Factors Associated with Entrepreneurial Intentions in Doctor of Pharmacy Students

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Objective. A five-factor measure was tested to see if it formed a single entrepreneurial drive scale, and which factors were associated with either general or pharmacy-specific entrepreneurial intention.

Methods. Over three years, third-year Doctor of Pharmacy students completed a survey. Factor analysis, Cronbach’s alpha, correlations, hierarchical regression analysis, and structural equations modeling were used to analyze the data.

Results. There were 370 students out of 402 who participated. All five factors were identified, but not all proposed items were retained. Findings suggest that the five factors do not form a single entrepreneurial drive scale. Taking an entrepreneurship course and having a proactive disposition were significantly associated with both general and pharmacy-specific entrepreneurial intention. Female gender was significantly associated with lower general entrepreneurial intention.

Conclusion. Proactive students should be recruited, and entrepreneurial courses offered.

Keywords: entrepreneurial intention, structural equation modeling, gender, proactivity, innovation
to own one’s own business in both undergraduate and master of business students, with entrepreneurs, and with stronger job performance. While Bateman and Crant’s original scale had 17 items, various shortened versions with 4 to 10 items have been found useful. Florin and colleagues retained nine items.

Achievement has been seen as a basic human need and has long been associated with entrepreneurship. Innovators tend to “do things differently.” Entrepreneurs and managers consistently demonstrate differences in innovation, and students aspiring to be entrepreneurs demonstrate significantly higher levels of innovativeness than general business students. Preference for innovation has been shown to differentiate entrepreneurs from non-entrepreneurs.

Rule-breaking, or nonconformity, in the positive sense of challenging existing rules and procedures has long been associated with entrepreneurship, beginning with Schumpeter, who “casts the entrepreneur firmly in the deviant’s role.” Although some view nonconformity as part of the continuum of innovation, others suggest it is a distinct concept. Conformists are seen as more likely to “channel their creativity” and innovativeness into existing channels – or more adaptively. In contrast, nonconformists are more likely to use their creativity for new and original ideas outside the status quo.

Although Florin and colleagues justified the use of self-efficacy measure from the Entrepreneurial Attitude Orientation (EAO) scale. Self-esteem is generally seen as a judgment or perception of one’s self-worth, whereas self-efficacy is seen as confidence in one’s own abilities. Self-esteem has been associated with entrepreneurship, but there has not been a lot of research on this topic. Achievement has been seen as a basic human need and has been associated with entrepreneurship. It has also been associated with entrepreneurial career choice, although this has been questioned.

The ED scale was based on two previously validated instruments. The first was the EAO scale, validated as a unidimensional construct with four subscales that differentiated between entrepreneurs and non-entrepreneurs. Robinson and colleagues included entrepreneurs, each of whom had started more than one business, with at least one of them initiated within the past five years. Florin and colleagues selected 42 of the highest loading and student-appropriate items out of the original 75 validated items from the EAO scale. Questions relevant only to existing entrepreneurs and business-specific items were eliminated because they were not germane to students, the current study’s participants. The four EAO subscales were preference for innovation, achievement motivation, self-esteem, and personal control. Items from the three scales that applied to students were selected for inclusion in the ED scale: preference for innovation (13 of 26 items), achievement motivation (seven of 23 items) and self-esteem (eight of 14 items). Florin and colleagues labeled the self-esteem items as “self-efficacy” items. They also posited that several items from the preference for innovation subscale measured nonconformity. The second instrument provided the proactive disposition scale, developed and validated by Bateman and Crant. The five expected ED factors were confirmed using principal components analysis with varimax rotation, accounting for a total of 45.9% variance. The proactive disposition scale (α = .90) had nine items, preference for innovation (α = .85) had 13 items, self-esteem (called self-efficacy) (α = .82) had eight items, achievement motivation (α = .73) had seven items, and nonconformity (α = .78) had five items.

Florin and colleagues did not confirm any association between the ED scale and entrepreneurial intention or entrepreneurial behavior. They did find that overall ED was significantly higher among seniors than among freshman, and found no significant difference based on gender. Examination of the individual variables found proactive disposition significantly higher for men than for women, and self-esteem and nonconformity higher for seniors compared to freshman. Testing the relationship between the ED variables and entrepreneurial actions would be ideal, but among students, this is usually not possible as most students are not active entrepreneurs. Although there is a gap between intention and action, intention remains a “key psychological predictor of behavior.” Although the scale was developed for general entrepreneurial intentions, pharmacy specific entrepreneurial intentions are of particular interest for pharmacy students.

The author was able to identify only one measure assessing entrepreneurship in PharmD students, the Pharmacy Student Entrepreneurial Orientation (PSEO) scale. The PSEO began with seven hypothesized dimensions: risk-taking, innovativeness, proactiveness, autonomy, competitive aggression, work ethic, and “empathic supersalesperson,” which were shown to have three factors. Factor 1 (11 items, α = .93) included the proposed proactiveness, work ethic, and “empathic supersalesperson” items. Factor 2 (nine items, α = .92) included the proposed innovativeness and autonomy items, and factor 3 (three items, α = .71) included the proposed risk-taking items. All three of the PSEO constructs correlated strongly with the statement “I want to make my mark on the pharmacy profession,” while factors 2 and 3 had low/moderate correlations with “I see myself becoming some type of entrepreneur someday.”
METHODS

A survey was offered at the beginning of the spring semester to all third-year PharmD students enrolled in a required pharmacy practice management course for each of three years (2011-2013). Data were collected on all University of Georgia (UGA) College of Pharmacy campuses. All students were enrolled in the same course. Participation was voluntary. Students received extra credit in the course for completing the surveys, and were offered an alternative extra credit activity if preferred. The UGA IRB approved the study.

The survey instrument included four sections (Appendix 1). The first asked about the students’ career intentions (eg, community pharmacy, residency, and entrepreneurial intentions). Eleven questions from a scale developed for science and engineering students formed the GEI scale (eg, “I’ll make every effort to start and run my own business” and “I would rather be an entrepreneur than an employee in a company.”). Four questions were adapted to be pharmacy specific (eg, “I will make every effort to start and run new or expanded pharmacy services or a new pharmacy business.”) This resulted in a total of 15 items. Entrepreneurial item response choices ranged from 1 (strongly disagree) to 10 (strongly agree).

