1980; Sternberg et al., 2004; Zucker, Wilson-Smith, Kurita & Stern, 1995). For children, this can be especially concerning, with some youth low in gender typicality having to face bullying and aggression from their gender typical peers, poor mental health outcomes, victimization and loneliness (Jewell & Brown, 2013; Pauletti, Cooper & Perry, 2014; Young & Sweeting, 2004).

However, there is little research focused on in-group/out-group dynamics and cooperation with the factor of gender conformity or non-conformity. The aim of the present research study is to investigate the relationship between gender conforming individuals and cooperative behavior when partnered with a gender non-conforming individual. This research explores whether conformity to gender norms plays a distinct role in the in-group/out-group dynamic, utilizing the Prisoner's Dilemma Game and its cooperative choices paradigm.

CHAPTER II

OVERVIEW OF COOPERATION

Cooperation is important and necessary to the success of society overall (Argyle, 1991; Johnson & Johnson, 2011, Tyler, 2010). Evolutionary theorists posit that developing the ability to cooperate with other social groups, including, uniquely, non-relatives, also led to the development of other prosocial behaviors that benefited the survival of not just the family unit, but the community that unit relied on for further reproductive success (Burkart et al., 2014; Tomasello et al., 2012). Cooperation is a function of basic social behavior that enables humans to achieve that which would be unobtainable alone or require a more difficult struggle. In general terms cooperation can be described as the act of working together for shared benefit. This usually involves the process of more than one individual working or deciding whether or not to work with others after determining the costs and benefits of doing so, based on a variety of evaluations (Argyle, 1991; Brown & Vincent, 2008; Declerk, Boone & Emonds, 2013; Tyler, 2011; West, Griffin & Gardner, 2007).

While some research has found the behavior of individuals working together to be predictable under certain circumstances (Epstein, Peysakhovich & Rand, 2016; Fernandez-Berrocal, Extremera, Lopes & Ruiz-Aranda, 2014), sometimes the intention towards completing a common goal is not enough to motivate one to cooperate; early work has shown that the attitudes of participants can influence this decision (Bentler & Speckart, 1979). Some research has focused on the possible instinctive nature of cooperation where, under the pressure of quick, one-time decisions, humans tend to make cooperative choices (Lotito, Migheli & Ortona, 2012; Rand et al.,

2014). Other studies have focused on the specific situations where cooperation is more likely to occur (Balliet et al., 2011; 2013; Bear & Rand, 2016). We will be reviewing the empirical findings to these investigations in a later section, where the study of cooperation involves social games such as the Prisoner's Dilemma Game (PDG) (Argyle, 1991).

One key element in cooperation between individuals is trust (Balliet & Lang, 2013; Deutsch, 1962). However, choosing to trust others can be risky (Eckel & Wilson, 2004; Lewis & Weigert, 1985; McLain & Hackman, 1999). There are several factors that determine the perception of trustworthiness one individual has for another when deciding to cooperate or not. In some cases, beliefs about the inherent disposition of an individual can be key in initiating trust (Balliet & Lang, 2013). The perception of a person's character can greatly influence the decision to trust them. We are also more likely to prefer individuals and facilitate cooperative behaviors with those with whom we share similarities and interests (the in-group) while at the same time distrusting those who are dissimilar (the out-group) (Balliet, 2014; Ben-Ner, McCall, Stephane & Wang, 2009; Buchan & Croson, 2004). These similarities may involve the close ties of blood relatives (Ben-Ner et al., 2009) or even the most superficial of cues such as similar clothing (Emswiler, Deaux & Willits, 1971) or music preferences (Boer, Fischer, Strack, Bond, Lo & Lam, 2011).

There is also evidence that very young children develop a preference for those that share similar interests early in development. Research suggests that infants will modify behavior or preference based on those shared by like-others (Shutts, et al., 2009). Infants will even make moral decisions based on the similarity in preferences (Hamlin, Mahajan, Liberman & Wynn, 2013) as well as associate individuals who are unlike them or have dissimilar preferences with negative connotations (Mahajan & Wynn, 2012). In this case, morality based on shared preferences or

likeness may indicate the beginnings of in-group/out-group biases, where the in-group is favored as being inherently good or moral as compared to those in the out-group.

