Butler Journal of Undergraduate Research

Volume 2

2016

To Be or Not to Be…Greek: A Study of Theory of Mind, Moral Reasoning, and Moral Development in Affiliated and Non-Affiliated Students

Catherine T. Geanon
Butler University, cgeanon@butler.edu

Megan E. Fishbaugh
Butler University, mfishbau@butler.edu

To Be or Not to Be…Greek: A Study of Theory of Mind, Moral Reasoning, and Moral Development in Affiliated and Non-Affiliated Students

Cover Page Footnote

I would like to express my deep gratitude and appreciation to Dr. Tara Lineweaver for her guidance in designing and implementing this study. Thank you to members of her psychology research lab and all of the participants for their willingness to contribute to this study. Finally, I would like to recognize the Butler University Center for High Achievement and Scholarly Engagement and the PUR Committee for helping to fund this research.

TO BE OR NOT TO BE…GREEK: A STUDY OF THEORY OF MIND, MORAL REASONING, AND MORAL DEVELOPMENT IN AFFILIATED AND NON-AFFILIATED STUDENTS

CATHERINE T. GEANON, BUTLER UNIVERSITY
MEGAN E. FISHBAUGH, BUTLER UNIVERSITY
MENTOR: TARA LINEWEAVER

Abstract

Understanding factors that affect theory of mind and morality (such as participation in Greek organizations) are particularly important during college, a time of emotional and moral development. While past studies have investigated theory of mind and moral development in Greek and non-affiliated college students, the research is limited. Thus, in this study, we explored theory of mind (ToM), moral development (MD), and moral reasoning (MR) in Greek members (n = 54) and their non-affiliated peers (n = 50) across their college years. Results indicated that Greek and non-affiliated students differed in theory of mind and moral reasoning, but not in moral development. Greek men and women demonstrated equivalent theory of mind abilities across class years, whereas non-affiliated students' theory of mind abilities differed depending on their gender and class year. Specifically, non-affiliated men showed a pattern of decreased theory of mind across their college years, whereas non-affiliated women's theory of mind improved across the same period. Additionally, non-affiliated students tended to consider the feelings of others more than themselves when reaching moral decisions, whereas Greek students' moral reasoning focused more on following rules and social norms. Taken together, these results suggest that involvement in Greek life during college may impact both theory of mind and moral reasoning without directly affecting the levels of moral development reached by students.

Theory of mind, the acknowledgement that others' viewpoints and feelings differ from one's own (Winner, Brownell, Happé, Blum & Pincus, 1998; Gaudreau, *et al.*, 2013), plays a critical role in interpersonal interactions. Previous research suggests a link between the awareness of our own emotions and the recognition of emotions in others (Brabec, Gfeller & Ross,

2012). Previous research has also found a positive correlation between theory of mind and verbal irony comprehension, suggesting that higher cognitive functioning is associated with the ability to identify others' emotions (Gaudreau *et al*, 2013). Furthermore, research has found that theory of mind and morality are linked (Rosen, Brand, Polzer, Ebersbach & Kalbe, 2013). For example, theory of mind helps us determine whether others' moral transgressions are purposeful or accidental (Rosen, Brand, Polzer, Ebersbach & Kalbe, 2013).

In the traditional sense, morality is often thought of as right and wrong. More specifically, conventional morality is often associated with welfare, justice, laws, and norms (Graham *et al*., 2011; Rest, Narvaez, Thoma & Bebeau, 1999). However, recent research has shifted from a traditional content-based approach to a functionalist approach (Graham *et al*., 2011). The functionalist approach investigates the integration and connection between multiple moral systems, such as blending norms with personal values and identities, and recognizes that individuals incorporate personal, familial, and societal morality into their character. This led to the development of the moral foundations theory (Haidt and Graham, 2007) which asserts that moral values are common across cultures and share the essential foundations of: harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect, and purity/sanctity (Graham *et al*., 2011).

Paralleling the advancement in modified theories exploring moral reasoning, researchers have also recently progressed in their understanding of moral development, or how morality changes with age. Past research largely focused on Kohlberg's three moral stages, each comprised of two sublevels. According to Kohlberg, in level one of the preconventional stage, individual morality is based on the belief that the quality of an act depends on the consequences that follow it. In level two of the preconventional stage, rules are obeyed in order to receive rewards and derive personal satisfaction. As individuals achieve conventional moral reasoning, in level three, moral behavior is determined by the reactions of others, and in level four, moral behavior is that which avoids criticism by authorities. Finally, as moral reasoning reaches a postconventional stage in level 5, individuals utilize moral actions to maximize social welfare. Level six marks the optimal level of moral reasoning in which right and wrong are determined by individual conscience and ethics (Shaffer, 1989). Thus, as individuals progress through each stage, their moral reasoning takes into account how their actions influence larger groups of people – themselves, close friends and family, and then communities, respectively (Mayhew, Seifert, & Pascarella, 2012).