The second section included the ED scale items: proactive disposition (nine items, α = .90), preference for innovation (13, α = .85), self-esteem (eight, α = .82), achievement motivation (seven, α = .73), and nonconformity (five, α = .78). Although the proactive disposition measure originally had a 7-point response scale, all response choices in the current study ranged from 1 = strongly disagree to 10 = strongly agree, for consistency with the EAO scale.

The third section asked for demographic and personal history information, including whether the student has a family member who owns a pharmacy, a family member who is a non-pharmacy entrepreneur, took part in new business venture, took entrepreneurship course, gender, age, terminal degree, and worked full-time prior to PharmD program. Prior experience was collected because it was thought it could influence entrepreneurial intentions. For example, positive family entrepreneurial experiences may increase entrepreneurial intentions, while an entrepreneurship course may help one determine if entrepreneurship is right for oneself. Gender is important because women are less likely to be entrepreneurs than men.

Analyses were conducted using SPSS Statistics, v23 and Amos 23.0.0 (Build 1607) (Armonk, NY). Descriptive statistics were calculated. Chi-square statistics were used to compare categorical variables and students’ t-tests compared continuous variables. Factor analysis was used to determine if the five ED factors formed the expected factors. Although Florin and colleagues used varimax rotation for their principle components analysis (PCA), Robinson and colleagues expected and found a significant correlation between their four subscales. When factors are correlated, an oblique rotation is preferred. An initial PCA using varimax rotation was conducted to repeat the Florin and colleagues method, and then followed by a PCA using the direct oblimin rotation, which is the standard method used for non-orthogonal (oblique) solutions. This was done to see if this rotation influenced results. PCA using direct oblimin rotation was also conducted for the entrepreneurial intention items, with two factors expected—one with the 11 original GEI items and one for PEI with the four new items. Items with communalities below .5 were dropped, as were items loading below .6 on all factors, and those not loading cleanly on a single factor (cross-loadings above .32 or higher) to achieve reliable factors.

Variables for GEI, PEI, proactive disposition, preference for innovation, self-esteem, achievement motivation, and nonconformity were calculated using means for the oblimin rotation based PCA-retained items. Bivariate correlations between these variables were calculated. Structural equation modeling (SEM) was conducted to confirm item loadings from the oblimin PCA, and to determine if the model suggested a single scale with five subscales. Because no more than five to six indicators are recommended for a latent variable, five parcels were created out of 10 of the 11 preference for innovation items.
Regression analysis was used to further examine the relationships between the variables of interest with GEI and separately with PEI. Class year and campus, each with three categories, were operationalized as dummy variables. The first block included demographic variables, the second block included personal history variables, and the third block included the ED variables. Collinearity statistics (variance inflation factor, variance proportions), skewness and kurtosis were examined. Finally, SEM models including the five ED variables plus the variables identified in the regression analysis as significant at \(p \leq .01\) were examined, with GEI, and separately PEI, as the dependent variables.

RESULTS

A total of 370 out of 402 students (92%) participated in the survey (Table 1). The mean age was 25 (SD 3.7) years, ranging from 20 years to 47 years. The majority of students were female (n = 251, 68%), did not have a family member who owned a pharmacy (n = 354, 95.7%) and had not taken a course on entrepreneurship (313, 84.6%). Men were significantly more likely to have taken an entrepreneurship course than women (25.4% vs 10.8%, \(p \leq .001\)).

Factor analysis for the entrepreneurial intention items revealed two factors. Of the 11 initial GEI items, only one item, “I put in the effort to make money” with a mean of 8 (SD 1.9), did not load on either factor. The remaining 10 items loaded as expected on the first (GEI) factor, explaining 67.4% of the variance. Loadings ranged from .79 to .95. The four PEI items loaded as expected on the second factor, explaining 11.1% of the variance. Loadings ranged between .87 and .93.

### Table 1. Demographic and Personal History Information

| Age (years) Mean (SD) | N (%) |
|----------------------|-------|
| Gender-Female        | 251 (68) |
| Graduation Year      |       |
| 2012                 | 118 (31.9) |
| 2013                 | 121 (32.7) |
| 2014                 | 131 (35.4) |
| Prior Terminal Degree – Yes | 131 (35.4) |
| Worked Full-Time – Yes | 92 (24.9) |
| Family Owns Pharmacy – Yes | 16 (4.3) |
| Non-pharmacy Entrepreneur – Yes | 132 (35.7) |
| Start-up – Yes       | 35 (9.5) |
| Entrepreneurship Course – Yes | 57 (15.4) |
| Main Campus – Yes    | 289 (78.1) |

N=number of respondents, SD=Standard Deviation

Worker full-time=if student worked full-time prior to entering pharmacy school; Non-pharmacy entrepreneur=if student had a non-pharmacy entrepreneur family member; Start-up=if student participated in a new start-up business

PCA with varimax rotation and with oblimin rotation each resulted in the expected five factors. The Kaiser-Meyer-Olkin test was 0.920, and Bartlett’s test of sphericity equaled 7569.189 (465 df, \(p \leq .001\)). Proactive disposition included five items with varimax rotation, and six items with the oblimin rotation. The sixth item was “If I see something I don’t like, I fix it.” Three Florin and colleagues items were not retained. Two loaded below 0.6 and the third, “I get a thrill out of doing new, unusual things at school or work,” loaded on preference for innovation. Regarding preference for innovation, with the varimax rotation, 12 of 13 items plus the proactive item “thrill” were retained. With the oblimin rotation, 10 items plus the “thrill” item were retained. Two of the dropped items loaded below .50 in the Florin and colleagues analysis.12 Regarding self-esteem, six of eight items were retained for both the varimax and oblimin analyses. For achievement motivation, only three of the original seven items were retained, and they were retained for both rotations. For nonconformity, all five of the original items were retained. Table 2 shows the oblimin factor loadings and Cronbach’s alpha.

Confirmatory factor analysis using SEM confirmed the items identified in the oblimin rotation factor analysis. The confirmatory factor analysis model fit the data only modestly well, \(X^2 (df=289, n=405) = 837.17, p \leq .001\), comparative fit index (CFI) = .91, non-normed fit index (NNFI) = .88, root mean square error of approximation (RMSEA) = .07. The correlations between nonconformity with proactive disposition, preference for innovation and self-esteem with nonconformity, and between self-esteem and preference for innovation were not significant. All other correlations were significant at the \(p \leq .001\) level. Although all five ED factors were individually identified, they do not form a unidimensional scale.