This group membership is also often determined through various social categories an individual may belong to and identify with such as nationality, gender, religion (Turner, 1987; Williams, 2001). Identification with a group helps to ensure favoritism, trust, and thus cooperation (Fu, et al., 2012; Williams, 2001). Forming social groups based on categorization depends on the perceived “oneness” with that group based on identity, distinctiveness from the outgroup, and performing actions that align with the identity such as conforming to group norms (Ashforth & Mael, 1989). Social norms play a large role in how we navigate relationships with others and the culture around us. There are larger societal norms with those who do not adhere to typical societal expectations being treated with scorn, shunned, or forced to conform (Lamb et al., 1980; Marques et al., 2001; Zucker et al., 1994). Those who are more “loyal” to the group are viewed as being more trustworthy and generally more well-liked (Misch, Over & Carpenter, 2014). You can see how social adherence could be a factor in prosocial behaviors. Trusting an individual based on perception should also consider how one views the other as being morally trustworthy as well. Individuals who do not conform to typically gendered behavior are viewed as less “acceptable” than gender conforming individuals (Ellemers, 2017; Feinnman, 1981; Horn, 2007; Lamar & Kite, 1998).

Another factor that can affect one’s general attitude towards individuals is conformity to traditional gender expression and activities (Collier, Bos & Standfort, 2012; Martin, 1990; Sternberg, Beall & Eagly, 2004). Boys and girls are more likely to negatively react to inappropriate gender activities not associated with said gender and this goes doubly so for boys

engaging in activities considered to be feminine (Lamb, Easterbrooks & Holden, 1980; Zucker et al., 1995). So far as cooperation is concerned, our expectations about how men and women are stereotypically expected to act may color our perception of how cooperative they are (Stockard, Alphons, Van De Knagt & Dodge, 1988). Women are often perceived as being more cooperative and generous as men, whether they actually are in reality (Eckel, Oliveira & Grossman, 2008). For women, especially, trust is a main indicator of cooperation (Irwin, Edwards & Tamburello, 2015). However, even though women have been found to be more prosocial than their male counterparts, this does not always translate to feelings of trust or willingness to cooperate with another individual (Irwin, et al., 2015).

The Prisoner's Dilemma

In the prisoner's dilemma, the participant is offered a modified version of the more typical game theory situation. In this social dilemma, there are several choices and consequences that make certain decisions tempting in regard to personal benefit, while there exist more communal decisions that benefit both "participants" (Rapoport, Chammah & Orwant, 1970). For instance, the game was modified originally from its game theory stance to include the consequence of a prisoner sentencing (thus, Prisoner's Dilemma), where there are subjects A or B, where A can either betray B to avoid sentencing, subjects can betray each other to receive the same though lengthier sentencing, or both can confess (cooperate) to receive a slightly shorter sentencing for both (Tucker, 1983). Of course, there are many iterations and modifications used in the study of cooperation when utilizing the prisoner's dilemma format and the above is not restrictive.

One of the first studies involving cooperation and the prisoner's dilemma game concluded that there were sex differences in cooperation, with men being more likely to cooperate in same-sex

and mixed dyads, while women were least likely to cooperate overall, however, these results were never properly discussed (Balliet, et al., 2011). Many studies that focus on sex differences in the question of “who cooperates?” find conflicting results compared to one another. It has been found, however, that certain situational cues that influence perceptions of greed or fear may bring about sex differences in cooperation, with men being more likely to cooperate in same-sex and mixed dyads, while women were least likely to cooperate overall, however, these results were never properly discussed (Balliet, et al., 2011).

Sex Differences in Cooperation

Many studies that focus on sex differences in the question of “who cooperates?” find conflicting results compared to one another. It has been found, however, that certain situational cues that influence perceptions of greed or fear may bring about sex differences in cooperation, with men being more influenced by greed and women by fear (Balliet, et al., 2011; Simpson, 2003). Due to the influence of both in the PDG, there is the expectation that no significant sex differences would be found (Simpson & Van Vugt, 2009).

