

PATH MODELS OF VOCATIONAL CALLING IN CHRISTIAN COLLEGE STUDENTS

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In the Christian college environment, students are encouraged to understand their vocational calling, yet quantitative research on how college students conceptualize calling is sparse. This correlational study extends the research literature significantly by empirically examining variables that affect sense of vocational calling in 270 college students as they near graduation. Relationships among demographic variables (gender, race, resident status, GPA, and hours worked), personal characteristics (hope, career-decision self-efficacy, strengths self-efficacy, and spirituality), and student involvement variables (campus involvement, service activities, engaged learning, and psychological sense of community) were explored to assess how these variables directly and indirectly contributed to students' sense of vocational calling. Dobrow's (2006) theory of integrated calling provided the operational definition of calling. Through structural equation modeling (SEM) (Arbuckle, 2008), models were generated indicating that men and women conceptualized calling in distinctive ways. Although both genders perceived vocational calling from spiritual and purposeful perspectives, men interpreted calling pragmatically and cognitively, while women discerned calling from an affective perspective connected to their sense of self-esteem. There were also gender differences in predictors of vocational calling. The structural path for men was through career decision self-efficacy ($\beta = .54$; $p < .001$) and involvement in service activities ($\beta = .29$; $p < .05$), accounting for 41% of the variance in vocational calling. For women, the path was through hope ($\beta = .47$; $p < .001$) and engaged learning ($\beta = .34$; $p < .001$), and accounted for 45% of the variance in vocational calling.

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For many students, the college years represent a period of intensive shaping of their lives in personal, academic, and professional domains (Chickering, 2006; Pascarella & Terenzini, 2005). Guided by the belief that students often enter college with a longing to discover meaning and purpose, Astin, Astin, and Lindholm's (2011) research led to a rich conceptualization of spirituality as the inner, subjective life that incorporates personal values, beliefs, actions, commitments, and sense of connectedness in this world. This broad definition of spirituality is congruent with a mission in Christian higher education: to help students understand God's calling in their lives by discovering a sense of vocational calling. The purpose of this study is to examine indicators of and predictors that encourage a sense of vocational calling in Christian college students, before they have started working in specified careers.

Research in Vocational Calling

The majority of vocational calling research studies people who have already transitioned from jobs to careers to callings; this research identifies particular outcomes, such as meaning in life (Elliott, 1992; Hall & Chandler, 2005; Terranova, 2006), purposeful work (Kovan & Dirks, 2003; Lips-Wiersma & McMorland, 2006), and spirituality (Collins, 2004; Terranova, 2006). The calling literature involving college students is very sparse. In a published qualitative study, French (2006) examined themes of life (vocational) calling with six college students and found themes (purposeful work, identity, passion, and spirituality) consistent with the calling research conducted with adults. In the quantitative literature, Dobrow (2006) has developed a tool to assess calling in high school musicians and Miller-Perrin and Thompson (2005, 2007) have conducted a longitudinal study of vocation in Christian college students.

Miller-Perrin and Thompson's (2005, 2007) longitudinal study examined faith, identity, and life purpose (i.e., vocational calling) among 300 Christian college students. Their unpublished work was associated with the Lilly Endowment (2005) initiative, Theological Exploration of Vocation. In the initial study, Miller-Perrin and Thompson (2005) identified a significant correlation between life purpose and levels of faith attitudes/behaviors

among first-year college students. In their longitudinal study, Miller-Perrin and Thompson (2007) found that students who believed in God, integrated their faith in decision-making, and believed in an after-life were more likely to report greater life purpose than students who did not. Female students scored significantly higher on nearly all measures of life purpose, and students with international experiences reported significantly higher life purpose than students who had not participated in international experiences. Also, seniors reported higher life purpose than first-year students.