The mean score for GEI was 4.6 (SD 2.5), while the mean for PEI was 6.23 (SD 2.0), with 1 indicating strongly do not intend and 10 indicating strongly intend to be an entrepreneur. The students tended toward the high end of the proactive disposition scale [7.5 (1.3) vs 6.9 (1.5), \(p \leq .001\)] for male and female students, respectively. They also scored toward the high end of the preference for innovation scale [7.1 (1.6) vs 6.6 (1.6), \(p \leq .01\)], and the achievement motivation scale [8.1 (1.4) vs 8.5 (1.6), \(p=ns\)]. Self-esteem scores were low [3.2 (1.7) vs 3.1 (1.3), \(p=ns\)] for both genders, indicating modestly high self-esteem (Table 3). Female students had significantly lower GEI scores than male students [5.8 (2.5) vs 4.1 (2.3), \(p \leq .001\)]. Pharmacy entrepreneurial intention was higher than GEI for both men and women [6.7 (2.0) vs 6.0 (2.0), \(p \leq .01\)]. Skewness and kurtosis for the ED variables were considered acceptable, all within \(\pm 2\).42 Although
Table 2. Confirmatory Factor Analysis of Entrepreneurial Drive Subscales

| Item                                                                 | Proactivity | Preference for Innovation | Self-esteem | Achievement Motivation | Non-conformity |
|----------------------------------------------------------------------|-------------|----------------------------|-------------|------------------------|----------------|
| I am always looking for better ways to do things.                    | .69         |                             |             |                        |                |
| I excel at identifying opportunities.                                | .75         |                             |             |                        |                |
| No matter what the odds, if I believe in something I will make it happen. | .71         |                             |             |                        |                |
| I can spot a good opportunity long before others can.                | .80         |                             |             |                        |                |
| I love being a champion for my ideas, even against others’ opposition. | .72         |                             |             |                        |                |
| If I see something I don’t like, I fix it.                           | .64         |                             |             |                        |                |
| I get a thrill out of doing new, unusual things at school or work.   |             | .72                         |             |                        |                |
| I enjoy being the catalyst for change in school or work affairs.     |             |                             | .76         |                        |                |
| I usually seek out colleagues who are excited about exploring new ways of doing things. |             |                             | .79         |                        |                |
| I get really excited when I think of new ideas to stimulate my group’s performance in school assignments. |             |                             | .82         |                        |                |
| I believe it is important to continually look for new ways to do things at school or work. |             |                             | .88         |                        |                |
| I get excited when I am able to approach tasks in unusual ways.      |             |                             | .95         |                        |                |
| I enjoy being able to do things in new ways.                         |             |                             | .94         |                        |                |
| I often approach school tasks in unique ways.                       |             |                             | .88         |                        |                |
| I believe that to be successful one must sometimes do things in ways that could seem unusual at first glance. |             |                             | .73         |                        |                |
| I enjoy finding good solutions to problems that nobody has looked at. |             |                             | .68         |                        |                |
| I believe that to arrive at a good solution to a problem, it is important to question the assumptions made in defining the problem. |             |                             | .61         |                        |                |
| I feel inferior to most people I work with.                         |             |                             | .71         |                        |                |
| I often feel bad about the quality of work I do.                     |             |                             | .79         |                        |                |
| I never persist very long on a difficult job before giving up.       |             |                             | .74         |                        |                |
| I feel self-conscious when I am with very successful people.         |             |                             | .84         |                        |                |
| I feel uncomfortable when I am unsure of what my team members think of me. |             |                             | .79         |                        |                |
| I seem to spend a lot of time looking for someone who can tell me how to solve all my school problems. |             |                             | .71         |                        |                |
| To be successful I believe it is important to use your time wisely.   |             |                             |             | .74                    |                |
| I do every job as thoroughly as possible.                            |             |                             |             |                        | .59           |

(Continued)
age had positive skewness and kurtosis, the variable was not transformed to maintain interpretability.

General entrepreneurial intention and PEI were significantly correlated (.63, \(p \leq .01\)) (Table 4). Both entrepreneurial intentions were significantly correlated with proactive disposition (.514 and .563, respectively), preference for innovation (.45 and .52), and achievement motivation (.23 and .33), with \(p \leq .01\). General entrepreneurial intention and PEI were both negatively associated with self-esteem (-.19 and -.16, \(p \leq .01\)), indicating greater self-esteem was associated with higher GEI and PEI. Nonconformity was significantly associated only with self-esteem (\(p \leq .01\)) and achievement motivation (\(p \leq .001\)).

In the hierarchical regression analysis with GEI as the dependent variable, each block made a significant contribution. Together, all three blocks explained 42.4% of the variance (Table 5). Gender and having taken an entrepreneurship course, proactive disposition, and preference for innovation were all significant at the \(p \leq .01\) level. One outlier was detected but retained. Excluding it would have increased the significance of two variables: nonconformity from \(p = .07\) to \(p = .05\), and non-pharmacy entrepreneur in the family from \(p = .05\) to \(p = .02\).

| Variable | Men | Women |
|----------|-----|-------|
| Proactivity \(^a\) | 7.5 (1.3) | 6.9 (1.5) |
| Preference for innovation \(^b\) | 7.1 (1.6) | 6.6 (1.6) |
| Self-esteem | 3.2 (1.7) | 3.1 (1.3) |
| Achievement motivation | 8.1 (1.4) | 8.5 (1.6) |
| Nonconformity | 5.7 (1.6) | 5.8 (1.4) |
| General entrepreneurial intention \(^a\) | 5.8 (2.5) | 4.1 (2.3) |
| Pharmacy entrepreneurial intention \(^b\) | 6.7 (2.0) | 6.0 (2.0) |
| Took an entrepreneurship course \(^a\) | | |
| \(N (%)\) | 27 (10.8%) | 30 (25.4%) |

\(^a\) \(p \leq .001\)  
\(^b\) \(p \leq .01\)  
1 = strongly disagree, do not intend and 10 = strongly agree, intend. Lower SE scores indicate higher self-esteem  
Students’ \(t\)-tests were used for continuous variables, and Chi-square tests for categorical variables  
N=118 for men, 251 for women
Table 4. Correlations Between Entrepreneurial Drive Subscales

| Subscale       | 1   | 2   | 3   | 4   | 5   | 6   | 7   |
|----------------|-----|-----|-----|-----|-----|-----|-----|
| Proactive      |     |     |     |     |     |     |     |
| Innovate       | .68 | 1   |     |     |     |     |     |
| Self-esteem    | .28 | .14 | 1   |     |     |     |     |
| Achievement    | .43 | .39 | .22 | 1   |     |     |     |
| Nonconformity  | .02 | .08 | .10 | .33 | 1   |     |     |
| GEI            | .51 | .45 | .19 | .23 | .06 | 1   |     |
| PEI            | .56 | .52 | .16 | .33 | .09 | .63 | 1   |

*p ≤ .01 level (2-tailed)
GEI = General Entrepreneurial Intention
PEI = Pharmacy Entrepreneurial Intention

In the hierarchical regression analysis with PEI as the dependent variable, each block again was significant. Together, all three blocks explained 36.5% of the variance (Table 5). Having taken an entrepreneurship course, proactive disposition and preference for innovation were all significant predictors at *p* ≤ .001. Three detected outliers were retained. Exclusion would have increased the significance of graduation year 2014 from *p* = .06 to *p* = .03.