There are, however, other sex differences noticed in cooperation that are dependent on context. While social psychologists have struggled to define a single theory to explain differences among men and women in cooperation, evolutionary psychology maintains a perspective of adaptive differences. In this case, there are two aspect of a situation that influence the decision on whether or not to cooperate; one, the sex of the group involved in the dilemma and two, whether the nature of the dilemma is inter-personal compared to inter-group (Simpson & Van Vugt, 2009). Based on this theory, human females would be pickier due to the need of being highly selective in mate choice, and the need to avoid making a risk decision in a partner that might defect, while males,

driven to take risks due to the competitive nature in females' choices, may make riskier choices with strangers or potential mates (Simpson & Van Vugt, 2009).

Looking at interaction of the sexes at the group level, sex differences appear early, with young female children preferring interpersonal interactions while male children prefer group interactions (Benenson, 1993; Geary, et al., 2003). In an evolutionary context, male humans were more likely to engage in warfare and intergroup conflict, and cooperate in the face of out-group threats, and research has supported this view (Riek, Mania & Gaertner, 2006; Van Vugt, Cremer & Janssen, 2007). There has also been research supporting the view that men might be more prone to discrimination among the in-group when threatened (Kurzban & Leary, 2001; Yuki & Yokota, 2009). For women, preferring to build close relationships and being more likely to engage in relational conflict, a threat to social status may encourage discrimination among the in-group (Kurzban & Leary, 2001).

In addition, consistent with many stereotypes such as women being more cooperative, when those stereotypes become salient, there also exist differences in cooperation when comparing men and women (Stockard, Alphonso, Van De Knagt & Dodge, 1988; Eagly & Wood, 2011). When made to speculate on these differences in behavior, it is believed this influences the self-schema as it relates to such behavior such as the idea that women are expected to be more prosocial than men (Stockard et al., 1988). Other stated findings have found that in repeated testing, both men and women cooperate at about the same rate, but in the initial test, women are slightly more likely to cooperate (Balliet et al., 2011; Ortman & Tichy, 1999). Ultimately, it is theorized that sex differences in cooperation depend largely on the context of the specific situation, the partner involved, and if the PDG is repeated or single-instance (Balliet, et al., 2011; Simpson, 2003).

Evolutionary and Social Roles Behind Sex Differences in Cooperation

While there persists the gender stereotype of women being more prosocial than men, an intensive meta-review of cooperation studies, including the prisoner's dilemma, has found in fact, that men and women overall are just as cooperative as each other in PDG studies (Balliet, et al., 2011). In more context-dependent situations, cooperation as a function of adaption should determine, for men and women, different approaches due to having different interpersonal goals.

Men and women, due to their different experiences with social roles, are presumed to behave differently in certain social situations (Sternberg, Beall & Eagly, 2004). In many societies throughout history men have been the main source of provisioning (Kaplan, Lancaster & Hurtado, 2000; Marlowe et al., 2014), and thus may be more independent, assertive, and may function more in the public sphere and thus have more interaction with possible out-groups (i.e. the workplace or public office). In an evolutionary context, human females may have been selected based on prosocial traits that encourage caring and cooperation (Kenrick, et al., 1993). Women, having been the more domestic of the sexes in terms of childbirth and homemaking, are also seen as more caring and placing more importance on relationships (Balliet, et al., 2011).

Gender, Cooperation, and the Prisoner's Dilemma

The focus of this study was to find whether men and women would be influenced by the gender conformity of a prospective partner when they are deciding whether to cooperate with that person. Previous research has found that this in-group/out-group effect may be more likely found in women (Croson et al., 2008). For women, at least, identity with the group can alter rates of cooperation. Overall, group membership (at least among those randomly assigned rather than self-

assigned) seems to encourage cooperation among the in-group as well as discouraging cooperation with the out-group even when those groups are artificially designed (Goette, Huffman & Meirer, 2006). Likewise, when the norms of the in-group are violated by an individual, such deviance is even more harshly derogated and tolerance is even more lacking than deviants in an out-group (Horn, 2007; Marques et al., 2001; Sternberg et al., 2004). This suggests that conformity to norms is a strong influence on in-group dynamics as well as how members of the in-group treat violators of social norms. Previous studies have found that this effect is even found in cases of perceived violations of gender norms, with individuals holding more dislike for homosexual men and women who rate more feminine and masculine, respectively (Laner & Laner 1979; 1980).