In a published study, Dobrow (2006) developed a robust assessment tool to measure vocational calling. Using influences from work engagement and flow (Csikszentmihalyi, 1990; Kahn, 1990), work orientations (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997), internal motivation (Amabile, Hill, Hennessey, & Tigh, 1994), and discernment (Weiss, Hall, Haughey, & Skelley, 2004), Dobrow proposed an integrative view of calling that captures “the depth, intensity, or variation that may exist in people’s sense of calling” (p. 20). Dobrow’s (2006) longitudinal research examined vocational calling among musicians who were seniors in high school when the study began and were making decisions about what kind of college or professional school to attend. Dobrow’s findings revealed certain traits and characteristics of students who reported higher levels of calling: (a) female, (b) involvement and enjoyment in music-related activities, (c) parents involved in the arts, (d) received calling-oriented career advice from parents and teachers, and (e) socialization with other musicians.

Vocational Calling Defined

Exploration of the construct of vocational calling, although certainly applicable to specific employment, transcends the boundaries of jobs to include purposeful and meaningful involvements. Because college students are not yet in careers, this broader exploration seemed appropriate. The sense of *vocational calling* is broadly defined as “the place where deep gladness and the world’s deep hunger meet” (Buechner, 1993, p. 119). Six out of seven of Dobrow’s (2006) integrated calling constructs operationalized the twofold definition: passion, identity, urgency, engulfs

consciousness, sense of meaning, and self-esteem. After reviewing the multidisciplinary literature on vocational calling and then conducting a pilot study to assess the appropriateness of each construct, Phillips (2009) found that there was no direct support for the *longevity* scale in the multidisciplinary literature and, in the pilot study, removing this scale from analysis increased the validity of the instrument. The longevity scale assessed the feeling that involvement in the calling began early in life. Perhaps this scale more accurately assesses a musician's passion and is not generalizable. There was support for the other scales in the literature and pilot study. *Passion* is the deeply satisfying, enjoyable feeling associated with specific tasks. *Identity* is the degree to which an individual relates who he or she is with what is done. *Urgency* is a sense of destiny about an activity. *Engulfs consciousness* is the comprehensive manner of thought about an activity. *Sense of meaning* conveys gratifying, often spiritually significant desires to do something purposeful that connects a person with the greater whole. Domain-specific *self-esteem* is the confidence that a person has about the ability to perform particular activities associated with his or her purposeful interest.

Variables Affecting the Path Model to Vocational Calling

Three categories of characteristics emerged supporting the choices of potential predictors: demographic, personal, and involvement. Of the demographic variables (gender, race, GPA, resident status, and hours worked), only gender was connected to vocational calling (Dobrow, 2006; French, 2006; Miller-Perrin and Thompson, 2007); however, other variables are associated with the involvement and personal characteristic variables, so they were included. Sax (2008) found correlations with gender and race to engagement and career aspirations. Annis, Sedlacek, and Mohr (2000) identify GPA as a significant factor in students' psychological sense of community. Residential status and hours worked also affect student involvements (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998).

Personal Characteristics

Identifying relationships among (a) hope, (b) career decision self-efficacy, (c) strengths self-efficacy, and (d) spirituality, as

well as student involvement, provided a way to examine students' sense of vocational calling. *Hope* enables students to set valued goals, identify the means to achieve these goals, and summon the drive to achieve them (Snyder, 2002). Hope is positively associated with sense of meaning (Peterson, Ruch, Beer-mann, Park, & Seligman, 2007), spirituality (Nonneman, Holcomb, & Slater, 2006), strengths awareness (Snyder et al., 1991), and career decision self-efficacy (Ennis, 2007; Olson-Madden, 2008). *Career decision self-efficacy* (Betz & Luzzo, 1996) refers to perceptions of competence in the ability to prepare for work-related activities. Research shows that spirituality, involvement with faculty, and psychological sense of community positively correlate with career decision self-efficacy (Duffy & Lent, 2008). *Strengths self-efficacy* is the confidence an individual has in practicing and applying personal strengths (Lopez, 2008). A *strength* is a combination of talent, knowledge, and skills that enables consistent, near-perfect performance in a specific task (Clifton, Anderson, & Schreiner, 2006). Students confident in using their personal strengths report more (a) purpose in life (Anderson, 2004; Gallup Organization, 1999), (b) hope (Louis, 2008; Snyder et al., 1996), and (c) engaged learning (Cantwell, 2005; Louis, 2008). *Spirituality* concerns "the transcendent, addressing ultimate questions about life's meaning, with the assumption that there is more to life than what we see or fully understand" (Fetzer Institute, 1999, p. 2). Researchers note positive associations of spirituality with (a) service activities (Chickering, Dalton, & Stamm, 2006; Kuh & Gonyea, 2005), (b) leadership (Astin, Astin, & Lindholm, 2010; Bolman & Deal, 1995; Palmer, 1996), (c) college engagement (Kuh & Gonyea, 2005), (d) career decision self-efficacy (Duffy & Blustein, 2005), and (e) purpose in life (Greenway, 2005).