The SEM model with the five ED variables predicting GEI had a modest fit, with $X^2 (419) = 1122.05$, $p < .001$, CFI = .92, NNFI = .90, RMSEA = .06. Adding gender and entrepreneurship course resulted in a model with $X^2 (47) = 1236.24$, $p < .001$, CFI = .91, NNFI = .90, RMSEA = .06 (Figure 1). This model showed that gender, having taken an entrepreneurship course, and having a proactive disposition were all significant predictors of GEI, but preference for innovation, self-esteem, achievement motivation, and nonconformity were not (Figure 1).

The SEM model with the five ED variables predicting PEI had a modest fit, with $X^2 (390) = 1014.099$, $p < .001$, CFI = .91, NNFI = .90, RMSEA = .06. Adding entrepreneurship course resulted in a model with $X^2 (418) = 1038.460$, $p < .001$, CFI = .91, NNFI = .90, RMSEA = .06 (Figure 2). This model showed that having taken an entrepreneurship course and having a proactive disposition were significant predictors of PEI, but preference for innovation, self-esteem, achievement motivation, and nonconformity were not (Figure 2).

**DISCUSSION**

All five proposed ED subscales were replicated in pharmacy students, but some proposed items were dropped. A primary reason is that Florin and colleagues retained items with loadings as low as .42. The lowest loading retained in the current study was .59. The difference between using varimax and direct oblimin rotations was modest, with a difference of two items for preference for innovation and one item for proactive disposition.

Also, PharmD students may have interpreted questions differently than the first- and fourth-year business students used in the Florin and colleagues study. The item “I put on a show to impress the people I work with” loaded as a self-esteem item for business students, but did not for PharmD students. Keshishian and colleagues’ study found that pharmacy students were more likely to have a positive career focus, be interested in science and math, and be less motivated by family/personal life considerations, attaining material goals, and life experiences (eg, enjoy interacting with other people) than non-pharmacy students. Regarding business interest, however, pharmacy and non-pharmacy students were similar. Although pharmacy students were less motivated by material goals in the Keshishian and colleagues study, the PharmD students in the current study were interested in money. The mean score on “I will put in the effort to make money” item indicated strong interest at 8.0 (SD 1.9). Another possible reason for divergence in question interpretation may be dissimilarities between business and pharmacy school climates. Additionally, the Patient Protection and Affordable Care Act was signed into law in 2010, which created opportunities for pharmacists to practice in new ways and in response to new metrics.

The ED factors did not form a single scale. In the SEM analysis, proactive disposition was significantly and positively associated with preference for innovation, achievement motivation, and self-esteem; preference for innovation was significantly associated with achievement motivation; and achievement motivation was significantly associated with self-esteem and nonconformity. Nonconformity was not significantly associated with three items, and self-esteem was not significantly associated with two items. Despite the Cronbach’s alpha of .89, the five-factor model SEM fit indices did not support a single scale.

This is the first study the author is aware of that examined the relationship between these five factors and entrepreneurial intentions. Only proactive disposition, a course in entrepreneurship, and gender were significantly associated with GEI at *p* ≤ .001. Preference for innovation was modestly significant at *p* ≤ .05. For PEI, only proactive disposition and a course in entrepreneurship were significantly associated at *p* ≤ .001, and only preference for innovation was significant at *p* ≤ .01.

The finding that proactive disposition is significantly associated with both GEI and PEI in pharmacy students is consistent with most literature on entrepreneurship. In contrast, Hermansen-Kobulnicky did not find an association between her study’s Factor 1 (which included proactiveness, work ethic, and the “empathic supersalesperson” items) and “I see myself becoming some type of
Table 5. General and Pharmacy Entrepreneurial Intention Regressed on Demographic, Personal History and Entrepreneurial Drive Subscales

| Dependent Variable | General Entrepreneurial Intention | Pharmacy Entrepreneurial Intention |
|--------------------|----------------------------------|----------------------------------|
|                    | Unstandardized Coefficient | Standardized Coefficient | p | Unstandardized Coefficient | Standardized Coefficient | p | Adjusted R Square Change (p) | Unstandardized Coefficient | Standardized Coefficient | p | Adjusted R Square Change (p) |
| **First Block**    |                                |                                |    |                                |                                |    |                                |                                |                                |    |                                |
| Gender             | .97                             | .18                             | < .001 |                                | .12                             | .03                             | .54 |
| Age                | .06                             | .08                             | .15  |                                | -.01                            | -.03                            | .66 |
|                    | **.12 (< .001)**                  |                                |    |                                |                                |    |                                |                                |                                |    |                                |
| **Second Block**   |                                |                                |    |                                |                                |    |                                |                                |                                |    |                                |
| Graduation Year 2013 | -.03                            | -.01                            | .90  |                                | .23                             | .06                             | .27 |
| Graduation Year 2014 | -.02                            | -.01                            | .92  |                                | .39                             | .10                             | .06 |
| Pre-pharmacy Terminal Degree | 9.05                            | -.01                            | .86  |                                | -.16                            | -.04                            | .48 |
| Full-time          | -.35                            | -.06                            | .28  |                                | .25                             | .05                             | .36 |
| Family Own Pharmacy | -.07                            | -.01                            | .89  |                                | .19                             | .02                             | .66 |
| Non-pharmacy Entrepreneur in Family | .43                             | .08                             | .05  |                                | .03                             | .01                             | .88 |
| Participated in Start-up | .59                             | .07                             | .10  |                                | .3                               | .04                             | .32 |
| Entrepreneurship Course | 2.0                             | .29                             | < .001 |                                | .86                             | .16                             | < .001 |
| Main Campus        | .49                             | .08                             | .05  |                                | .07                             | .02                             | .73 |
|                    | **.17 (< .001)**                  |                                |    |                                |                                |    |                                |                                |                                |    |                                |
| **Third Block**    |                                |                                |    |                                |                                |    |                                |                                |                                |    |                                |
| Proactive Disposition | .43                             | .25                             | < .001 |                                | .40                             | .29                             | < .001 |
| Preference for Innovation | .28                             | .18                             | .002 |                                | .32                             | .26                             | < .001 |
| Self-esteem        | -.10                            | -.06                            | .17  |                                | -.03                            | -.02                            | .69 |
| Achievement Motivation | -.03                            | -.01                            | .79  |                                | .10                             | .07                             | .22 |
| Nonconformity      | .14                             | .08                             | .07  |                                | .07                             | .05                             | .27 |
|                    | **.16 (< .001)**                  |                                |    |                                |                                |    |                                |                                |                                |    |                                |

