

Influences of Biological Gender and Gender Role on Planned Behavior and Entrepreneurial Intention

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ABSTRACT

Entrepreneurs play an important role in the expansion and growth of the economy. Identifying and understanding factors associated with the intention of individuals to become entrepreneurs, is of value in promoting entrepreneurial ventures. This study employs a model that builds on the Griswold et. al. (2016) gender role/entrepreneurial intentions framework by examining whether biological gender influences relationships between gender role, theory of planned behavior (TPB) variables as proposed by Azjen, and entrepreneurial intention. A survey was completed by 282 undergraduate and graduate (MBA) college students majoring in business administration at a small liberal arts university located in the Midwest. Findings indicated that relationships between gender role and TPB variables (i.e., subjective norm, perceived behavioral control, and attitude regarding becoming an entrepreneur) varied significantly by reported biological gender. Moreover, relationships between gender-role variables (masculinity and femininity) and entrepreneurial intentions also varied significantly by biological gender. Implications for entrepreneurial researchers and educators are discussed.

Keywords: Entrepreneurs, Planned Behavior, Gender, Entrepreneurial Intent

JEL Codes: L21, L26

Introduction

Entrepreneurship is a driving force behind the U.S. economy. Identifying and understanding the factors associated with entrepreneurial intentions and subsequent venture creation is of considerable interest to policy makers, educators and researchers. While many research studies have focused on factors contributing to entrepreneurial intentions, there remain many unknowns, including the impact of biological gender on entrepreneurial intention. This question is of increasing importance as the rate of growth among women owned businesses continues to grow. Over the past 20 years, The growth rate of women-owned businesses has increased by 141%. This figure compares with a 44% growth rate for all businesses. And while the growth rate of women-owned businesses has increased significantly, women are still only half as likely as men to start a business. In fact, only 4% of total business revenue comes from women-owned businesses (Stiles, 2018). Such figures illustrate the importance of researchers, educators, and policy makers to better understand how biological gender and gender role might influence entrepreneurial intentions of individuals.

Through the development of an integrative conceptual framework, the purpose of this study is to build on prior research and explore potential influences of (self-reported) biological gender, gender-role variables as proposed by Bem (1974) (e.g., masculinity, femininity, and androgyny), and Ajzen's (1991) theory of planned behavior (TPB) variables (i.e., subjective norm, perceived behavioral control, and attitude regarding becoming an entrepreneur) on entrepreneurial intentions of individuals.

Review of Literature

A widely cited definition for "entrepreneurial intention (EI)" is an individual's perceived likelihood that (s)he will become involved in the process of venture creation (Liñán and Chen, 2009). While intention does not mean the individual will carry out entrepreneurial behavior, intention has been found to predict behavior (Ajzen, 1991).

Factors contributing to planned behaviors and entrepreneurial intention have been widely studied. Gender role has been one factor examined. Gender (or sex role) orientation relates to associating a person with traits that a traditional social system has deemed to be more “masculine” or more “feminine” (Mueller & Dato-On, 2008). Masculine traits include such attributes as assertiveness, independence, dominance, and aggressiveness. Some of the traits associated with a feminine orientation include being affectionate, cheerful, gentle, and sympathetic. Persons exhibiting a mix of masculine and feminine traits are deemed androgynous.

Past research related to gender role and entrepreneurship has related entrepreneurial activity predominately with traits related to a masculine orientation. For example, Mueller and Dato-On (2013) found that masculinity is associated with higher entrepreneurial self-efficacy. Gupta et al. (2005) found that gender-based stereotypes influenced choices that individuals made about becoming an entrepreneur, with entrepreneurship viewed as being a predominately masculine activity.

Previous studies have focused on the role that gender, gender role stereotypes, and gender orientation have played in predicting entrepreneurial behavior (e.g., Gupta, et al., 2005; Mueller & Dato-On, 2008; Wilson et al. 2009). For example, Gupta, et al, (2005) found that males and females alike perceive entrepreneurs to have predominantly masculine characteristics, yet they found no significant gender-based differences in levels of entrepreneurial intention. When respondents were asked to categorize themselves as “seeing oneself similar to” males or females, being similar to a male was related to entrepreneurial intention while being similar to a female was not. Gupta, Turban, & Bhawe (2008) further explored the role that gender stereotypes had on entrepreneurial intentions. They examined the impact of implicit and explicit gender stereotypes on men and women’s intentions to pursue entrepreneurship. They found that underlying societal stereotypes associating entrepreneurship with masculine characteristics may influence the intentions of men and women become an entrepreneur. Further, this study found that men generally had higher

levels of entrepreneurial intention except when entrepreneurship was presented as a gender-neutral career choice.

Mueller and Dato-On (2008) studied entrepreneurial self-efficacy in men and women and found no significant difference between genders. The results led them to analyze whether gender-role orientation played a larger role than actual gender in entrepreneurial self-efficacy. Gender-role orientation was based upon a self-classification as having more “male” descriptive traits, “female” descriptive traits, or “androgynous” descriptive traits. The study found that masculinity was related to higher self-efficacy. Mishra et al. (2013) continued the research in terms of self-efficacy by studying unemployed women and found that androgyny was a positive predictor of self-efficacy. Osiri, Kungu, and Dilbeck (2019) examined the relationship between entrepreneurial intention and proactive personality, self-efficacy and creativity in a sample of male and female students attending a university in the North West U.S. While this study provides support for claims that proactive personality, entrepreneurial self-efficacy and creativity are positively related to entrepreneurial intentions, this study did not segment the sample by biological gender.