Mayhew and colleagues (2012) conceptualized Kohlberg's stages of moral development as occurring in two phases: consolidation and transition. Individuals in the consolidation phase consider right and wrong to be independent of context whereas transitional moral reasoners are sensitive to change and use a variety of methods to process external stimuli.

Results of past studies exploring Kohlberg's moral stages have found that moral development is positively correlated with age and education (Rest, Cooper, Coder, Masanz, & Anderson, 1974; Rest, Davison, & Robbins, 1978; Rest, Narvaez, Thoma, & Bebeau, 1999). Most adults are found to be in the third or fourth level of moral development; adult subjects who have graduated college and those in post-graduate or professional programs are more likely to reach the fourth, and in rare cases, the fifth level of development (Cohen, 1982). Research shows that moral development slows down and eventually plateaus after college (Rest, Davison, & Robbins, 1978). Since college represents such an important time for individual moral development, understanding factors that affect morality during these years is critical.

One possible influence on college students' moral development is involvement in Greek organizations. In one of the few past studies that has investigated how Greek affiliation impacts morality, Martin, Hevel, Asel, and Pascarella (2011) found that fraternity and sorority members did not differ from their unaffiliated counterparts in moral reasoning. Furthermore, in a study conducted by Cohen (1982), there were no significant differences in the level of moral development achieved by Greek-affiliated men and women. In contrast to these studies that suggest Greek affiliation does not influence moral development, two studies have documented differences between Greek and non-Greek college students' moral reasoning. In a study involving only male college freshman, those who were Greek-affiliated exhibited less sophisticated moral reasoning than those who were not (Sanders, 1990). In addition, Kilgannon and Erwin (1992) found that non-Greek women demonstrated better moral reasoning than Greek women, non-Greek men, and Greek men. Thus, both of these studies suggest that Greek affiliation may be detrimental to the moral development of college students.

With both of these studies being more than 20 years old, many universities and Greek organizations now promoting positive moral development in their students, and the number of students interested in and joining Greek organizations rising, it is more imperative than ever that empirical research focus on moral reasoning and moral development in this population. The small number of past studies addressing this issue largely

focused on college freshmen, failing to examine differences in morality across the college years. Additionally, some of these studies failed to include unaffiliated students as a comparison. Even less research has been done on theory of mind in Greek-affiliated and non-Greek-affiliated students. Thus, the purpose of the current study was to investigate theory of mind, moral development, and moral reasoning in sorority and fraternity members and their non-affiliated peers across their college years using more modern measures of these constructs.

Method

PARTICIPANTS

This study included 104 sophomore, junior, and senior students from Butler University. Freshmen were excluded since students do not affiliate with Butler's Greek system until second semester of their freshman year. Participants were primarily recruited from psychology courses and received extra credit for their participation. We recruited additional students through word-of-mouth, and these participants received a $5 Starbucks gift card at the conclusion of the study. In addition to being classified as affiliated (n = 54) or non-affiliated (n = 50), participants were also grouped by gender and class year (see **Table 1**). A 2 (Greek status: affiliated vs non-affiliated) × 3 (class year: sophomore, junior, senior) × 2 (gender: male vs. female) ANOVA showed that participants increased in age with class year, F (2, 92) = 124.84, p < .001. However, age did not systematically differ across male versus female students (F (1, 92) < 1) or between affiliated and non-affiliated students (F (1, 92) = 3.35, p = .07), nor did any interaction effects reach significance (all ps > .20). Furthermore, a Chi-square analysis ensured that participant groups were similar in their racial distributions, X^2 (6, n = 95) = 43.70, p = .48.

MATERIALS

Demographic questionnaire. The demographic form asked participants to provide basic information about themselves such as gender, age, race, year in school, and Greek affiliation.

Reading the Mind in the Eyes. To measure participants' theory of mind, a modified version of the Reading the Mind in the Eyes test, created by Baron-

Cohen et al. (2001) was used. This test required participants to identify the emotion associated with a picture of a face showing only the eyes. The score

	Sophomore		Junior		Senior	
	M	F	M	F	M	F
	(n = 10)	(n = 19)	(n = 20)	(n = 21)	(n = 13)	(n = 21)
			Greek (n = 54)			
Age	19.43	19.56	20.45	20.40	21.67	21.09
	(0.53)	(0.53)	(0.52)	(0.52)	(0.52)	(0.30)
Ethnicity (% White)	100%	78%	91%	100%	100%	100%
			Non-Greek (n = 50)			
Age	19.00	19.30	20.33	20.18	21.29	21.40
	(0.00)	(0.48)	(0.50)	(0.40)	(0.49)	(0.52)
Ethnicity (% White)	100%	90%	89%	91%	71%	90%

Table 1. Mean (SD) demographic characteristics for the twelve participant groups.

for the total correct out of thirty-six indicated how well each participant understood another person's mental state based upon their facial cues.