Note: Graduation Year 2012 is the default year. Full-time indicates if the student worked full-time before entering pharmacy school. For self-esteem, lower numbers indicate higher self-esteem. Adjusted $R^2$ for the overall GEI model is .424, and for the PEI model is .365. The three retained outliers for the PEI regression included two males both aged 24 years and one female aged 22. Both males intended to work in community pharmacy, one male had taken an entrepreneurship course. The female intended to work in health-system pharmacy.
entrepreneur someday” in pharmacy students. It may be that the current study’s more precise measure of proactiveness was better able to capture the relationship. Chan and colleagues found that proactive disposition predicted both entrepreneurial and leadership motivation over and above the basic big five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) in university students in multiple fields of “engineering, science, business and the humanities.”

The Chan and colleagues study used two surveys, with a mean
age of 22.61 (SD 2.55) for survey one, and 21.93 (SD 2.56) for survey two. Evidence suggests existing entrepreneurs are significantly more likely than non-entrepreneurs to score high in proactive disposition. The mean proactive disposition score of male PharmD students (7.5) was comparable to the mean adjusted score of 7.5 found in engineering and business graduates, and the mean adjusted proactive disposition score of 7.7 found in undergraduate business students. Scores were converted from the original 7-point scale to a 10-point scale by converting to the percent and dividing by 10. This suggests pharmacy students are comparable to other students on proactive disposition.

Bateman and Crant viewed proactivity as a dispositional tendency or personality trait that is relatively stable and applicable across dissimilar situations. However, evidence suggests training and education can influence proactive disposition. Proactive disposition is informed by expectancy-value theory and is seen as being motivated by “can do” factors related to an individual’s perceptions that he or she can do something, and “reason to” motivations, (ie, does the individual have a reason to do it). Evidence suggests proactive behavior can be increased in a workshop setting by creating discrepancies between the current and future desired situation, SMART goal-setting to address discrepancies, “pre-experiencing” the desired situation, and developing implementation plans. Inviting innovative entrepreneurs to speak with students, and asking such individuals to judge entrepreneurial project competitions may be additional ways to increase students’ proactive interest in entrepreneurship.

Therefore, while recruiting already proactive students could be a good strategy for increasing pharmacy entrepreneurship, there may be an opportunity to increase proactive disposition in students as well. Identification of proactive students could be done during the admissions process by checking transcripts for entrepreneurship courses, and by administering proactive disposition and preference for innovation questions to candidates for admission. Further research is needed to determine how best to support proactive disposition for rising pharmacists to increase entrepreneurship upon entry into the workforce.

The regression and SEM analyses found both GEI and PEI significantly associated with students having taken an entrepreneurship course. It is not clear if the course increased student intentions, or if students took the course because of high interest. Evidence for increased entrepreneurial intentions based on entrepreneurial education is inconclusive to date, possibly because the definition of entrepreneurship and the methodologies of entrepreneurial education vary widely. Additionally, research quality has significant room for improvement.

It is surprising that preference for innovation was only modestly associated with GEI and PEI since multiple studies have shown a link between preference for innovation and entrepreneurship. However, a recent 2-year study found proactive personality at time 1 linked with innovation, political knowledge and career initiative at time 2, which in turn had a positive association with career progression and satisfaction. Kickul and Gundry suggest proactive disposition may exert its influence on innovative activities via the use of “prospector strategies,” in which there is a high use of “environmental scanning and long-range forecasting to identify new opportunities,” as well as investment in research and development. Third-year students may still be focused on school activities and work and not yet scanning the environment for opportunities. It would be interesting to see if the relationship between entrepreneurial intentions and preference for innovation changes closer to the time of student graduation or post-graduation, as they become more involved in looking for opportunities.

Preference for innovation may be particularly important for entrepreneurial success once students graduate. Vantiborgh and colleagues found innovativeness positively related to objective venture performance. This may suggest a somewhat stronger role for preference for innovation with regard to helping “mature ventures to move into new markets.” Therefore, although modestly significant in the current study, recruiting students with a strong preference for innovation would be desirable for enhancing future entrepreneurial success.

Among pharmacy students, achievement motivation was not strongly associated with GEI or PEI. Possible reasons for this include: entrance requirements for PharmD students are rigorous, and only high achievers tend to be admitted. Pharmacy students have been shown to have both strong mastery and performance goal orientations, and low work avoidance orientations. Additionally, PharmD students have multiple areas for achievement pursuit. Many students choose residency; an estimated 38% took part in the 2015 pharmacy residency match program. Additional advanced degrees are also popular, with 34% of recently surveyed students intending to pursue one.

Nonconformity was not significantly associated with GEI or PEI in the current study. Measurement items were consistent with positive societal rule-breaking ideas like following or not following accepted practices. It is possible that nonconformity is unimportant among pharmacy students, but is important among others, but it is difficult to identify a reason for this. Florin and colleagues’ suggestion that nonconformity is part of an ED construct does not hold up among pharmacy students.
Self-esteem was not associated with entrepreneurial intention. A recent Polish study found self-esteem was associated with actual firm creation, but not entrepreneurial intentions. A different study found self-esteem had a significant but indirect impact on innovation success, being mediated by transformational leadership. Self-esteem may be more important for actual entrepreneurial implementation and/or success than for entrepreneurial intentions.