Student Involvement Variables

This study also examined the influences that (a) campus involvements, (b) service activities, (c) engaged learning, and (d) psychological sense of community have on calling among college students. *Campus involvement* refers to participation in curricular, extracurricular, and residence hall activities (Astin, 1993). Involvement in academic activities is positively related to students' connections with peers (Kuh & Hu, 2001), academic achievement

(Tomlinson-Clarke & Clarke, 1994), and persistence to graduation (Teduits, 2008). Students who interact with faculty tend to report a higher sense of calling (Dobrow, 2006) and purpose in life (Greenway, 2005). *Engaged learning* is the “positive energy invested in one’s own learning, evidenced by meaningful processing, attention to what is happening in the moment, and involvement in specific learning activities” (Schreiner & Louis, 2006, p. 6). Students who are engaged in the learning process also have greater perceptions of their belongingness in the campus environment (Goodenow, 1993; Kuh & Hu, 2001). *Psychological sense of community* (PSC) is the feeling of belonging that a student perceives in being a member of the campus. Students who are members of close-knit groups report greater PSC (DeNeui, 2003; Lounsbury & DeNeui, 1995; Obst & White, 2007; Pretty, 1990). Additionally, McGuire and Gamble (2006) found that engagement was a significant predictor of PSC and involvement in service activities. *Service activities* refer to volunteer involvement where services provided and received are valuable to the student and community served (Community service, n.d.) and includes local, national, and international trips with a humanitarian focus. Researchers recognize associations with service activities and positive outcomes: (a) purpose in life, (b) academic achievement, (c) self-esteem, (d) identity, (e) self-awareness, (f) spirituality, and (g) clarification of career goals (Astin, Vogelgesang, Ikeda, & Yee, 2000; Chickering et al., 2006; Eyler & Giles, 1999; Houston & Cartwright, 2007).

This study examined relationships among (a) demographic variables (gender, race, resident status, hours worked per week), (b) personal characteristics (hope, career-decision self-efficacy, strengths self-efficacy, spirituality), and (c) student involvement variables (campus involvement, service activities, engaged learning, psychological sense of community) of traditional undergraduate junior and senior college students at a Christian university, and also how these relationships contribute to their sense of vocational calling. Although the literature supports logical connections between variables, empirical connections to vocational calling were minimal. In the hypothesized model, (a) demographic variables affect personal characteristics and student involvement, and (b) personal characteristics and student involvements interact to predict sense of vocational calling. Extending the calling literature by exploring the experiences of college students, this

study is the first to examine the contribution of particular personal characteristics and student involvements to college students' sense of vocational calling.

Method

Participants and Procedures

The sample consisted of 270 junior and senior students at a private Christian liberal arts university. Research concerning identity development during the college years (Miller-Perrin & Thompson, 2007; Pascarella & Terenzini, 2005) was a factor in choosing the sample, as upper-class students are more likely to have developed critical thinking abilities, negotiated challenging events, and considered potential career paths that affect their sense of vocational calling (Miller-Perrin & Thompson, 2007; Nonneman et al., 2006). Demographic representation of the sample closely resembled the general student population with there being more seniors ($n = 151$; 56%) than juniors ($n = 119$; 44%) and more women ($n = 178$; 66%) than men ($n = 92$; 44%).

Measures

In each of the instruments, when a measure used a Likert response of other than six alternatives, the scales were adapted to use a common 6-point format.