Short story theory of mind task. Participants also completed a theory of mind task created by Winner *et al.* (1998) that involved reading several short stories. Half of the short stories were "lie stories" in which the wrongdoer did not know that the listener knew the truth and tried to hide a moral transgression with a lie. The other half were "joke stories" in which the wrongdoer knew the listener was aware of the truth, but tried to lighten the situation by making a joking statement that both knew was not true. Interspersed within each story was a series of six questions investigating whether the participants comprehended story details accurately and whether they correctly interpreted the speaker's intentional falsehood as a lie or a joke. Drawing the correct conclusion required the participant to deduce what the speaker did and didn't believe to be true about the situation. This task was scored by dividing the questions into three categories: fact questions, second-order belief questions, and theory of mind questions. The first two questions embedded in each scenario were fact questions that were rated on a scale from 0-1, indicating whether or not participants correctly comprehended

material from the scenario. The third and fourth questions embedded in each scenario were second-order belief questions rated on a scale of 0-2. The second-order belief questions indicated whether or not participants understood the speaker's beliefs about what the listener in the scenarios knew. Finally, the fifth and sixth questions within each scenario were theory of mind questions that assessed whether or not participants could correctly discriminate between when the person in the story was telling a lie or a joke.

Moral Foundations Theory Questionnaire (MFQ). Designed by Graham *et al.* (2011), this questionnaire measures the degree to which participants favor each of the five moral foundations systems when they are making moral decisions. These systems include: harm / care, fairness / reciprocity, ingroup / loyalty, authority / respect, and purity / sanctity. This questionnaire included two types of items – relevance and judgments. The moral relevance questions determined which systems participants viewed as most relevant when defining morality whereas the judgments questions evaluated which systems participants believe they use when making moral decisions. The questionnaire was scored by totaling the relevance scores and the judgment scores for each of the systems resulting in five subscales representing the five moral foundations. Additionally, as recommended by Graham et al. (2011), a progressivism score was calculated by adding scores for harm / care and reciprocity / fairness and subtracting the scores for the other three subsystems (ingroup / loyalty, authority / respect, purity / sanctity). The progressivism score thus indicated the extent to which participants were more liberal when making their moral decisions.

Defining Issues Test, Version 2 (DIT2). Rest, Narvaez, Thoma, and Bebeau (1999) created the DIT2 to examine moral judgment by presenting participants with five moral dilemmas. Each scenario is followed by 12 factors that participants might consider when deciding how to resolve the dilemma. Participants rank each factor in terms of its personal importance and relevance to the situation. These rankings provide information about each participant's stage of moral development. This test was scored based on three variables – P score, N2 score, and type indicator. The P score quantified the postconventional stage of moral development for each participant, indicating how often this level of morality was represented when participants made their decisions. The N2 score was a newer and more valid gauge of the level of moral development participants had attained; the N2 takes into account the P score (higher stage) and the personal interest items (lower stage) to indicate how often higher moral reasoning relative to lower moral reasoning was utilized in participants' decision-making. Lastly, the type

indicator scores provide the particular stage that best represents each participant's phase of development and more specifically whether each participant appeared to be at a consolidated or a transitional stage of development.

PROCEDURE

Participants were first recruited through psychology courses. However, in order to equalize the gender groups, number of Greek and non-Greek students, and the participants from each class year, students were also recruited directly from their Greek houses. Each participant was part of a group testing session (2-12 per group) lasting approximately 45-60 minutes. To begin the study, each student signed an informed consent and completed the demographic questionnaire. Next, participants viewed and responded to the thirty-six items of the Reading the Mind in the Eyes Test. After this test, participants completed the short story theory of mind task (10 lie and 10 joke scenarios in a fixed, but random order), the Moral Foundations Theory Questionnaire (30 questions), and the DIT2 (5 short story scenarios). At the conclusion of the study, participants received extra credit in a psychology class or a small gift card for their time.

Results

ANALYSES

Data was analyzed using SPSS by utilizing a 2 (Greek status: affiliated vs non-affiliated) × 3 (class year: sophomore, junior or senior) × 2 (gender: male vs female) between-participants ANOVA for each theory of mind, moral reasoning, and moral development variable. Each outcome measure was analyzed separately because we expected different patterns of performance across groups on different variables. When significant 3-way interaction effects emerged, follow-up simple two-way interaction analyses were run, applying a Bonferroni correction to avoid Type I errors. Additionally, when significant two-way interaction effects emerged, follow-up simple main effects further explored the nature of these interactions. Again, a Bonferroni correction was used to protect the Type I error rate. **Table 2** summarizes the scores of the 12 groups on each of the theory of mind, moral reasoning, and moral development measures.