There were several gender differences between male and female pharmacy students. Women scored significantly lower than men in proactive disposition, preference for innovation, and both GEI and PEI. Previous entrepreneurship research has also shown men to have stronger entrepreneurial intentions than women. Traditionally, men have been seen as active, competitive and aggressive, while women have been seen as nurturing peace-makers, and traditional gender socialization could be influencing these findings.

Keshishian found female pharmacy students scored significantly higher (p<.01) on “love to help others” compared to male students as a motive for entering the profession. In contrast to the current study, Lim and Enwick found that men and women did not differ in innovativeness.

One reason gender affected GEI differently from PEI in this study may be related to differences between gender and role identity. Social expectations for men often focus on “economic achievement and work” while expectations for women do not. As women enter pharmacy school, they may maintain their gender roles with regard to general business, but adopt their professional identity when thinking about PEI. Another factor may be anticipatory socialization, which is the “learning and knowledge intake that prepares the individual for becoming a professional.” Keshishian’s study among freshman and sophomore pharmacy students in a 0-6 year program found no significant difference between male and female students in anticipatory socialization.

Another reason may be that women see the business environment as more hostile to them than it is to men, discouraging them from embarking on entrepreneurial efforts. If women believe the professional pharmacy environment is friendlier to women than the general business environment, it could explain why gender influenced general, but not pharmacy entrepreneurial intentions.

Limitations of this study include that it was a cross-sectional survey, and as such, relies on self-report, and cannot assess causality. A potential limitation is the EAO scale was changed to a 10-point response scale (1=strongly disagree to 10=strongly agree). Another limitation is that students may have interpreted the word “entrepreneur” differently. The study was conducted at only a single pharmacy college and may not be generalizable to other pharmacy students.

**CONCLUSION**

While all the proposed subscales could be validated in PharmD students, the single proposed ED scale is not supported. Consistent with previous studies, proactive disposition and preference for innovation were significantly associated with both GEI and PEI. Self-esteem, achievement motivation, and nonconformity were not, but these could potentially play indirect roles in intention, or be associated with entrepreneurial implementation and/or success. Female gender was associated with lower GEI, but not with lower PEI. Pharmacy schools should consider recruiting students with high levels of proactivity and preference for innovation. Although causality is not yet established, pharmacy schools may wish to offer courses focused on entrepreneurship, as taking such courses is significantly associated with GEI and PEI. Because women comprise the majority of pharmacy students, special emphasis should be given to nurturing proactivity and exposure to entrepreneurship courses in female PharmD students.

Although Florin and colleagues discussed the importance of self-efficacy for ED, they did not include it within their measure. Understanding the role of self-efficacy in entrepreneurial intentions would be useful because self-efficacy is potentially modifiable. Other factors not included in this study that should be included in future studies include anticipated school debt and family plans, as these could affect entrepreneurial intentions. One frequently mentioned potential influence on entrepreneurship area not mentioned by Florin and colleagues was risk-taking. It has been theorized that those with low risk aversion are more likely to become entrepreneurs, but there is no strong empirical support for this; findings have been mixed. The influence of risk-aversion on entrepreneurial intentions should be investigated in PharmD students. Future work should also investigate whether students take entrepreneurship courses because of a pre-existing interest, or if courses help develop interest in entrepreneurial activities, or both. If courses do increase entrepreneurial interest, students might be encouraged to take such a course. Future work is also needed to determine why gender did not significantly influence pharmacy entrepreneurial intentions.