Wilson et al., (2009) examined entrepreneurial intentions and entrepreneurial self-efficacy in a parallel study where data was collected on middle and high school students, MBA students, and early career adults. For the first two groups of students, gender had a strong effect on both entrepreneurial intentions and self-efficacy, with males scoring higher than females. The relationship between gender and entrepreneurial intentions was reduced when self-efficacy was considered. When the role of gender on self-efficacy and entrepreneurial behavior was investigated, gender differences were found for self-efficacy but not entrepreneurial behavior. Self-efficacy and entrepreneurial behavior were found to be significantly related. For early career adults, the relationship between entrepreneurial education, gender and entrepreneurial self-efficacy on entrepreneurial behavior was examined. While gender and education when viewed separately did not have a significant effect on entrepreneurial behavior, when viewed together, they

did. Additionally, when self-efficacy was factored in, its effects overwhelmed the effects of other variables. These relationships seem to demonstrate the importance of entrepreneurial education aimed at increasing self-efficacy, especially in women. If education can increase knowledge and therefore confidence in undertaking an entrepreneurial task, self-efficacy will increase leading to an increase in entrepreneurial behavior.

Bae et al. (2014) performed a meta-analysis of entrepreneurial education and entrepreneurial intentions. He concluded that there was a small yet significant relationship between entrepreneurial intention and entrepreneurial education but when pre-education levels of entrepreneurial intentions were considered, the relationship between entrepreneurship education and post-education entrepreneurial intentions was not significant.

Utilizing a sample of students, a study by Bhandari (2012) examined potential relationships between employment type of parents, students' own current employment, student gender, and entrepreneurial intention. Interestingly, the study found relationships between entrepreneurial intention and both the students' parents and students' own employment status. But, in contrast to the findings of Davidsson (1995), the study found no relationship between the students' gender and their intention to start a business once they had completed their undergraduate studies. However, Arora and Jain (2019) interviewed 600 male and female students of government and private management institutes of the Indore district of India. They found that EI of students was influenced by gender differences with female students being less inclined toward entrepreneurship as a career option.

Veena and Nagarja (2013) contributed to the research of entrepreneurial intentions among males and females by concluding that males and females tend to start different types of businesses and they start those businesses for different reasons. In particular, proportionally more female founded businesses are in personal services and retail trade while males were more likely to start businesses in manufacturing and high technology intense areas. Males were also more likely to

start businesses for financial gain, while women more likely to start a business to achieve greater family-work life flexibility. Interestingly, Veena and Nagarja also found that 80% of males and only 55% of females who started businesses had business-related education in their background. Likewise, Cornwall (2011) reported that males tended to enter entrepreneurship for reasons related to more independence and higher income potential while females tended to enter entrepreneurship to achieve a more favorable work-life balance and to pursue an intrinsic interest of some kind.

Other factors have been reported to be related to entrepreneurial intentions as well including propensity to engage in risk (Robinson and Stubberund, 2014), personal exposure to entrepreneurial role models (Geldhof, et al., 2014), entrepreneurial education (Rauch and Hulsink, 2015), desire for independence (Cornwall, 2011), and pursuit of personal interest (Morris et. al., 2013). Davidsson (1995) found that females had less in the way of “vicarious experience” with respect to entrepreneurship (i.e., less in the way of working closely with potential role models who are entrepreneurs). This resulted in lower entrepreneurial intention.

Other researchers have examined the impact of planned behavior influences on entrepreneurial intention. For example, Linan and Chen (2009) found that theory of planned behavior (TPB) variables including perceived behavioral control, subjective norm, and attitude toward entrepreneurship were associated with EI. Their TPB variables in the model were positively associated with EI and accounted for over 70% of the variation in EI. However, the TPB constructs are somewhat general and each may have underlying dimensions of interest to EI researchers.

Ruizalba et al. (2015) examined entrepreneurial intentions of undergraduate business students in Spain using the Theory of Planned Behavior (TPB) model and found that perceived behavioral controls and attitudes toward entrepreneurship affected entrepreneurial intentions of university students toward entrepreneurship while subjective norm did not. When analyzing

gender, they found that for women, there was a positive influence on the relationship between subjective norm and perceived control. In this study, gender did not have an effect on predicting entrepreneurial intentions.

The Bem gender role inventory has been utilized in many research contexts but rarely in entrepreneurial research. Bem (1974) proposed that all individuals possess characteristics related to masculinity and femininity and that individuals who are high on both dimensions can be classified as androgynous.

While gender role orientation is an independent construct from biological gender, many studies have demonstrated that males tend to have higher masculinity scores and females are more likely to have higher femininity scores (e.g., Özkan & Lajunen, 2005). Bem's instrument has been widely used in business research regarding gender orientation (Mueller and Dato-On, 2008). For example, Mueller and Data-On (2013) found that masculinity and androgyny were positively related to entrepreneurial self-efficacy.