Before conducting these primary analyses, we examined the reliability and intercorrelations amongst the main outcome variables. Individual test responses were available for two tests. Both the Winner Task (Chronbach's α

		Greek			Non-Greek		
		Sophomore	Junior	Senior	Sophomore	Junior	Senior
	Gender	Theory of Mind					
Eyes	M	27.71(3.25)	23.82(3.74)	26.17(2.40)	29.00(1.73)	26.56(3.32)	28.43(3.87)
	F	27.67(3.00)	28.90(4.33)	27.91(5.12)	27.60(3.92)	28.00(3.41)	29.80(2.39)
Winner SB[2]**	M	1.80(0.11)	1.49(0.36)	1.59(0.24)	1.61(0.30)	1.81(0.22)	1.33(0.50)
	F	1.69(0.13)	1.47(0.26)	1.56(0.30)	1.51(0.36)	1.67(0.19)	1.66(0.22)
Winner ToM[3]*	M	1.67(0.22)	1.68(0.16)	1.71(0.21)	1.85(0.05)	1.66(0.23)	1.53(0.35)
	F	1.83(0.12)	1.72(0.16)	1.77(0.16)	1.70(0.24)	1.72(0.15)	1.83(0.10)
		Moral Reasoning: Moral Foundations Questionnaire					
Ingroup	M	3.86(0.94)	3.80(0.69)	4.22(0.91)	3.94(0.95)	3.13(1.33)	3.86(0.34)
	F	3.81(0.48)	3.37(0.61)	3.77(0.60)	3.13(0.74)	3.48(0.78)	3.73(0.85)
Harm[g]*	M	4.12(0.74)	4.23(0.84)	4.33(1.03)	4.61(1.11)	4.81(0.69)	4.57(0.43)
	F	4.81(0.61)	4.52(0.53)	4.85(0.48)	4.93(0.49)	4.50(0.58)	5.00(0.33)
Authority[a]*	M	3.98(0.70)	4.00(0.73)	4.25(0.98)	3.89(0.51)	3.43(1.22)	3.76(0.88)
	F	4.17(0.87)	3.97(0.87)	3.95(0.67)	3.58(0.77)	3.68(1.22)	3.75(0.45)
Purity[a]**	M	3.60(0.96)	3.53(0.91)	4.06(0.95)	3.00(0.44)	3.59(1.23)	3.31(1.11)
	F	4.07(0.51)	3.80(0.92)	3.85(0.72)	3.58(0.81)	2.78(0.76)	3.70(0.83)
Fairness[3]*	M	4.36(0.20)	4.15(0.77)	4.50(0.66)	4.33(0.60)	4.76(0.74)	4.31(0.26)
	F	4.89(0.61)	4.50(0.46)	4.41(0.38)	4.57(0.58)	4.30(0.53)	4.85(0.57)

Table 2 continued on the next page

		Moral Development: Defining Issues Test-2					
Progress[a]**	M	0.43(0.81)	0.41(0.83)	0.24(0.81)	0.86(1.09)	1.40(1.41)	0.80(0.83)
	F	0.83(0.64)	0.80(0.66)	0.77(0.52)	1.32(0.66)	1.09(0.85)	1.20(0.56)
P Score	M	38.36(13.42)	33.64(14.39)	36.33(11.41)	38.67(15.01)	38.00(14.42)	38.57(18.89)
	F	43.11(13.04)	29.00(12.59)	46.55(8.58)	40.00(15.08)	42.55(14.40)	40.80(11.20)
Type	M	5.14(1.86)	3.73(2.45)	4.33(2.58)	4.33(2.52)	4.75(2.25)	4.43(2.64)
	F	5.78(1.92)	4.00(1.70)	5.82(1.60)	4.10(2.38)	5.09(2.02)	5.50(1.90)
N2 Score	M	35.91(10.54)	31.83(16.94)	31.73(14.89)	33.39(16.54)	36.00(16.56)	35.73(20.57)
	F	42.06(10.12)	31.65(12.97)	44.27(10.78)	37.14(16.31)	39.78(12.22)	39.68(11.47)

Table 2. Mean (SD) for Theory of Mind, Moral Reasoning, and Moral Development Scores by Group

Notes: Eyes: Reading the Mind in the Eyes Test
Winner SB: Winner Task Secondary Beliefs Score
Winner ToM: Winner Task Theory of Mind
Type: Type Indicator
Progress: Progressivism
[a] = main effect of affiliation
[g] = main effect of gender
[2] = two-way affiliation x class year interaction effect
[3] = three-way interaction
* = $p < .05$
** = $p < .01$

= .661) and the Moral Foundations Questionnaire (Chronbach's α = .826) exhibited adequate internal consistency in our sample. The intercorrelations amongst outcome variables are summarized in **Table 3**. Limited correlations emerged between the various measures of Theory of Mind, suggesting the Mind in the Eyes Test and the Winner Task assess different aspects of this construct. For the Moral Foundations Questionnaire, the Harm and Fairness subscales correlated more highly with each other than with other foundations, as did Purity, Ingroup, and Authority. This pattern of correlations supports the calculation of the Progressivism measure that contrasts these two approaches to moral reasoning. Finally, all three scores on the DIT-2 measure of Moral Development were highly correlated with each other.