The Calling Scale

The instrument used to measure the ultimate endogenous latent variable of students' sense of vocational calling is an adaptation of the *Integrated Calling Scale* (ICS) (Dobrow, 2006), hereafter referred to as the *Calling Scale*. The ICS is psychometrically robust, with evidence of construct validity and reliability measured as both internal consistency and stability over time. Because the ICS targeted gifted musicians, the items needed rewriting so the terminology would be appropriate to a wider range of students. To maintain the integrity and intensity of the original items, rewriting included several versions; final wording for the Calling Scale came from feedback of students and colleagues. The 24-item

Calling Scale was pilot-tested on a sample of students similar to the population for the current study: junior and senior students at the university ($N = 36$). Analyses revealed internal reliability estimates of the composite Calling Scale of $\alpha = .85$ ($M = 4.68$, $SD = .45$).

Adult Dispositional Hope Scale (ADHS)

The ADHS (Snyder et al., 1991) is a 12-item self-report that measures agency (perception of capacities for realizing goals) and pathways (appraisal of abilities to develop strategies for overcoming obstacles) thinking. The *Hope Scale* has internal reliability and validity, with Cronbach's alpha estimated at .82 ($M = 4.97$, $SD = .53$).

Career Decision Self-Efficacy—Short Form (CDSE-SF)

The CDSE-SF (Betz, Hammond, & Multon, 2005; Betz & Klein, 1996) is a 25-item self-report survey that measures confidence in engaging in tasks and making career-related decisions, and is predictive of occupational satisfaction (Betz & Luzzo, 1996; Donnay & Borgen, 1999; Lent, Brown, & Hackett, 2002). The total scale Cronbach's alpha was .93 ($M = 4.88$, $SD = .56$).

Strengths Self-Efficacy Scale (SSES)

The SSES (Lopez, 2008), a 16-item self-report survey, measures the level of one's confidence in the ability to practice and apply personal strengths. Cronbach's alpha estimate of internal reliability was .96 ($M = 4.77$, $SD = .77$).

Spirituality Scale (SS)

Using two factor scales from the *College Student Beliefs and Values* (HERI, 2004), the spirituality scale is a self-report survey that uses the spiritual and religious commitment subscales to identify beliefs and commitments. The SS is a 24-item self-report survey with a total scale Cronbach's alpha of .89 ($M = 5.39$, $SD = .46$).

Campus Involvement

The 10-item index is adapted from items on the *College Student Survey* (CSS, 2007) that addressed the frequency of peer, faculty, and activity involvements. Total scale Cronbach's alpha is .80 ($M = 3.85$, $SD = .91$).

Engaged Learning Index–Revised (ELI-R)

The ELI-R is a 10-item self-report survey that measures cognitive, behavioral, and affective components of a student's engagement in the learning process (Schreiner, 2008a). Total scale Cronbach's alpha is .85 ($M = 4.26$, $SD = .73$).

Psychological Sense of Community on Campus Scale (PSC)

The PSC (Schreiner, 2008b) is a 5-item measure that assesses a student's perceptions of belonging. Internal reliability was measured with a coefficient alpha estimation of $\alpha = .83$ ($M = 4.91$, $SD = .85$).

Service Activities

Measured using six items adapted from the *College Student Survey* (CSS, 2007), service activities involve community volunteer work as well as local, national, and international trips with a humanitarian focus. Students responded to statements concerning the frequency and types of service involvements. Cronbach's alpha is .76 ($M = 3.03$, $SD = 1.04$).

Demographic Variables

Gender, ethnicity, residential status, hours worked, and GPA were measured as observed variables in the path model. Gender, ethnicity, and residential status were dummy-coded for numerical analyses. The observed variable of gender was also reworked as a grouping variable to determine separate path models for women and men.

Data Analysis

All data were analyzed in SPSS with AMOS (version 17.0; Arbuckle, 2008) using the maximum likelihood (ML) estimation technique of structural equation modeling (SEM) to detect patterns in the relationships among variables (Iacobucci, Saldanha, & Deng, 2007). Scales were set for all variables (Arbuckle, 2008) and the data assessed for errors, outliers, and multivariate normality. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to identify underlying structures between observed variables (demographic variables and indicator items to the latent variables) and latent variables (personal characteristics, student involvement variables, and vocational calling).