Griswold et. al. (2016) developed an integrative framework that included incorporation of the BEM (1974) Sex Role Inventory (BSRI) and Theory of Planned Behavioral (TPB) variables (Linan and Chen, 1991). In this manner, the joint influences of gender role and TPB variables (i.e., personal attitude toward entrepreneurship, perceived behavioral control, and subjective norm) on entrepreneurial intention were examined. The influences of gender role, according to Bem's instrument, together with control variables of prior exposure to entrepreneurship, entrepreneurship coursework, and self-reported GPA, were utilized to predict levels of EI in the overall sample itself. Their findings indicated that masculinity was a significant positive predictor of EI and that femininity approached significance as a positive predictor of this variable. But when theory of planned behavior (TPB) variables were incorporated into the analysis, the influences of personal attitude toward entrepreneurship and perceived behavioral control (i.e., the degree of confidence respondents reported having to be successful as an entrepreneur) overwhelmed

influences of the gender role variables. However, further analyses by the researchers revealed that the gender role variables themselves were significant predictors of the TPB variables personal attitude toward entrepreneurship and perceived behavioral control, with masculinity being positively related to these variables and femininity being negatively related to both variables. Thus, there appeared to be other underlying dynamics between gender role and TPB ultimately influencing EI that were not examined directly in the analysis. The authors noted that one such variable influencing these relationships may be biological gender.

Several previous studies have found that EI may be related to biological gender. For example, Bloemen-Bekx et al. (2019) studied entrepreneurial intention among a sample of 1,134 full-time students with entrepreneurial parents enrolled in business administration, commerce and communications courses at a university in the Netherlands. They found that overall, males reported higher entrepreneurial intentions. Young male students with entrepreneurial parents also expected to participate in entrepreneurial careers more often than young women with entrepreneurial parents.

Gupta, Turban, and Bhaine (2008) also found that males tended to have higher levels of EI than females. Additionally, Wilson et al. (2009) reported that EI was higher among males, but also found this relationship to be moderated by levels of entrepreneurial self-efficacy. Davidsson (1995) also reported that males tended to have more in the way of “vicarious experience” with entrepreneurs thus leading them to have higher levels of EI

Research by Veena and Najaraja (2013) reported that males and females tend to possess different motivations for starting businesses. They concluded that factors motivating women to become entrepreneurs include independence and control over their working lives. Further, they concluded that women tended to gravitate toward smaller entrepreneurial ventures so as to maintain work flexibility in their desire to meet family demands, whereas men were more likely to seek growth opportunities via entrepreneurship. Likewise, Cornwall (2011) reported that when

individuals were asked why they wanted to become entrepreneurs, males tended to select reasons related to independence (a male BSRI trait) and income potential while females tended to pursue entrepreneurial initiatives in order to achieve a greater work-life balance or to pursue an intrinsic interest that could be facilitated through entrepreneurship.

Purpose and Hypothesis

Given that past research has reported significant relationships between gender role, TPB variables, and biological gender on entrepreneurial intention, this study seeks to examine their joint influences within a comprehensive framework (See Figure 1). Specifically, this research will expand on the work of Griswold et. al. (2016) and others by testing a model of EI that includes an assessment of the influences of both biological gender and gender role on TPB variables followed by an assessment of biological gender, gender role, and TBP variables on entrepreneurial intention. The overall objective is to be able to provide a richer understanding of underlying relationships between biological gender, gender role, and TPB variables and to ultimately examine their combined influences on entrepreneurial intention.

The following hypotheses will be tested:

H1a: Masculinity is positively related to female attitude toward entrepreneurship.

H1b: Masculinity is positively related to male attitude toward entrepreneurship.

H2a: Femininity is positively related to female attitude toward entrepreneurship.

H2b: Femininity is positively related to male attitude toward entrepreneurship.

H3a: Androgyny is positively related to female attitude toward entrepreneurship.

H3b: Androgyny is positively related to male attitude toward entrepreneurship.

H4a: Masculinity is positively related to female perceived behavioral control.

H4b: Masculinity is positively related to male perceived behavioral control.

H5a: Femininity is positively related to female perceived behavioral control.

H5b: Femininity is positively related to male perceived behavioral control.

H6a: Androgyny is positively related to female perceived behavioral control.

H6b: Androgyny is positively related to male perceived behavioral control.

H7a: Masculinity is positively related to female subjective norm.

H7b: Masculinity is positively related to male subjective norm.

H8a: Femininity is positively related to female subjective norm.

H8b: Femininity is positively related to male subjective norm.

H9a: Androgyny is positively related to female subjective norm.

H9b: Androgyny is positively related to male subjective norm.

H10a: Masculinity is positively related to female entrepreneurial intention.

H10b: Masculinity is positively related to male entrepreneurial intention.

H11a: Femininity is positively related to female entrepreneurial intention.

H11b: Femininity is positively related to male entrepreneurial intention.

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H12a: Androgyny is positively related to female entrepreneurial intention.

H12b: Androgyny is positively related to male entrepreneurial intention.