In this research study, an experiment investigated whether men and women take into consideration the gender conformity of the partner when deciding to cooperate in the social dilemma game, the prisoner's dilemma (PDG). Over the last forty years, researchers and the public have come to recognize that men and women differ in terms of gender conformity (Peplau & Garnets, 2000). However, there appears to be no published study investigating how men and women's decisions to cooperate with another are influenced by the gender conformity of the partner they are matched with. The proposed experiment tested the hypothesis that both men's and women's decisions to cooperate would be influenced by the gender conformity of the fictional partner.

Prior research conducted with children has found that gender non-conforming children report experiencing greater rejection from same-sex peers than from opposite-sex peers (Wallien, Veenstra, Kreukels & Cohen-Ketennis, 2009). Another study conducted with adolescents found

individuals who peer- and self-report gender non-conformity face greater relational victimization and aggression from their peers of both sexes and that this effect is stronger for girls, resulting in troubling relations within the peer group (Toomey, Card & Casper, 2013). In addition, with past research showing men and women cooperate at comparable rates in the classical prisoner's dilemma task, no significant difference between men and women was expected in conditions in which the other individual is described as gender conforming. However, because men tend to be more rejecting of more feminine rated men than women are of more masculine rated women (Feinman, 1981; Lamar & Kite, 1998), we expected to find that the reduction in cooperation due to gender non-conforming partner would be greater for men than women. Thus, the research study investigated individual participants' level of gender conformity in relation to the decision to cooperate or not cooperate with a gender non-conforming partner of the same or opposite sex.

CHAPTER III

METHODOLOGY

Participants

The sample population of 285 participants included undergraduate students in psychology and speech communications courses as well as members of online social media forums and had to have been at least eighteen years of age from the United States. Participant ages were between 18 and 63 years old ($M = 21.96$, $SD = 7.18$). Approximately 55% of participants were female ($N = 161$), 39% male ($N = 115$) with 4.5% identifying as “Other”. Of the total participants, 80.6% were White, non-Hispanic, 6.6% African American, 3.8% Hispanic or Latino, 3.8% Other, 3.1% Native American, and 2.1% Asian American.

Materials and Procedure

Following approval by the IRB, participants were recruited from a SONA system in the Department of Psychology which included students from psychology and speech communication courses. Volunteers for the study completed the study in either one sit-in session or through an online referral link through an online survey tool (i.e., Qualtrics). Participants first completed a participant information page in which they were invited to participate. Subsequently, they were introduced to the prisoner’s dilemma scenario. Participants then received instructions for a version of the Prisoner’s Dilemma Game (PDG), introduced by Alfred Tucker (1983).

The version used in this study was originally described by Luce and Raiffa (1957) (See Appendix C). In this PDG, the participant and the partner were proposed to be two “suspects” awaiting sentencing after committing a serious crime. The police would interrogate the participant and partner to determine the outcome of the sentencing. The participant was told that the partner’s decision would also influence the outcome of the sentencing. The participant was then given a choice to implicate their partner (non-cooperative choice) or to remain silent (cooperative choice). They were then randomly assigned to 1 of 4 conditions where Riley was either 1) male, non-conforming, 2) female non-conforming, 3) male, conforming, or 4) female, conforming. Riley was described as either gender conforming or non-conforming (i.e. they do or do not follow other’s ideas about how they should look or act based on their assigned sex at birth) (See Appendix C). The descriptor of gender non-conformity was gathered from the Center of Excellence for Transgender Health (2017). After they made their choice, participants were prompted to give an open-ended response as to why they chose to either implicate their partner or remain silent (See Appendix E). All participants were then asked to complete measures assessing their personal characteristics, including gender role conformity and demographics.

Gender role conformity was assessed using the included Bem Sex Role Inventory (BSRI, Bem, 1974) and the Personal Attributes Questionnaire (PAQ, Spence, Robert, Helmreich & Stapp, 1974). These are provided in Appendix F. The BSRI is a 60-item inventory, including self-report on masculine, feminine and androgynous characteristics by way of a 7 - point Likert scale where 1 = Almost never true and 7 = Almost always true (See Appendix A). Each subscale consists of twenty items. Prior research has reported a Cronbach alpha of $\alpha = .86 - .94$. In the present study,

the following Cronbach alphas were observed: masculine subscale, $\alpha = .87$, feminine subscale, $\alpha = .81$, and androgynous subscale, $\alpha = .58$.