	MindEyes	WinnerSB	WinnerToM	Harm	Fairness	Ingroup	Authority	Purity	Progress	P Score	N2 Score
WinnerSB	.071										
WinnerToM	.097	.368***									
Harm	-.030	-.108	-.027								
Fairness	.213*	.136	.182	.345***							
Ingroup	-.035	-.093	.153	-.008	-.055						
Authority	-.034	-.045	.117	.110	.029	.677***					
Purity	.005	-.011	.119	.166	.172	.431***	.624***				
Progress	.083	.053	-.079	.419***	.427***	-.726***	-.725***	-.584***			
P Score	.173	.221*	.156	.006	.161	-.155	-.230*	-.073	.210*		
N2	.147	.147	.172	.058	.188	-.174	-.127	.000	.185	.902***	
Type	.263**	.227*	.183	-.057	.165	-.122	-.135	-.078	.146	.810***	.821***

Table 3. Intercorrelations Amongst Theory of Mind, Moral Reasoning, and Moral Development Measures.
Note: * = $p < .05$
** = $p < .01$
*** = $p < .001$
MindEyes: Reading the Mind in the Eyes Test
Winner SB: Winner Task Secondary Beliefs Score
Winner ToM: Winner Task, Theory of Mind
Progress: Progressivism
N2: N2 Score
Type: Type Indicator

THEORY OF MIND

Each of the three theory of mind measures were analyzed separately with a 2 (affiliation group) × 3 (class year) × 2 (gender) ANOVA. For the Reading the Mind in the Eyes Test, none of the interactions effects nor any of the main effects reached significance. The main effect associated with gender neared significance (F (1, 92) = 3.19, p = .08), with women outperforming men (see **Table 2**).

For the Winner task, significant interaction effects emerged for both secondary beliefs and theory of mind. Although the three-way interaction for secondary beliefs failed to reach significance (F (2, 92) = 1.66, p = .20), the two-way interaction between affiliation and class year was significant, F (2, 92) = 5.48, $p < .01$ (see **Table 2**). We ran follow-up simple main effect

analyses looking at the impact of class year separately for Greeks and non-Greeks (p = .05/2 = .025). This revealed a significant effect of class year for Greeks, (F (1, 51) = 4.56, p = .015), whereas for non-Greeks, the effect of class year was not significant, (F (1, 47) = 2.45, p = .097).

For the Winner Theory of Mind score, the main effect of gender neared significance, F (1, 92) = 3.59, p = .06, but this effect was also part of a significant three-way interaction, F (2, 92) = 3.56, p < .05 (see **Figure 1**). We ran follow-up simple interaction effect analyses examining the impact of class year and gender separately for Greeks and non-Greeks (p = .05/2 = .025). These analyses indicated that, for Greeks, neither the simple interaction effect nor either of the simple main effects reached significance (all ps > .08). However, for non-Greeks, the two-way interaction between class year and gender neared significance even with the Bonferroni correction applied, F (1, 44) = 3.50, p = .039. Further follow-up analyses of class year for non-Greek men versus non-Greek women (p = .025/2 = .0125) did not reveal significant simple main effects (both ps > .22).

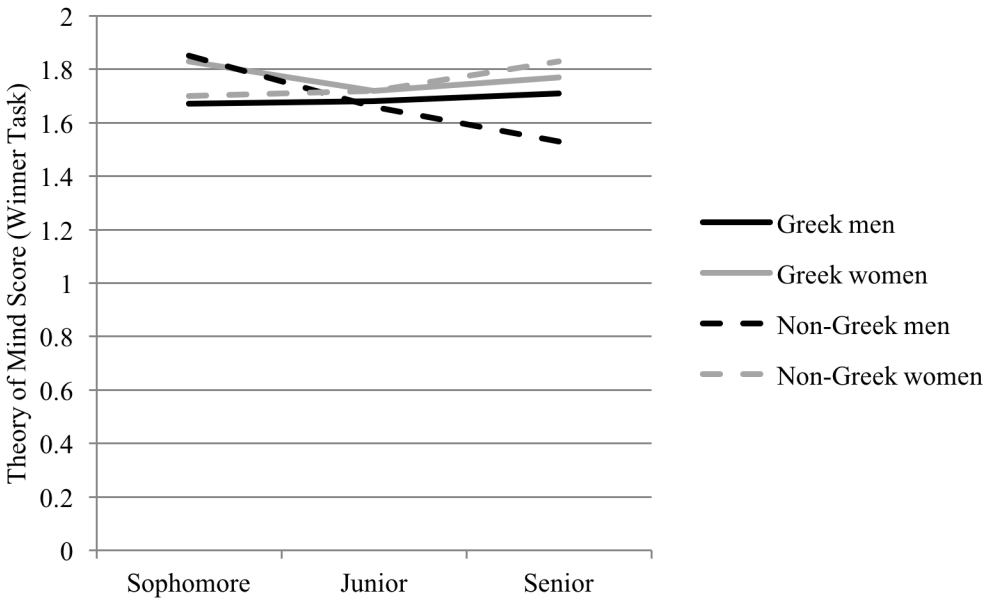

Figure 1. Theory of Mind Score (Winner Task) by Class Year, Affiliation, and Gender.