H13a: Personal attitude toward entrepreneurship is positively related to female entrepreneurial intention.

H13b: Personal attitude toward entrepreneurship is positively related to male entrepreneurial intention.

H14a: Perceived behavioral control is positively related to female entrepreneurial intention.

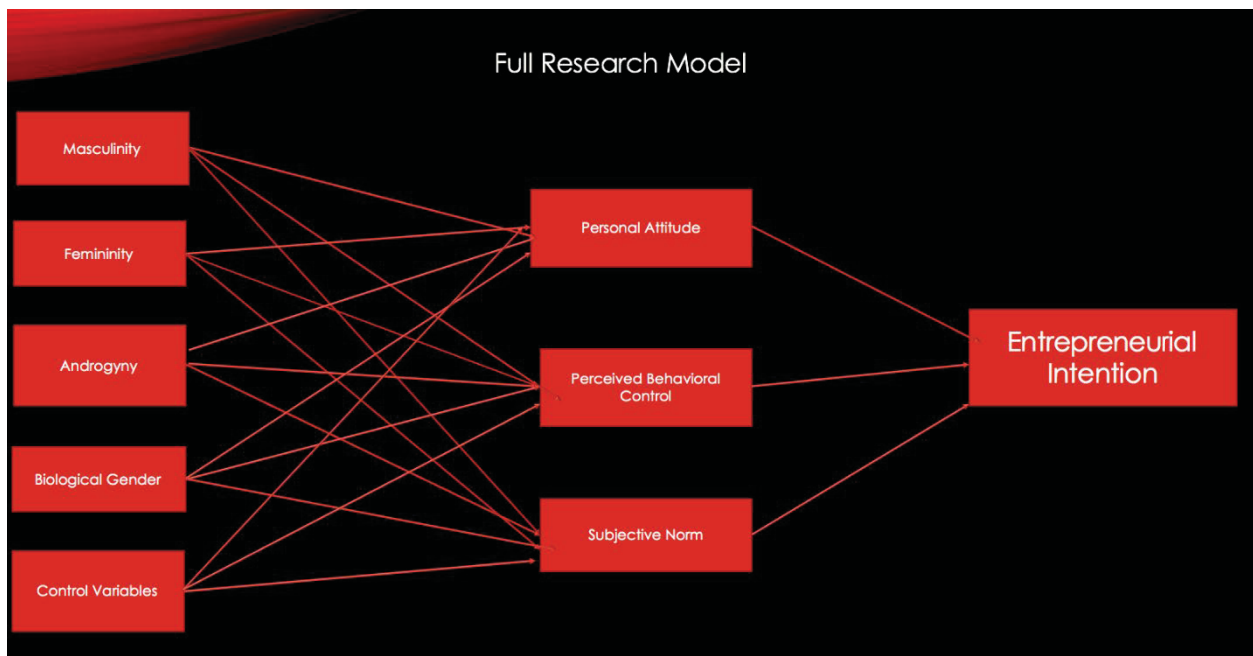
H14b: Perceived behavioral control is positively related to male entrepreneurial intention.

H15a: Subjective norm is positively related to female entrepreneurial intention.

H15b: Subjective norm is positively related to male entrepreneurial intention.

An illustration of the full model is presented below:

Figure 1



Methodology

Data was collected via a survey administered to 282 college students majoring in business administration at a small liberal arts university located in the Midwest (See Appendix I). The sample included traditional and nontraditional undergraduate and MBA students. Surveys were distributed in business courses and students were not allowed to complete multiple surveys across courses. The survey included the 60 item BSRI (Bem Sex Role Inventory) as well as several questions that were contained in the Liñán & Chen (2009) entrepreneurial intention survey. Included in the survey were scaled items for subjective norm, perceived behavioral control, and personal attitudes towards entrepreneurship.

In order to operationalize planned behavior variables (i.e., attitude toward entrepreneurship, perceived behavioral control, and subjective norm) as well as entrepreneurial intention, the survey included scaled items for each variable as utilized by Linan and Chen.

Questions pertaining to demographics, past work experience, whether individuals knew an entrepreneur, and whether individuals had completed one or more entrepreneurship classes were also included on the instrument as control variables.

Surveys were analyzed to compute each individual's masculinity, femininity, and androgyny scores. Masculinity and femininity were calculated as the mean value for scaled items. Androgyny was calculated as the absolute value of the sum of raw masculinity and femininity scores multiplied by the reciprocal of the difference in those scores. Thus, individuals with closely scored masculinity and femininity had higher androgyny scores. For example, an individual with both high masculinity and femininity scores or an individual with both low masculinity and femininity scores had higher androgyny scores than a person with a larger difference between masculinity and femininity scores.

Theory of Planned Behavior (TPB) variables (attitude toward entrepreneurship, perceived behavioral control, subjective norm) and entrepreneurial intention were also calculated as mean values for scaled items.

Stepwise regression with backward elimination was utilized in order to identify variables that were statistically significant predictors of dependent variables. In an effort to determine if hypothesized relationships were uniform across subsamples segmented by biological gender, the sample was split into two groups and separate regression analyses were performed for each. By utilizing split sample multiple regression analyses, potential influences of gender role on planned behavior variables as well as joint influences of gender role and planned behavioral variables on entrepreneurial intention could be examined in analyses segmented by biological gender.