Model fit, tested through measurement and structural models, was specified by analyzing three unique sets of values: (a) goodness-of-fit statistics, (b) unstandardized parameter estimates, and (c) modification indices. The Comparative Fit Index (CFI), the Parsimony Goodness of Fit Index (PGFI), and the Root Mean Square Error of Approximation (RMSEA) were used in addition to the standard chi square statistic (CMIN or χ^2) (Garson, 2009) because χ^2 is better at establishing simple measurement models but not complex structural models (Byrne, 2001). Parameter estimates and modification indices were evaluated to find specific strengths and weaknesses within the model. Parameter estimates indicate the path coefficients among the variables and are inspected according to sign and size; nonsignificant path coefficients were removed and calculations of fit were reviewed each time the model was trimmed to assess overall fit (Hu & Bentler, 1999). Modification indices (MI) were evaluated to identify potential adjustments for improved model fit, but only theoretically sound MI paths were added to the path model (Byrne, 2001).

Results

Examination of the data indicated that there were no significant differences in responses for women and men. Most students in the study (94.1%) had at least a moderate sense of calling; and, of those, 12.3% reported a high sense of calling. Students also reported moderately high involvement in campus and service

activities. Findings from zero-order correlations, calculated separately for women and men (Tables 1 and 2), reveal associations between the variables, but they are not strong enough to assume these variables measure the same things. For women, significant correlations were found between vocational calling and all personal characteristics and campus involvements, with the exception of psychological sense of community on campus, ranging from $r = .18$ (campus involvement) to $r = .42$ (engaged learning). For men, significant correlations were found with vocational calling and career decision self-efficacy ($r = .36$), engaged learning ($r = .33$), and service activities ($r = .21$).

The Measurement Models

To optimize fit and most accurately reflect the construct, trimming the final measurement model for each latent variable to three or four indicator variables is vital (Ullman, 2006). The models were similar for women and men in seven of the nine latent variables, meaning that the primary indicator items signifying the latent variables were the same (see Table 3). The measurement models showed differences for women and men in two of the variables: vocational calling and hope. For women and men, vocational calling was best indicated by items 11 (there is a spiritual component to doing this activity) and 22 (doing this activity is a deeply moving experience for me); however, item 19 (I am happy when I tell people about what I do) was the best fit for women and item 9 (this activity is always on my mind in some way) was the best fit for men. For the hope variable, men and women identified items 3 (there are lots of ways around any problem), 4 (I can think of many ways to get the things in life that are most important to me), and 5 (even when others get discouraged, I know I can find a way to solve the problem) as best representing the variable. However, in the women's model, item 6 (my past experiences have prepared me well for my future) needed to be included for optimal model fit.

The Structural Models

Once measurement models are set, structural models identify variances, that is, the degree of linear relationships among the latent

TABLE 1 Zero-Order Correlations, Means, and Standard Deviation for Variables Among Women

Item	1	2	3	4	5	6	7	8	9	10	11
1. Vocational calling	—										
2. Hope	.38	—									
3. Career decision SE	.31	.30	—								
4. Strengths self-efficacy	.29	.34	.37	—							
5. Spirituality	.34	.27	.21	.36	—						
6. Campus involvement	.18	.17	.14	.08	.15	—					
7. Engaged learning	.42	.29	.26	.28	.26	.19	—				
8. Psych sense of comm	.09	.10	.14	.09	.27	.35	.15	—			
9. Service activities	.23	.24	.14	.14	.23	.26	.15	.14	—		
10. Grade point average	.10	.03	-.04	.02	.14	.01	.02	.16	.12	—	
11. Residence status	.02	-.04	.03	-.01	-.13	-.38	.03	-.19	.02	.07	—

Correlations greater than $\pm.14$ are significant at $p < .05$. Correlations greater than $\pm.21$ are significant at $p < .01$.