MORAL REASONING

A series of 2 (affiliation group) × 3 (class year) × 2 (gender) univariate ANOVAs analyzed each moral foundation score and the progressivism summary score from the Moral Foundations Questionnaire. Several of the foundation systems were impacted by main effects. First, for the ingroup foundation, a main effect of class year nearly reached significance F (2, 92) = 2.94, p = .058 such that scores for sophomores (M = 3.60, SD = .79) were somewhat higher than those for juniors (M = 3.46, SD = .88), and with seniors earning the highest scores on this measure (M = 3.86, SD = .70; see **Table 2**). Second, the main effect of gender reached significance only for the moral foundation of harm (F (1, 92) = 5.86, p < .05). Specifically, women were more likely than men to consider how their choice might bring pain or harm to another when making a moral decision (see **Table 2**). A near significant effect of affiliation also emerged for harm (F (1, 92) = 3.83, p = .053), indicating that non-Greeks cared more about harming others than Greeks did when making moral decisions (see **Table 2**). Greek affiliation also exerted a significant main effect for authority (F (1, 92) = 4.14, p < .05) and purity (F (1, 92) = 7.08, p < .01). Greeks tended to rely more on tradition and to weigh rules and laws more heavily when making moral decisions than non-Greeks (see **Table 2**). Similarly, Greeks showed a partiality towards virtue and God in moral decision-making relative to their non-affiliated peers (see **Table 2**). The analyses examining the final subsystem score, fairness, yielded a significant three-way interaction, F (2, 92) = 3.70, p = .029 (see **Figure 2**). Follow-up simple interaction effect analyses examined the impact of education and gender on fairness scores for Greek and non-Greek students (p = .025/ 2 = .0125). Neither the simple interaction effect nor either main effect reached significance for Greek students (all ps > .09). Rather, utilization of the fairness moral foundation was stable across class years regardless of gender for Greeks. Conversely, for the non-Greeks, the simple interaction effect showed a near significant trend with the Bonferroni correction applied, F (1, 44) = 3.60, p = .036. Further follow-up simple main effect analyses separately for non-Greek men and women revealed that class year did not significantly impact fairness for non-Greek students (both ps > .99).

Analyses for the final variable measured on the MFQ, progressivism, revealed a significant main effect for affiliation group (F (1, 92) = 9.76, p < .01; see **Table 2**) and a nearly significant main effect for gender (F (1, 92) = 3.33, p = .07; see **Table 2**). Non-Greeks and women scored higher on the progressivism scale than Greeks and men, suggesting that the former groups

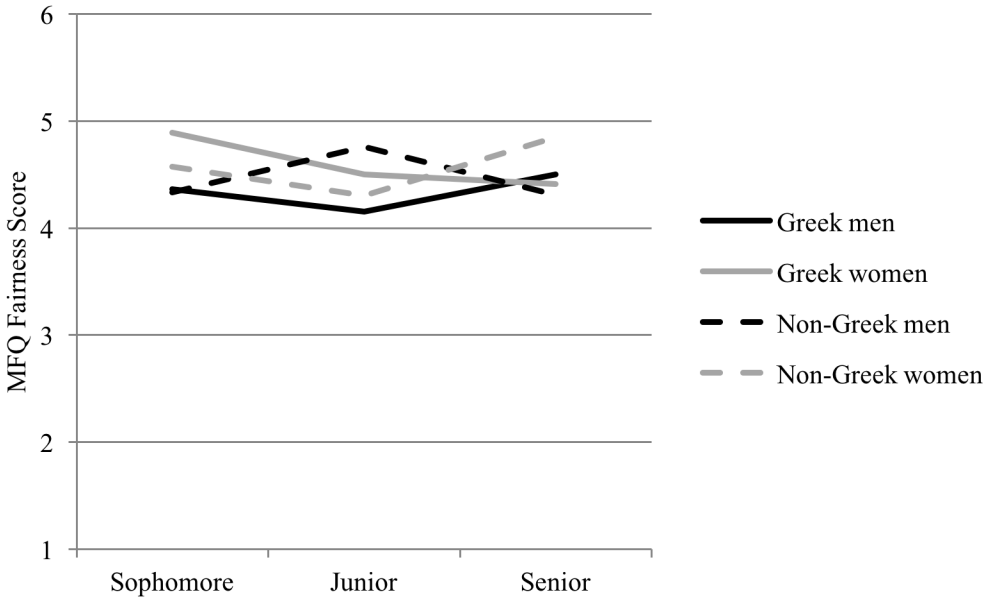

Figure 2. Moral Reasoning Fairness Score by Class Year, Affiliation, and Gender.

were more likely to consider harm and fairness during moral-decision making compared to the other three moral foundation subsystems.