The PAQ is a 24-item inventory, including self-report on the expressivity of masculine and feminine personality traits by a 5 – point Likert scale where 1 = Not at all “ ____ ” and 5 = Very “ ____ ” (See Appendix B). Each subscale consists of eight items. Prior research has reported a Cronbach alpha of $\alpha = .62 - .80$. In the present study, the following Cronbach alphas were observed: masculine subscale, $\alpha = .54$, and feminine subscale, $\alpha = .81$.

CHAPTER IV

FINDINGS

Participants' responses in the PDG were used to calculate percentage of participants who cooperated by condition. Thirteen participants selected "Other" when reporting on their gender, are thus were not included in further analysis. These data are displayed in Table 1. A chi-square analysis was conducted to examine the relationships between participant gender, partner's gender, partner conformity/non-conformity and choice of cooperation or non-cooperation (defect). Participant gender included two levels (Female, Male), partner gender included two levels (Female, Male) and partner conformity included two levels (Conforming, Non-conforming).

Table 1. Mean Percentage Cooperation (Standard Error) by Condition by Participant Gender

Participant Gender	Male Riley	Female Riley	Male Riley	Female Riley
	Gender Conforming	Gender Conforming	Gender Non-Conforming	Gender Non-Conforming
Men	.75 (.09)	.77 (.10)	.68 (.09)	75% (.08)
Women	.81 (.07)	.73 (.08)	.81 (.08)	69% (.10)

Analysis found no significant association between participant gender and choice of cooperation ($X^2(1) = 1.08, p = .30$), partner's gender and choice of cooperation ($X^2(1) = .49, p = .49$), nor partner conformity and choice of cooperation ($X^2(1) = .312, p = .58$). There was no significant association between experimental condition and choice of cooperation ($X^2(1) = .803, p = .85$).

In order to further explore the relationship between participants' choice in the PDG and individual differences in participants' gender roles, a series of correlations were conducted.

Participant scores included on the BSRI masculine and feminine subscales, PAQ masculine and feminine subscales were correlated with their choice in the PDG (i.e., 1 = cooperate, 0 = did not cooperate). A summary of these correlations are displayed in Table 2 and Table 3 for male partners, and Table 4 and 5 for female partners. The only significant results was that for female participants, those who rated more feminine on the BSRI subscale were less likely to cooperate with a male Riley who was gender non-conforming ($r = -.33, p < .05$).

Table 2. Summary of Correlation Analyses for Male Partner by Gender Conforming Status.

	1	2	3	4	5	6	
1. Cooperation in PDG	--	-.01	-.33*	-.13	.04	-.05	<i>Gender Non-Conforming Partner</i>
2. BSRI Masculinity	-.01	--	.50**	.57**	.63**	.39*	
3. BSRI Femininity	-.33*	.50**	--	.71**	.28	.67**	
4. BSRI Androgyny	-.13	.57**	.71**	--	.26	.38*	
5. PAQ Masculinity	.04	.63**	.28	.26	--	.25	
6. PAQ Femininity	-.05	.39*	.67**	.38*	.25	--	
	1	2	3	4	5	6	
1. Cooperation in PDG	--	-.12	.16	-.15	-.31	-.02	
2. BSRI Masculinity	-.12	--	.05	.33	.69**	.08	
3. BSRI Femininity	.16	.05	--	.63**	-.24	.72**	
4. BSRI Androgyny	-.15	.33	.63**	--	.03	.63**	
5. PAQ Masculinity	-.31	.69**	-.24	.03	--	-.08	
6. PAQ Femininity	-.02	.08	.72**	.63**	-.08	--	

Note: Lower half of the matrix displays correlations for **men** and the upper half, for **women**. PDG = prisoner dilemma game, BSRI = **ben** sex role inventory, PAQ = personal attributes questionnaire. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Summary of Correlation Analyses for Male Partner by Gender Conforming Status.