Results

A total of 284 students enrolled in business courses at a small midwestern liberal arts university responded to the survey. Of this total, 185 (65.14%) were male and 95 (33.45%) were female. Four respondents did not identify a gender. Seventy-four respondents (26.05%) reported being less than 20 years of age, 192 (67.6%) were 20 to 30 years of age, and 13 (4.58%) were over 30 years of age. Within this sample, 232 (81.7%) respondents had no self-employment work experience. Those who had worked for themselves had spent an average of 2.77 years in that endeavor. When examining total work experience, respondents who reported working full-time ($n = 101$) had an average of 4.59 years of full-time employment and those with part-time experience ($n = 183$) averaged 4.67 years of experience.

Respondents were also asked about the entrepreneurial experience of those they may know. When asked if they personally know an entrepreneur, 231 (81.3%) responded "yes." In addition, 155 respondents (54.6%) indicated that a member of their immediate family owns a business. Finally, 81 respondents (28.52%) reported taking at least one course in entrepreneurship.

Overall, males had significantly higher entrepreneurial intention (EI) scores than females ($t = 2.79$; $p = .002$). Males also had significantly higher personal attitudes toward entrepreneurship scores (PA) ($t = 2.14$; $p = .016$). Mean scores for males were also higher than females for subjective

norm (SN) and perceived behavioral control (PBC), although these differences were not statistically significant ($t = .741$; $p = .229$ and $t = 1.72$; $p = .086$ respectively). For the full sample, Cronbach alpha coefficients for these constructs were EI ($\alpha = .968$), PA ($\alpha = .930$), SN ($\alpha = .854$), and PBC ($\alpha = .911$), thus illustrating high inter-item reliability for all scales.

Males also reported higher masculinity scores than females (male mean score of 4.432 versus female mean score of 4.19) ($t = 2.217$; $p = .014$). Conversely females had higher femininity scores than males (female mean score of 4.586 versus mean score of 4.308) ($t = 5.21$; $p < .001$). For the full sample, Cronbach alpha coefficients were $\alpha = .863$ for masculinity items and $\alpha = .798$ for femininity items. Additionally, the correlation between composite masculinity and composite femininity was low and non-significant ($r = .004$; $p = .44$). Combined, these results indicated high inter-item reliability for both masculinity and femininity scales as well as high discriminant validity between the two constructs.

In the regression analysis predicting female personal attitude toward entrepreneurship (PA) (Table 1), both masculinity ($b = .591$; $p = .010$) and femininity ($b = .755$; $p = .004$) were significant positive predictors of (PA), thus providing support for both Hypothesis 1a stating that masculinity is positively related to female attitude toward entrepreneurship and Hypothesis 2a indicating that femininity is positively related to female attitude toward entrepreneurship. Hypothesis 3a indicating that androgyny is positively related to female attitude toward entrepreneurship was not supported. Additionally, the control variable "taken an entrepreneurship course" (reverse scaled, 1 = yes; 2 = no) was a significant positive predictor of female PA ($b = -.869$; $p = .011$).

Conversely, in the regression analysis predicting male personal attitude toward entrepreneurship (Table 2), masculinity ($b = 1.406$; $p = .001$) and androgyny ($b = 1.415$; $p = .002$) were significant positive predictors of PA. These findings provided support for Hypotheses 1b stating that masculinity is positively related to male attitude toward entrepreneurship and

Hypothesis 3b indicating that androgyny is positively related to male attitude toward entrepreneurship. Hypothesis 2b indicating that femininity is positively related to male attitude toward entrepreneurship was not supported. In this analysis, the control variable “full-time work experience” was also a marginally significant predictor of male PA ($b = .045$; $p = .061$).

In the regression analysis predicting perceived behavioral control (PBC) for females (Table 3), both masculinity and femininity were significant predictors of PBC ($b = .549$; $p = .004$ and $b = .485$; $p = .023$ respectively). Results provided support for Hypothesis 4a indicating that masculinity is positively related to perceived behavioral control for females as well as Hypothesis 5a stating that femininity is positively related to female perceived behavioral control.

Hypothesis 6a stating that androgyny is positively related to female perceived behavioral control was not supported. In this analysis, “taken an entrepreneurship course” was also positively related to perceived behavioral control for females ($b = -1.03$; $p < .001$).

In the analysis predicting perceived behavioral control (PBC) for males (Table 4), only masculinity ($b = .790$, $p < .001$) was a significant positive predictor of male PBC thus providing support for Hypothesis 4b. Hypotheses 5b and 6b indicating positive relationships between femininity and male PBC and androgyny and male PBC respectively were not supported. However, consistent with the female subsample, “taken an entrepreneurship course” ($b = -1.415$, $p = .002$) was a significant positive predictor of PBC for males.

In the analysis predicting subjective norm (SN) for females (Table 5), both masculinity and femininity ($b = .533$; $p = .002$ and $b = .382$; $p = .048$ respectively) were significant positive predictors thus providing support for Hypothesis 7a and Hypothesis 8a. Results did not provide support for Hypothesis 9a, predicting a positive relationship between androgyny and female subjective norm.