MORAL DEVELOPMENT

Analogous to theory of mind and moral reasoning scores, the moral development scores from the DIT-2 were analyzed with 2 (affiliation groups) × 3 (class year) × 2 (gender) univariate ANOVAs. No significant interaction or main effects emerged for the P score (all *p*s > .17) or the type indicator score (all *p*s > .11). Although no interaction or main effects reached significance for the N2 score, the main effect of gender neared significance (F (1, 91) = 2.82, p = .097) such that women were more likely to evidence later rather than earlier stages of moral development compared to men.

Discussion

In an effort to build upon previous research, this study sought to investigate theory of mind, moral reasoning, and moral development in Greek and non-Greek students at various points in their college years. We utilized four modern measures of these constructs to examine differences associated with

gender, class year and affiliation status. Results were complex, with differential relationships emerging amongst these constructs.

CLASS YEAR DIFFERENCES IN THEORY OF MIND, MORAL REASONING, AND MORAL DEVELOPMENT

We found limited relationships between college students' class year and their performance on measures of theory of mind, moral reasoning, and moral development. In fact, the only score that neared significance across class years was the moral reasoning ingroup score. Although scores on this measure did increase from junior to senior year, these rising scores do not necessarily represent higher moral reasoning or moral development, but may actually indicate less sophisticated moral reasoning with advancing education. By relying more on ingroup judgments and loyalties, seniors were less likely to make moral decisions based upon contextual factors which may correspond to one of Kohlberg's earlier developmental stages as opposed to one of his later stages (Mayhew *et al.*, 2012). Interestingly, results from the current study failed to replicate those of past studies that found that moral development is positively correlated with age and education (Rest, *et al.*, 1974; Rest, *et al.*, 1978; Rest, *et al.*, 1999). This may be because Rest's research examined a wider range of ages and levels of education than were included in our study.

GREEK AFFILIATION DIFFERENCES IN THEORY OF MIND, MORAL REASONING, AND MORAL DEVELOPMENT

We found that Greek affiliation shared a significant relationship with moral reasoning, but not with the other outcome measures included in our study. Non-Greek students were more likely than Greek students to take into account whether they were harming others during moral decision-making. Conversely, Greek students were more likely to consider rules, societal norms, and God when making moral decisions compared to non-Greek students. Together, these particular moral foundations affected the overall progressivism scores for the participants and support the idea that non-Greek students are more progressive and liberal in their moral reasoning than their affiliated peers. Research by Mayhew and colleagues (2012) demonstrated that as individuals progress through Kohlberg's stages of development, their moral reasoning takes into account how their actions influence larger groups of people. Thus, higher scores on the harm scale suggest an increased level of moral reasoning; increased purity and authority scores indicate the opposite.

These results further suggest that Greek students are more often in the consolidation phase of moral development as they consider right and wrong to be independent of context. In contrast, non-Greek students could more often be categorized as transitional moral reasoners since they are more sensitive to change and used a greater variety of methods to process external stimuli and make moral decisions (Mayhew *et al*., 2012). Interestingly, however, we were not able to document any differences between affiliated and non-affiliated college students on our formal measure of moral development.

GENDER DIFFERENCES IN THEORY OF MIND, MORAL REASONING, AND MORAL DEVELOPMENT

Gender seemed to have a broader influence on the social skills of college students, affecting both theory of mind and moral reasoning. On the Mind in the Eyes Test, women scored higher than men, indicating that women better understand other's emotions. Additionally, women were more likely to consider harm when making moral decisions which also contributed to their higher progressivism scores compared to men. Gender also affected how well non-Greek students performed on the Winner Theory of Mind task and how much they considered fairness in moral decision-making at different points in their college career. For non-Greek students, women of increasing class years showed greater appreciation of theory of mind and increasing consideration of fairness, whereas men who were sophomores were less attuned to theory of mind and showed less reliance on fairness than men who were in their senior year. These results support past research that demonstrated non-Greek women are better at moral reasoning tasks than Greek women, Greek men or non-Greek men (Kilgannon & Erwin, 1992).

Conclusion

Overall, this study supports research by Graham *et al*. (2011) that identifies the multi-dimensional functionalist approach as the drive behind moral reasoning. We found that college students today choose to integrate multiple moral systems and to consider personal, familial, and societal values when making moral decisions. No past studies have investigated the combination of Greek affiliation, gender, and class year and their impact on theory of mind and morality in college students. Thus, the current study built upon previous research by investigating the relationship between Greek and non-Greek affiliation and theory of mind, moral reasoning, and moral development.

Although interaction effects and main effects varied across outcome measures, several significant results alluded to an important trend: Greek affiliation is associated with less sophisticated moral reasoning.