Gender Conforming Partner

	1	2	3	4	5	6
1. Cooperation in PDG	--	-.09	-.21	.05	-.23	-.16
2. BSRI Masculinity	-.09	--	-.14	.49**	.49**	-.20
3. BSRI Femininity	-.21	-.14	--	.47**	-.06	.60**
4. BSRI Androgyny	.05	.49**	.47**	--	.36*	.31**
5. PAQ Masculinity	-.23	.49**	-.06	.36*	--	.22
6. PAQ Femininity	-.16	-.20	.60**	.31*	.22	--

	1	2	3	4	5	6
1. Cooperation in PDG	--	-.12	.10	-.17	.05	.09
2. BSRI Masculinity	-.12	--	-.19	.25	.69**	-.15
3. BSRI Femininity	.10	-.19	--	.57**	-.17	.81**
4. BSRI Androgyny	-.17	.25	.57**	--	.03	.53**
5. PAQ Masculinity	.05	.69**	-.17	.03	--	-.15
6. PAQ Femininity	.10	-.15	.81**	.53**	-.15	--

Note: Lower half of the matrix displays correlations for **men** and the upper half, for **women**. PDG = prisoner dilemma game, BSRI = Bem sex role inventory, PAQ = personal attributes questionnaire. *p < .05, **p < .01, ***p < .001

Table 4. Summary of Correlational Analyses for Female Partner by Gender Conforming Status.

Gender Non-Conforming Partner

	1	2	3	4	5	6
1. Cooperation in PDG	--	.05	.10	-.00	.06	.11
2. BSRI Masculinity	.05	--	-.19	.09	.49**	-.10
3. BSRI Femininity	.10	-.19	--	.62**	.09	.76**
4. BSRI Androgyny	-.00	.09	.62**	--	.18	.50**
5. PAQ Masculinity	.06	.49**	.09	.18	--	.12
6. PAQ Femininity	.11	-.10	.76**	.50*	.12	--

	1	2	3	4	5	6
1. Cooperation in PDG	--	-.09	.06	-.27	-.09	-.04
2. BSRI Masculinity	-.09	--	.02	.22	.68**	.91
3. BSRI Femininity	.06	.02	--	.31	.08	.54**
4. BSRI Androgyny	-.27	.22	.31	--	-.02	.03
5. PAQ Masculinity	-.09	.68**	.08	-.02	--	.20
6. PAQ Femininity	-.04	.02	.54**	.03	.20	--

Note: Lower half of the matrix displays correlations for **men** and the upper half, for **women**. PDG = prisoner dilemma game, BSRI = Bem sex role inventory, PAQ = personal attributes questionnaire. *p < .05, **p < .01, ***p < .001

Table 5. Summary of Correlational Analyses for Female Partner by Gender Conforming Status.

Gender Conforming Partner

	1	2	3	4	5	6
1. Cooperation in PDG	--	-.04	.08	.09	-.18	-.08
2. BSRI Masculinity	-.04	--	-.12	.38*	.75**	-.18
3. BSRI Femininity	.08	-.12	--	.69**	-.24	.80**
4. BSRI Androgyny	.09	.38*	.69**	--	.15	.54**
5. PAQ Masculinity	-.18	.75**	-.24	.15	--	-.13
6. PAQ Femininity	-.08	-.18	.80**	.54*	-.13	--

	1	2	3	4	5	6
1. Cooperation in PDG	--	-.00	-.03	.12	-.12	.04
2. BSRI Masculinity	-.00	--	.04	.16	.87**	-.13
3. BSRI Femininity	-.03	.04	--	.59**	-.10	.65**
4. BSRI Androgyny	.12	.16	.59**	--	.06	.31
5. PAQ Masculinity	-.12	.87**	-.10	.06	--	-.10
6. PAQ Femininity	.04	-.13	.65**	.31	-.10	--

Note: Lower half of the matrix displays correlations for **men** and the upper half, for **women**. PDG = prisoner dilemma game, BSRI = Bem sex role inventory, PAQ = personal attributes questionnaire. * $p < .05$, ** $p < .01$, *** $p < .001$

CHAPTER V

CONCLUSION

Discussion

The purpose of the proposed research was to investigate whether men and women's decisions to cooperate with others is influenced by another's gender conformity. The study found no support for the hypothesis that gender conformity has any effect on a participant's decision to cooperate with another of non-conforming gender in the context of the PDG. There was evidence for a relationship between female participants' being less likely to cooperate with a male, gender nonconforming partner when they described themselves as higher in femininity. Qualitative analysis of participants' reasons for making their choice to cooperate or not cooperate revealed a common theme in the justifications for those who choose to implicate Riley in the supposed crime is one of a lack of trust in Riley to also remain silent under questioning. This result is consistent with previous research that suggests that trust is an essential factor in determining whether one will cooperate with a stranger (Balliet & Lang, 2013).