Conversely, in the regression analysis predicting subjective norm for males (Table 6), masculinity ($b = .461$; $p < .001$) was a significant positive predictor of SN. However, femininity and androgyny were non-significant. This analysis also provided support for Hypothesis 7b indicating that masculinity is positively related to male subjective norm but did not provide support for Hypotheses 8b and 9b predicting positive relationships between femininity and male SN and androgyny and male SN respectively. In this analysis, the control variable “knows an entrepreneur” ($b = .446$; $p = .041$) was also a significant positive predictor of male SN.

In the analysis predicting entrepreneurial intention for females (Table 7), personal attitude toward entrepreneurship ($b = .130$; $p < .001$) and perceived behavioral control ($b = .378$; $p = .008$) were significant positive predictors of EI, thus supporting Hypothesis 13a and 14a. Hypothesis 15a denoting a positive relationship between subjective norm and female EI was not supported in the analysis. Additionally, hypothesized relationships between gender role variables and female EI (Hypotheses 10a, 11a, and 12a) were not supported in the analysis, although femininity approached significance as a positive predictor of female EI ($b = .375$; $p = .084$).

In the analysis predicting entrepreneurial intention for males (Table 8), personal attitude toward entrepreneurship ($b = .471$; $p < .001$) and perceived behavioral control ($b = .789$; $p < .001$) were significant positive predictors of male EI, thus supporting Hypotheses 13b and 14b. Hypothesis 15b, predicting a positive relationship between subjective norm and male EI, was not supported. However, masculinity was a significant positive predictor of male EI ($b = .292$; $p = .011$) providing support for Hypothesis 10b. Results of this analysis did not provide support for Hypotheses 11b and 12b predicting positive relationships between femininity and male EI and androgyny and male EI.

Table 1			
Results of Regression Equation Predicting Personal Attitude Toward Entrepreneurship			
Females (n = 95)			
Variables	b	Standard Error	p-value
Masculinity	0.591	0.338	.010**
Femininity	0.755	0.225	.004**
Taken Ent Course	-.869	0.255	.011**
Adj R Square	.157		
	*p < .05	**p < .01	

Table 2			
Results of Regression Equation Predicting Personal Attitude Toward			
Entrepreneurship			
Males (n = 185)			
Variables	b	Standard Error	p-value
Masculinity	1.406	0.274	.001**
Androgyny	1.415	0.421	.002**
FT Work Exp	0.045	0.023	.061
Adj R Square	.303		
	*p < .05	**p < .01	

Table 3			
Results of Regression Equation Predicting Perceived Behavioral Control			
Females (n = 95)			
Variables	b	Standard Error	p-value
Masculinity	0.549	0.187	.004**
Femininity	0.485	0.209	.023**
Taken Ent Course	-1.03	0.280	<.001**
Adj. R. Square = .197			
<hr/> <p>*p < .05 **p < .01</p>			

Table 4			
Results of Regression Equation Predicting Perceived Behavioral Control			
Males (n = 185)			
Variables	b	Standard Error	p-value
Masculinity	0.790	0.144	<.001**
Took ENT Course	-1.415	0.421	.002**
Adj. R. Square = .155			
<hr/>			
p < .05		**p < .01	

Table 5			
Results of Regression Equation Predicting Subjective Norm			
Females (n = 95)			
Variables	b	Standard Error	p-value
Masculinity	0.533	0.170	0.002**
Femininity	0.382	0.191	0.048*
Adj. R. Square = .096			
*p < .05 **p < .01			

Table 6			
Results of Regression Equation Predicting Subjective Norm			
Males (n = 185)			
Variables	b	Standard Error	p-value
Masculinity	0.461	0.131	<0.001*
Knows ENT	0.446	0.217	0.041*
Adj. R. Square = .104			
<hr/> <p>*p < .05 **p < .01</p>			

Table 7

**Results of Regression Equations Predicting Entrepreneurial Intention
(including TPB variables)**

Females (n = 95)

Variables	b	Standard Error	p-value
PA Ent	0.130	1.530	<0.001*
PBC	0.378	0.142	0.008**
Femininity	0.375	0.215	0.084

Adj. R. Square = .572

***p < .05**

****p < .01**

Table 8			
Results of Regression Equations Predicting Entrepreneurial Intention			
(including TPB variables)			
Males (n=185)			
Variables	b	Standard Error	p-value
PA Ent	0.471	0.64	<0.001**
PBC	0.789	0.061	<0.001**
Masculinity	0.292	0.115	0.011*
Adj. R. Square = .732			
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*p < .05		**p < .01	

Summary

Regression results generally indicated that relationships between gender role and TPB variables (i.e., subjective norm, perceived behavioral control, and attitude toward becoming an entrepreneur) varied by biological gender. For females, all TPB variables were influenced positively by both masculinity and femininity. But for males, only masculinity was associated with TPB variables.