**REFERENCES**

1. Holiday-Goodman M. Entrepreneurship, resource management, organizational culture, and other 'business' factors influencing pharmacy change. Res Social Adm Pharm. 2012;8(4):269-271.
2. Smith M, Bates DW, Bodenheimer TS. Analysis & Commentary: Pharmacists belong in accountable care organizations and integrated care teams. Health Aff (Millwood). 2013;32(11):1963-1970.
3. CPESN. Community Pharmacy Enhanced Services Network. 2017; https://cpesn.com. Accessed April 12, 2017.
4. Isasi F, Krofah E. The Expanding Role of Pharmacists in a Transformed Health Care system. Washington, DC: National Governors Association for Best Practices; January 13, 2015.
5. Klepser ME, Adams AJ, Smis P, Mazzucco M, Kleser D. U.S. community pharmacies as CLIA-waived facilities: prevalence, dispersion, and impact on patient access to testing. Res Social Adm Pharm. 2016;12(4):614-621.
6. Wisell K, Winblad U, Sporrong SK. Reregulation of the Swedish pharmacy sector: a qualitative content analysis of the political rationale. Health Policy. 2015;119:648-653.
7. Theodoridis C, Priporas C-V. Emerging Implications of the Deregulation of the Pharmacy Retail Sector in Greece: The Pharmacists’ Perspective. Cascais, Portugal: EuroMed Press; 2013.
8. Jubraj B. 'Dragon’s Den': an entrepreneurial method to develop innovation among junior pharmacists. Eur J Hosp Pharm Sci Pract. 2015;22(2):64-65.
9. Shane S, Vankataraman S. The promise of entrepreneurship as a field of research. Acad Manage Rev. 2000;25(1):217-226.
10. Brazeau G. Entrepreneurial spirit in pharmacy. Am J Pharm Educ. 2013;77(5).
11. ACPE. Accreditation standards and key elements for the professional program in pharmacy leading to the Doctor of Pharmacy degree. Standards 2016. Chicago, Illinois: Accreditation Council for Pharmacy Education, (ACPE);2015.
12. Florin J, Karri R, Rossiter N. Fostering entrepreneurial drive in business education: an attitudinal approach. Journal of Management Education. 2007;31(1):17-42.
13. Aizen I. On behaving in accordance with one’s attitudes. In: Zanna MP, Higgins ET, Herman CP, eds. Consistency in social behavior: The Ontario symposium. Vol 2. Hillsdale, NJ: Lawrence Erlbaum; 1982:3-15.
14. Lumpkin GT, Dess GG. Linking two dimensions of entrepreneurial orientation to firm performance: the moderating role of environment and industry life cycle. Journal of Business Venturing. 2001;16(5):429-451.
15. Covin JG, Slevin DP. The development and testing of an organizational-level entrepreneurship scale. In: Ronstadt R, Hornaday JA, Peterson R, Vesper KH, eds. Frontiers of entrepreneurship research - 1986. Wellesley, MA: Babson College; 1986:628-639.
16. Sanchez JC. University training for entrepreneurial competencies: its impact on intention of venture creation. Int Entrep Manag J. 2011;7:239-254.
17. Bateman TS, Crant JM. The proactive component of organizational behavior: a measure and correlates. J Organ Behav. 1993;14:103-118.
18. Robinson PB, V SD, Huefner JC, Hunt HK. An attitude approach to the prediction of entrepreneurship. Entrepreneurship Theory and Practice. 1991;15(4):13-31.
19. Crant JM. The proactive personality scale as a predictor of entrepreneurial intentions. Journal of Small Business Management. 1996(July):42-49.
20. Seibert SE, Kraimer ML, Crant JM. What do proactive people do? a longitudinal model linking proactive personality and career success. Pers Psychol. 2001;54:845-874.
21. Claes R, Beheydt C, Lemmens B. Unidimensionality of abbreviated proactive personality scales across cultures. Applied Psychology: An International Review. 2005;54(4):476-489.
22. Korres GM, Papanis E, Kokkinou A, Giavrimis P. Measuring entrepreneurial and innovation activities in E.U. Interdisciplinary Journal of Contemporary Research in Business. 2011;3(3):1155-1167.
23. Stewart WH, Watson WE, Carland JC, Carland JW. Entrepreneurship: A comparison of entrepreneurs, small business owners, and corporate managers. Journal of Business Venturing. 1999;14:189-214.
24. Kirton M. Adaptors and innovators: a description and measure. J Appl Psychol. 1976;61(5):622-629.
25. Sexton DL, Bowman NB. Comparative entrepreneurship characteristics of students: Preliminary Results. In: Hornaday J, Timmons J, Vesper KV, eds. Frontiers of Entrepreneurship Research. Wellesley, MA: Babson College; 1983:213-232.
26. Zhang Z, Arvey RD. Rule breaking in adolescence and entrepreneurial status: an empirical investigation. Journal of Business Venturing. 2009;24:364-347.
27. Goss D. Schumpeter’s legacy? Interaction and emotions in the sociology of entrepreneurship. Entrepreneurship Theory and Practice. 2005;29(2):205-218.
28. Goel S, Karri R. Entrepreneurs, effectual logic, and over-trust. Entrepreneurship Theory and Practice. 2006;30(4):477-493.
29. Lagana M. Self-efficacy, self-esteem, and entrepreneurship among the unemployed. J Appl Soc Psychol. 2013;43(2):253-262.
30. Crandall R. Measurement of self-esteem and related constructs. In: Robinson JP, Shaver PR, eds. Measurement of social psychological attitudes. Ann Arbor: University of Michigan; 1973.
31. Collins CJ, Hanges PJ, Locke EA. The relationship of achievement motivation to entrepreneurial behavior: a meta-analyis. Human Performance. 2004;17(1):95-117.
32. Sheeran P. Intention-behavior relations: a conceptual and empirical review. Eur Rev Soc Psychol. 2002;12(1):1-36.
33. Herrmansens-Kobulnicky CJ, Moss CL. Pharmacy student entrepreneurial orientation: a measure to identify potential pharmacist entrepreneurs. Am J Pharm Educ. 2004;68(5).
34. Pihie ZAL, Sani ASA. Science and engineering students: are they entrepreneurs? International Journal of Learning. 2008;15(7):105-110.
35. Crant JM. The proactive personality scale and objective job performance among real estate agents. J Appl Psychol. 1995;80(4):532-537.
36. Tarling C, Jones P, Murphy L. Influence of early exposure to family business experience on developing entrepreneurs. Education and Training. 2016;58(7-8):733-750.
37. Chen S-C, Hsiao, H-C, Chang J-C, et al. Can the entrepreneurship course improve the entrepreneurial intentions of students? Int Entrep Manag J. 2015;11(3):557-569.
38. Bönöte W, Piegeler M. Gender gap in latent and nascent entrepreneurship: driven by competitiveness. Small Bus Econ. 2013;41:961-987.
39. Brown TA. Confirmatory Factor Analysis for Applied Research. New York: Guilford Press; 2006.
40. Pihie ZAL. An analysis of academic experience to develop entrepreneurial attributes and motivation among at-risk students. International Journal of Learning. 2007;14(6):207-217.
entrepreneurial education. *Entrepreneurship Theory and Practice*. 2007;31(3):387-406.

45. Chan K-Y, Uy MA, Chernyshenko OS, Ho M-HR, Sam Y-L. Personality and entrepreneurial, professional and leadership motivations. *Pers Individ Dif*. 2015;77:161-166.

46. Vanilbo though T, Joly J, Pepermans R. Explaining entrepreneurial status and success from personality: an individual-level application of the entrepreneurial orientation framework. *Psychol Belg*. 2015;55(1):32-56.

47. Siebert SE, Crant JM, Kraimer ML. Proactive personality and career success. *J Appl Psychol*. 1999;84(3):416-427.

48. Kirby EG, Kirby SL, Lewis MA. A study of the effectiveness of training proactive thinking. *J Appl Soc Psychol*. 2006;32(7):1538-1549.

49. Strauss K, Parker SK. Intervening to enhance proactivity in organizations: improving the present or changing the future. *Journal of Management* 2015:1-29.

50. Fuller JB, Marler LE, Hester K. Bridge building within the province of proactivity. *J Org Behav*. 2012;33:1053-1070.

51. Rideout EC, Gray DO. Does entrepreneurship education really work? a review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management*. 2013;51(5):329-351.

52. Pittaway L, Cope J. Entrepreneurship education: a systematic review of the evidence. *International Small Business Journal*. 2007;25(5):479-510.

53. Johansen V, Schanke T. *Entrepreneurship Education in Primary and Secondary Education and Training: Status 010*. Lillehamer, Norway: Eastern Norway Research institute;2011.

54. Kickul J, Gundry LK. Prospecting for strategic advantage: The proactive entrepreneurial personality and small firm innovation. *Journal of Small Business Management*. 2002;40(2):85-97.

55. Lumpkin GT, Dess GG. Clarifying the entrepreneurial orientation construct and linking it to performance. *Acad Manage Rev*. 1996;21(1):135-172.

56. Gavaza P, Muthart T, Khan GM. Measuring achievement goal orientations of pharmacy students. *Am J Pharm Educ*. 2014;78(3).

57. AAAC. Academic pharmacy’s vital statistics. Student Pharmacists 2016; http://www.aacp.org/about/Pages/Vitalstats.aspx. Accessed July 6, 2016.