Lack of significance results could be due to a number of factors. It is entirely possible that students, given the basic and outright description of Riley being either gender conforming or nonconforming, were able to understand the implications of what they study was investigating and wanted to ensure socially desirable choices. It may have been the case that the basic prompt was not enough to elicit any response. Perhaps, for this sample population, Riley's gender

conformity or lack of, was not enough to engender any great feelings of distrust on the participants' behalf. There is some speculation that the scenario, not being particularly relevant to a population of young people unlikely to commit a serious crime in their lifetime, was not enough to engender more serious consideration of the action that should be taken. Previous research has found that when time and consideration are required in greater lengths in social dilemma games, or when the scenario is more relevant, participants may make less cooperative choices initially (Bear & Rand, 2016).

Future Directions

Future directions for this research would incorporate a more salient scenario for participants to be placed in, perhaps in the form of high-risk educational situations such as being caught cheating, plagiarizing, or engaging in misconduct. While student participants may not all be likely to commit such acts, they likely have witnessed or known someone who has and who has also been punished for this behavior. In a highly salient condition, would participants engage in more deliberation in their choices and make more assumptions of their proposed partner? It would also be worth considering providing a more personable or humanizing description or introduction of the gender non-conforming partner. Those who are labeled or self-identify as gender nonconforming or gender atypical often engage in what are generally viewed as atypical sex activities or behaviors and may suffer from teasing, bullying or rejection from their peers (Jewell & Brown, 2013; Lee & Troop-Gordon, 2010; Zucker, et al., 1995) Utilizing descriptors available from qualitative or survey input may yield more interesting results.

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APPENDICES

Appendix A

All participants will complete the 60-item BSRI (Bem, 1974). Below, the adjective list and accompanying rating scale are displayed.

Rating Scale

- 1 - Almost never true
- 2 - Rarely true
- 3 - Less than half the times true
- 4 - Neutral
- 5 - More than half the times true
- 6 - Often true
- 7 - Almost always true

Adjective List

1. Self-reliant
2. Yielding
3. Helpful
4. Defends own beliefs
5. Cheerful
6. Moody
7. Independent
8. Shy
9. Conscientious
10. Athletic

11. Affectionate
12. Theatrical
13. Assertive
14. Flatterable
15. Happy
16. Strong personality
17. Loyal
18. Unpredictable
19. Forceful
20. Feminine
21. Reliable
22. Analytical
23. Sympathetic
24. Jealous
25. Leadership ability
26. Sensitive to other's needs
27. Truthful
28. Willing to take risks
29. Understanding
30. Secretive
31. Makes decisions easily
32. Compassionate

33. Sincere
34. Self-sufficient
35. Eager to soothe hurt feelings
36. Conceited
37. Dominant
38. Soft spoken
39. Likeable
40. Masculine
41. Warm
42. Solemn
43. Willing to take a stand
44. Tender
45. Friendly
46. Aggressive
47. Gullible
48. Inefficient
49. Acts as a leader
50. Childlike
51. Adaptable
52. Individualistic
53. Does not use harsh language
54. Unsystematic
55. Competitive

56. Loves children
57. Tactful
58. Ambitious
59. Gentle
60. Conventional

Appendix B

All participants will complete the 24-item PAQ (Spence, Helmreich, & Stapp, 1974). Below, the attribute list and accompanying rating scale are displayed.