Likewise, in the analyses predicting entrepreneurial intention, relationships between gender role variables and EI varied by biological gender with masculinity being a significant positive predictor of male EI but not female EI. Conversely, femininity approached significance as a positive predictor of female EI but not male EI. But despite differing influences of gender role variables on EI, personal attitude toward entrepreneurship and perceived behavioral control were significant positive predictors of both female and male entrepreneurial intention.

In general, results provided evidence that biological gender as well as gender role orientation and TPB variables influenced levels of entrepreneurial intention for both males and females thus providing support for the proposed research model.

Discussion

One of the significant findings of this study were the positive influences of femininity on female TPB variables. These results are in contrast to the Griswold et. al. 2016 study that reported negative associations between femininity and both personal attitudes toward entrepreneurship and perceived behavioral control. However, that study did not segment respondents by biological gender and, as the current study found, females reported higher levels of femininity than males as well as lower PA, PBC, and EI. Thus, biological gender appeared to be an underlying driver of these relationships. Thus, results here provide evidence that future studies should consider potential moderating influences of biological gender on relationships between gender role, TPB variables, and entrepreneurial intention.

Another noteworthy finding of this study was that, in addition to PBC and PA being positively related to entrepreneurial intention for both males and females, masculinity was a positive predictor of EI in the male subsample, but femininity was not. Conversely, femininity approached significance as a positive predictor of EI in the female subsample, but masculinity did not. As past research has suggested, males and females may tend to have different motivations for starting a business (e.g., Cornwall, 2011; Veena & Nagarija, 2013). It thus seems plausible that potentially different motivations for starting a business may also result in individuals relying on different sets of attributes in their quest to become entrepreneurs. This would seem to be an important consideration for both researchers attempting to uncover biological gender based variations in entrepreneurial attitudes and intentions as well as an element that entrepreneurial educators should consider when designing coursework and programs of study that are equally attractive and equally impactful to female and male groups of students.

Perhaps one of the more significant findings of this study for entrepreneurial educators is that the control variable “taken an entrepreneurship course” was positively related to both PA and PBC for females, but for males, taking an entrepreneurship course was only a significant predictor of PBC. It is noteworthy that females in the sample also reported somewhat lower levels of subjective norm (i.e., encouragement by family, friends, and peers to become entrepreneurs) and personal attitudes toward entrepreneurship. Thus, it may be the case that taking entrepreneurship courses aided some females in developing more positive attitudes toward entrepreneurship that may potentially have already been facilitated in males through social support in other settings or aspects of life. If this situation is the case, entrepreneurship coursework may provide females with commensurate support and encouragement that they may not have received elsewhere to become entrepreneurs.

Finally, the results of this study provide evidence that any presumptions regarding entrepreneurship as being an inherently masculine undertaking may be incorrect. Instead, the findings of this study provide support that masculine and feminine characteristics of individuals may both promote entrepreneurial intention, with males tending to rely more heavily on masculine characteristics and females tending to rely more heavily on feminine gender role characteristics as contained in the Bem inventory. It should also be noted that, once the main effects of masculinity and femininity were accounted for, androgyny was a significant predictor of personal attitude toward entrepreneurship for the male subsample but did not emerge as a significant predictor for any other TPB variable or entrepreneurial intention for either the male or female subsample. Despite this fact, the finding that androgyny was positively related to male PA supports the notion of the positive contribution that aspects of femininity may have on attitudes regarding entrepreneurship among males who also scored high on masculinity.

Limitations and Suggestions for Future Research

A limitation to this study is that respondents were all college students pursuing their degrees at a small, mid-western liberal arts university. Additionally, relatively few individuals in the sample had extensive full-time employment experience. It is therefore possible that a relative lack of diversity, employment experience, cultural backgrounds, and exposure to entrepreneurial experiences place limitations on the generalizability of findings.

In the future, researchers should seek to utilize samples comprised of a more diverse array of respondents. Moreover, future research should attempt to determine if certain items contained on the Bem instrument are driving relationships with PBC and EI more than others. In this manner, it is possible that a fewer array of gender role items could be isolated and examined by researchers in more detail.

Finally, incorporation of additional variables into models, such as respondent risk orientation, experiences as an entrepreneur, and personality variables could also potentially provide more insight into dynamics among variables and provide a more comprehensive framework for analysis, leading to a better understanding of relationships between variables and how they might be influenced by the gender of respondents.

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Appendix I
Survey Instrument

Rate yourself on each item, on a scale from 1 (never or almost never true) to 7 (almost always true). Please CIRCLE only ONE answer per item and please answer every question.