LIMITATIONS AND FUTURE STUDIES

Although this study is the first of its kind to examine the Greek affiliation of men and women and its effect on theory of mind, moral reasoning, and moral development tasks across the college years, there were several limitations that make the results difficult to generalize. First, Butler has a deferred recruitment process, meaning that recruitment week for men and women occurs during the second semester of freshman year rather than during the fall. This limited our ability to examine the full range of collegiate years since freshman could not be included in the sample. Second, Butler has a unique Greek system: 35% of the campus is Greek, activities geared towards Greeks are emphasized throughout the school year, and Greek events are widely attended. Although this enhanced focus on Greek life at Butler relative to other campuses may limit the generalizability of our results, it actually should have led to increased differences between Greek and non-Geek students in our study. Lastly, male participants were difficult to recruit for this study since Butler University has a 60:40 female to male ratio. This difficulty was heightened by the fact that many of the participants were psychology majors, and the majority of students in this major at Butler are female.

As such, future studies need to replicate the investigation of theory of mind, moral reasoning, and moral development in Greek and non-Greek men and women across their college years with a greater variety of Greek systems on campuses of different sizes. Specifically, more research should be done on campuses in which Greeks have both a prominent and inconspicuous presence at both public and private undergraduate institutions Additionally, the samples should be larger with a more equal distribution of males and females, and participants should be recruited from a greater variety of majors in order to best attain a representation of the student body.

References

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y. & Plumb, I. (2001). The "Reading the mind in the eyes" test revised version: A study with normal adults and adults with Asperger Syndrome or high-functioning Autism. *J Child Psychol Psyc, 42*(2), 241-51. http://dx.doi.org/10.1111/1469-7610.00715

Brabec, C.M., Gfeller, J.D. & Ross, M.J. (2012). An exploration of relationships among measures of social cognition, decision making, and emotional intelligence. *J Clin Exp Neuropsyc, 34*(8), 887-94. http://dx.doi.org/10.1080/13803395.2012.698599

Cohen, E.R. (1982). Using the defining issues test to assess stage of moral development among sorority and fraternity members. *J Coll St Personnel, 23*(4), 324-328.

Gaudreau, G., Monetta L., Macoir, J., Laforce R. Jr., Poulin S. & Hudon C. (2013). Verbal irony comprehension in older adults with amnestic mild cognitive impairment. *Neuropsychology, 27*(6), 702-712. http://dx.doi.org/10.1037/a0034655

Graham, J., Nosek, B.A., Haidt, J., Iyer, R., Koleva S. & Ditto, P.H. (2011). Mapping the moral domain. *J Pers Soc Psychol, 101*(2), 366-385. http://dx.doi.org/10.1037/a0021847

Kilgannon, S.M. & Erwin, T.D. (1992). A longitudinal study about the identity and moral development of Greek students. *J Coll Student Dev, 33*(3), 253-259.

Martin, G.L., Hevel, M.S., Asel, A.M., & Pascarella, E.T. (2011). New evidence on the effects of fraternity and sorority affiliation during the first year of college. *J Coll Student Dev*, *52*(5), 543-559. http://dx.doi.org/10.1353/csd.2011.0062

Mayhew, M.J., Seifert, T.A., Pascarella, E.T. (2012). How the first year of college influences moral reasoning development for students in moral consolidation and moral transition. *J Coll Student Dev*, *53*(1), 19-40. http://dx.doi.org/10.1353/csd.2012.0004

Rest, J., Douglas, C., Coder, R., Masanz, J., & Anderson, D. (1974). Judging the important issues in moral dilemmas—an objective measure of development. *Dev Psychol*, *10*(4), 491-501. http://dx.doi.org/10.1037/h0036598

Rest, J., Narvaez, D., Thoma, S.J., & Bebeau, M.J. (1999). DIT2: Devising and testing a revised instrument of moral judgment. *J Educ Psychol*, *91*(4), 644-659. http://dx.doi.org/10.1037/0022-0663.91.4.644

Rest, J.R., Davison, M.L., Robbins, S. (1978). Age trends in judging moral issues: A review of cross-sectional, longitudinal, and sequential studies of the defining issues test. *Child Dev*, *49*(2), 263-279. http://dx.doi.org/10.2307/1128688

Rosen, J.B., Brand, M., Polzer, C., Ebersbach, G., & Kalbe, E. (2013). Moral decision-making and theory of mind in patients with idiopathic Parkinson's Disease. *Neuropsychology, 27*(5), 562-572. http://dx.doi.org/10.1037/a0033595

Sanders, C.E. (1990). Moral reasoning of male freshman. *J Coll Student Dev*, *31*(1), 5-8.

Shaffer, D.R. (1989). Kohlberg's theory of moral development. In *Developmental Psychology Childhood and Adolescence* (2nd ed., pp. 534-536). Pacific Grove, California: Brooks/Cole Publishing Company.

Winner, E., Brownell, H., Happé, F., Blum, A., Pincus, D. (1998). Distinguishing lies from jokes: theory of mind deficits and discourse interpretation in right hemisphere brain-damaged patients. *Brain Lang*, 62(1), 89-106. http://dx.doi.org/10.1006/brln.1997.1889