Rating Scale

Not at all “ ____ ” 1.....2.....3.....4.....5 Very “ ____ ”

Attributes

- | | |
|--|--|
| 1. Not at all aggressive | Very aggressive |
| 2. Not at all Independent | Very independent |
| 3. Not at all emotional | Very emotional |
| 4. Very submissive | Very dominant |
| 5. Not at all excitable in a major crisis | Very excitable in a major crisis |
| 6. Very passive | Very active |
| 7. Not at all able to devote self completely to others | Able to devote self completely to others |
| 8. Very rough | Very gentle |
| 9. Not at all helpful to others | Very helpful to others |
| 10. Not at all competitive | Very competitive |
| 11. Very home oriented | Very worldly |
| 12. Not at all kind | Very kind |
| 13. Indifferent to others approval | Highly needful of others approval |
| 14. Feelings not easily hurt | Feelings easily hurt |
| 15. Not at all aware of feelings of others | Very aware of feelings of others |
| 16. Can make decisions easily | Has difficulty making decisions |

- | | |
|--|------------------------------------|
| 17. Gives up very easily | Never gives up easily |
| 18. Never cries | Cries very easily |
| 19. Not at all self-confident | Very self-confident |
| 20. Feels very inferior | Feels superior |
| 21. Not at all understanding of others | Very understanding of others |
| 22. Very cold in relations with others | Very warm in relations with others |
| 23. Very little time for security | Very strong need for security |
| 24. Goes to pieces under pressure | Stands up well under pressure |

Appendix C

Participants will be randomly assigned to a gender conforming or gender non-conforming partner named Riley.

Instructions (A):

Here you will be introduced to your partner in a social dilemma game. Your partner, Riley, is described as gender non-conforming, which means they do not follow other people's ideas or stereotypes about how they should look or act based on the female or male sex they were assigned at birth. In this game, Riley will also be making a decision about whether or not to cooperate with you, but you do not know how they will respond.

Instructions (B):

Here you will be introduced to your partner in a social dilemma game. Your partner, Riley, is described as gender-conforming, which means they follow other people's ideas or stereotypes about how they should look or act based on the female or male sex they were assigned at birth. In this game, Riley will also be making a decision about whether or not to cooperate with you, but you do not know how they will respond. Their decision will also influence the outcome of the game.

Appendix D

Participants will be given a choice to remain silent or implicate their partner.

You and your partner, Riley, are waiting in jail having been arrested on suspicion of committing a serious crime. The police do not have enough evidence to convict either of you, so how you respond to questioning will determine the outcome. You are kept apart from each other and have no way of knowing how the other will respond once interrogated. During questioning, the police offer you and your partner a choice to either a) implicate your partner in the crime or b) remain silent.

If you implicate your partner and they choose to do so as well, you will receive heavy sentences (3 years in prison).

If you remain silent and Riley implicates you, Riley will get off free and you will receive the worst sentence (5 years in prison).

If you implicate your partner and Riley remains silent, Riley will receive the worst sentence and you will get off free (freedom).

If you both choose to remain silent, you will get the minimum sentence (1 year in prison).

Please remember that your partner's decision will also influence the possible sentencing and length of time you spend in prison.

Choose from one of the following options:

- 1) I will remain silent.
- 2) I will implicate Riley in the crime.

Appendix E

Participants will be given an open-ended question to respond to justifying their decision in the cooperative choice paradigm.

Please tell us why you choose to either implicate your partner or remain silent. Describe any and all reasons for making this choice. There is no wrong answer.

Appendix F

Participants will fill out a demographic questionnaire for classification purposes.

1. Gender (circle one):

Female

Male

Other: _____

2. Age ____

3. Orientation (circle one):

Heterosexual

Bisexual

Homosexual

Other: _____

4. Median household income growing up:

5. Please circle your primary ethnicity:

African American

Asian American

White, non-Hispanic

Native American

Hispanic or Latino

Other: _____

6. Religion (circle one): Christian/Catholic

Christian/Non-Catholic

Jewish

Muslim

Agnostic

Atheist

Other: _____

7. What area were you raised in?

Rural

Suburban

Urban

8.Political orientation:

Very conservative

Conservative

Moderate

Liberal

Very liberal

Other: _____

9.Marital status:

Married

Separated

Single, never married

Divorced

VITA

Megan Downing

Candidate for the Degree of

Master of Science

Thesis: THE ROLE OF GENDER NON-CONFORMITY IN COOPERATION:
EVIDENCE FROM THE PRISONER'S DILEMMA

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