	Never or almost never true						Always or almost always true
1. Self-reliant	1	2	3	4	5	6	7
2. Yielding	1	2	3	4	5	6	7
3. Helpful	1	2	3	4	5	6	7
4. Defends Own Beliefs	1	2	3	4	5	6	7
5. Cheerful	1	2	3	4	5	6	7
6. Moody	1	2	3	4	5	6	7
7. Independent	1	2	3	4	5	6	7
8. Shy	1	2	3	4	5	6	7
9. Leadership Ability	1	2	3	4	5	6	7
10. Sensitive to Other's Needs	1	2	3	4	5	6	7
11. Truthful	1	2	3	4	5	6	7
12. Willing to Take Risks	1	2	3	4	5	6	7
13. Understanding	1	2	3	4	5	6	7
14. Secretive	1	2	3	4	5	6	7
15. Makes Decisions Easily	1	2	3	4	5	6	7

16. Compassionate	1	2	3	4	5	6	7
17. Sincere	1	2	3	4	5	6	7
18. Self-sufficient	1	2	3	4	5	6	7
19. Eager to Soothe Hurt Feelings	1	2	3	4	5	6	7
20. Conceited	1	2	3	4	5	6	7
21. Conscientious	1	2	3	4	5	6	7
22. Athletic	1	2	3	4	5	6	7
23. Affectionate	1	2	3	4	5	6	7
24. Theatrical	1	2	3	4	5	6	7
25. Assertive	1	2	3	4	5	6	7
26. Flatterable	1	2	3	4	5	6	7
27. Happy	1	2	3	4	5	6	7
28. Strong Personality	1	2	3	4	5	6	7
29. Dominant	1	2	3	4	5	6	7
30. Soft Spoken	1	2	3	4	5	6	7
31. Likable	1	2	3	4	5	6	7
32. Masculine	1	2	3	4	5	6	7
33. Warm	1	2	3	4	5	6	7
34. Solemn	1	2	3	4	5	6	7

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35. Willing to Take a Stand	1	2	3	4	5	6	7
36. Tender	1	2	3	4	5	6	7
37. Friendly	1	2	3	4	5	6	7
38. Aggressive	1	2	3	4	5	6	7
39. Gullible	1	2	3	4	5	6	7
40. Inefficient	1	2	3	4	5	6	7
41. Loyal	1	2	3	4	5	6	7
42. Unpredictable	1	2	3	4	5	6	7
43. Forceful	1	2	3	4	5	6	7
44. Feminine	1	2	3	4	5	6	7
45. Reliable	1	2	3	4	5	6	7
46. Analytical	1	2	3	4	5	6	7
47. Sympathetic	1	2	3	4	5	6	7
48. Jealous	1	2	3	4	5	6	7
49. Act as a Leader	1	2	3	4	5	6	7
50. Childlike	1	2	3	4	5	6	7
51. Adaptable	1	2	3	4	5	6	7
52. Individualistic	1	2	3	4	5	6	7
53. Doesn't Use Harsh Language	1	2	3	4	5	6	7

54. Unsystematic	1	2	3	4	5	6	7
55. Competitive	1	2	3	4	5	6	7
56. Loves Children	1	2	3	4	5	6	7
57. Tactful	1	2	3	4	5	6	7
58. Ambitious	1	2	3	4	5	6	7
59. Gentle	1	2	3	4	5	6	7
60. Conventional	1	2	3	4	5	6	7

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Entrepreneurial Intention

CIRCLE your level of agreement with the following sentences from 1 (total disagreement) to 7 (total agreement).

	Total Disagreement					Total Agreement	
	1	2	3	4	5	6	7
61. Being an entrepreneur implies more advantages than disadvantages to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
62. A career as entrepreneur is attractive for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
63. If I had the opportunity and resources, I'd like to start a firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
64. Being an entrepreneur would entail great satisfactions for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
65. Among various options, I would rather be an entrepreneur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you decided to create a firm, would people in your close environment approve of that decision?

	Total Disagreement					Total Agreement	
	1	2	3	4	5	6	7
66. Your close family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
67. Your friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
68. Your colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To what extent do you agree with the following statements regarding your entrepreneurial capacity?

	Total Disagreement					Total Agreement	
	1	2	3	4	5	6	7
69. To start a firm and keep it working would be easy for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
70. I am prepared to start a viable firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71. I can control the creation process of a new firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
72. I know the necessary practical details to start a firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
73. I know how to develop an entrepreneurial project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
74. If I tried to start a firm, I would have a high probability of succeeding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Indicate your level of agreement with the following statements from 1 (total disagreement) to 7 (total agreement).

	Total Disagreement					Total Agreement	
	1	2	3	4	5	6	7
75. I am ready to do anything to be an entrepreneur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
76. My professional goal is to become an entrepreneur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
77. I will make every effort to start and run my own firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
78. I am determined to create a firm in the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
79. I have very seriously thought of starting a firm.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
80. I have the firm intention to start a firm someday.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

81. How many years of part time work experience do you have? _____
82. How many years of full- time work experience do you have? _____
83. How many years of self-employment work experience do you have? _____

Please circle one:

84. GENDER: Male Female
85. AGE: less than 20 yrs. 20 – 30 yrs. old older than 30 yrs.
86. Do you know personally an entrepreneur? (circle one) YES NO
87. Does anyone in your immediate family own a business? (circle one) YES NO
88. Have you ever taken an entrepreneurship course? (circle one) YES NO
89. What is your current cumulative GPA?

90. What is your major? _____

BEM SEX ROLE INVENTORY The Bem Sex Role Inventory was developed in 1974 by Dr. Sandra Lipsitz Bem. It characterizes your personality as masculine, feminine, androgynous, or undifferentiated. The BSRI is based on gender stereotypes, so what it's actually measuring is how well you fit into your traditional sex role. Thus, your score may say as much about how our cultural expectations have changed over the last 35 years.