58. ASHP. Summary Results of the Match Positions Beginning in 2015. National matching services. ASHP. American Society of Health-System Pharmacists; 2017.

59. Migliore MM, Constantino RC, Coampagna NA, Albers DS. Educational and career goals of pharmacy students upon graduation. *Am J Pharm Ed*. 2013;77(9).

60. Matzler K, Bauer FA, Mooradian TA. Self-esteem and transformational leadership. *Journal of Managerial Psychology*. 2015;30(7):815-831.

61. Gupta VK, Fernandez C. Cross-cultural similarities and differences in characteristics attributed to entrepreneurs: a three-nation study. *Journal of Leadership and Organizational Studies*. 2009;15:304-318.

62. Constantinople A. Masculinity-feminity: an exception to the famous dictum? *Psychological Bulletin*. 1973;80:389-407.

63. Buttner EH, Moore DP. Women’s organizational exodus to entrepreneurship: self-reported motivations and correlates with success. *Journal of Small Business Management*. 1979;35(1):34-46.

64. De Martino R, Barbato R. Differences between women and men MBA entrepreneurs: exploring family flexibility and wealth creation as career motivators. *Journal of Business Venturing*. 2003;18(6):815-833.

65. Keshishian F. Factors influencing pharmacy students’ choice of major and its relationship to anticipatory socialization. *Am J Pharm Educ*. 2010;74(4).

66. Lim S, Envick BR. Gender and entrepreneurial orientation: a multi-country study. *Int Entrep Manag J*. 2013;9:465-482.

67. Goktan AB, Gupta VK. Sex, gender, and individual entrepreneurial orientation: evidence from four countries. *Int Entrep Manag J*. 2015;11:95-112.

68. Kolvereid L, Shane S, Westhead P. Is it equally difficult for female entrepreneurs to start businesses in all countries? *Journal of Small Business Management*. 1993;31(4):42-51.

69. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol*. 1982;37:122-147.
Appendix 1. Factors Influencing General and Pharmacy Entrepreneurial Intentions Survey

Instructions: It is very important to answer every question and to be honest in your answers. This will help make sure the study results are valid. Please circle the letter corresponding to the answer that most describes your attitude or thinking.

1. Which of the following career paths do you intend to pursue when you graduate from pharmacy school?
   a. Community pharmacy, Chain or Big Box
   b. Community pharmacy, Independent
   c. Residency or Graduate Education
   d. Health-systems pharmacy
   e. Pharmaceutical Sales
   f. Other _______________________

2. I’m prepared to do what it takes to provide new or expanded pharmacy services or a new pharmacy business.
3. My professional goal is to provide new or expanded pharmacy services or a new pharmacy business.
4. I will make every effort to start and run new or expanded pharmacy services or a new pharmacy business.
5. I’m determined to create new or expanded pharmacy services or a business in the future.
6. In the future, I will choose to be an entrepreneur.
7. I would rather be an entrepreneur than an employee in a company.
8. I’m prepared to do anything to be an entrepreneur.
9. My professional goal is to be an entrepreneur.
10. I’ll make every effort to start and run my own business.
11. I’m determined to create a firm in the future.
12. I have a strong intention to start a business someday.
13. I want to be my own boss.
14. I put in the effort to make money.
15. I will start a business in the next 5 years.
16. I will start a business in the next 10 years.
17. I am always looking for better ways to do things.
18. I excel at identifying opportunities.
19. No matter what the odds, if I believe in something I will make it happen.
20. I can spot a good opportunity long before others can.
21. I love being a champion for my ideas, even against others opposition.
22. If I see something I don’t like, I fix it.
23. Nothing is more exciting than seeing my ideas turn into reality.
24. I am constantly on the lookout for new ways to improve my life.
25. I get a thrill out of doing new, unusual things at school or work.
26. I believe it is important to approach opportunities in unique ways.
27. I enjoy being the catalyst for change in school or work affairs.
28. I usually seek out colleagues who are excited about exploring new ways of doing things.
29. I get real excited when I think of new ideas to stimulate my group’s performance in school assignments.
30. I believe it is important to continually look for new ways to do things at school or work.
31. I get excited when I am able to approach tasks in unusual ways.
32. I enjoy being able to do things in new ways.
33. I often approach school tasks in unique ways.
34. I believe that to be successful one must sometimes do things in ways that could seem unusual at first glance.
35. I usually take control in unstructured situations.
36. I enjoy finding good solutions to problems that nobody has looked at yet.
37. I believe that to arrive at a good solution to a problem, it is important to question the assumptions made in defining the problem.
38. I believe that when pursuing goals or objectives, the final result is far more important than following the accepted procedures.
39. I feel inferior to most people I work with.
40. I often feel bad about the quality of work I do.
41. I never persist very long on a difficult job before giving up.
42. I often put on a show to impress the people I work with.
43. I feel self-conscious when I am with very successful people.
44. I feel uncomfortable when I’m unsure of what my team members think of me.

(Continued)
Appendix 1. (Continued)

45. I seem to spend a lot of time looking for someone who can tell me how to solve all my school problems.
46. I feel very self-conscious when making school presentations.
47. To be successful I believe it is important to use your time wisely.
48. I feel proud when I look at the results I have achieved in my school activities.
49. I do every job as thoroughly as possible.
50. I believe it is important to analyze your own weaknesses.
51. I make a conscientious effort to get the most out of my available resources.
52. I feel good when I have worked hard to improve my assignments.
53. I believe that to be successful a person must spend time planning the future.
54. I always follow accepted practices in the dealings I have with others.
55. I rarely question the value of established procedures.
56. I believe that currently accepted regulations at school were established for a good reason.
57. I feel best about my work when I know I have followed accepted procedures.
58. I believe that in order to succeed, one must conform to accepted practices.

Demographic Information
59. What is your gender? a. Female   b. Male
60. What is your age (in years)? ____________
61. Did you have a terminal degree (eg, BS) before you entered the PharmD program?
62. Did you take time out from school or college to work full-time before you entered the PharmD program?
63. Do you have a family member that owns a pharmacy?
64. Do you have a family member that is an entrepreneur in a non-pharmacy area?
65. Did you take part in the startup process of any new business venture?
66. Did you take a course on entrepreneurship?
67. Please list any initiatives or activities that you took or were a part of at UGA while you were in pharmacy school, outside of class assignments.

Questions 2-58: responses ranged from 1 = strongly disagree to 10 = strongly agree
Questions 61-66: responses were yes or no