TABLE 2 Zero-Order Correlations, Means, and Standard Deviation for Variables Among Men

Item	1	2	3	4	5	6	7	8	8	10	11
1. Vocational calling	—										
2. Hope	.04	—									
3. Career decision SE	.36	.11	—								
4. Strengths self-efficacy	.16	.33	.28	—							
5. Spirituality	.11	-.07	.09	.08	—						
6. Campus involvement	-.13	.31	-.05	.02	.07	—					
7. Engaged learning	.33	.26	.22	.28	-.03	.07	—				
8. Psych sense of comm	-.09	.21	.09	.23	.19	.24	.04	—			
9. Service activities	.21	.10	.21	.04	-.01	.17	.14	-.16	—		
10. Grade point average	-.10	.19	.08	.11	.27	.04	.10	.06	-.06	—	
11. Residence status	.15	-.04	.10	-.05	-.23	-.35	.01	-.13	-.03	.07	—

Correlations greater than $\pm.14$ are significant at $p < .05$. Correlations greater than $\pm.21$ are significant at $p < .01$.

TABLE 3 Measurement Model Identifying Latent Variables Similar for Men and Women

Latent variables	Primary indicator items
Career decision self-efficacy	9 (determine what your ideal job would be) 11 (choose a career that will fit your preferred lifestyle) 14 (decide what you most value in an occupation)
Strengths self-efficacy	7 (applying your strengths at work/school) 8 (using your strengths in many situations) 12 (finding ways to use your strengths at work/school every day)
Spirituality	14 (my beliefs are one of the most important things in my life) 15 (my beliefs provide me with strength, support, and guidance) 16 (my beliefs give meaning/purpose to my life)
Engaged learning	6 (I can apply what I'm learning in class to something else in my life) 7 (I think about what I'm learning in class even when I'm not there) 8 (I feel energized by the ideas I am learning in most of my classes)
Campus involvement	6 (I have been involved in on-campus leadership positions) 7 (I have been involved in student clubs/organizations) 11 (I participate in leadership training)
Psychological sense of community	2 (it's hard to make good friends on this campus—reverse scored) 4 (do not have much in common with students here—reverse scored) 5 (I have friends on this campus upon whom I can depend)
Service activities	1 (frequency of volunteer service) 3 (Participate in service activities—noncollegiate group) 4 (Participation in service activities, on own initiative)

variables (the four personal characteristics, the four student involvements, and the vocational calling variable). Analysis of the data revealed a path largely driven by women students in the sample. When fit was examined separately by gender, the preliminary model for women was adequate ($\chi^2 = 558.58$ [$df = 436$,

TABLE 4 Fit Statistics for Structural Models

Model	Description	Population	χ^2	<i>df</i>	PGFI	CFI	RMSEA
1	9-factor 3rd order with direct and indirect paths	Women	446.23**	337	.71	.95	.04
2	8-factor 3rd order with direct and indirect paths	Men	311.60**	244	.65	.93	.06

Note. χ^2 = chi-square (>.05 indicates good fit); GFI = parsimonious goodness of fit index (>.60 indicates good fit); CFI = comparative fit index (>.90 indicates good fit); RMSEA = root mean square error of approximation (< or = .06 indicates good fit).

** $p < .01$

$p < .01$], PGFI = .70, CFI = .95, and RMSEA = .04), but the model for men ($\chi^2 = 634.02$ [$df = 436$, $p < .01$], PGFI = .61, CFI = .87, and RMSEA = .07) was not a good fit. For full analysis of the structural models, see the larger study (Phillips, 2009). The structural models are recursive, meaning the vocational calling variable is not a contributor to the other latent variables, so the path is not bidirectional.

A three-step process was used to analyze the models: (a) examine the factor loading paths from the observed to the latent variables; (b) examine the factor variances for the latent (personal and involvement) variables; and (c) examine the structural regression paths from the exogenous latent variables to the endogenous latent variable (Byrne, 2001). The fit statistics for the women's and men's models are displayed in Table 4.

Women's Structural Model

Because the demographic variables did not affect overall model fit and their removal led to an increase in model parsimony, they were excluded. In examining the direct structural paths to vocational calling, only two variables, hope ($\beta = .48$; $p < .001$) and engaged learning ($\beta = .37$; $p < .001$) were significant at the $p < .05$ level. Model 1 shows the alignment of the third order structural regression: seven of the variables (strengths self-efficacy, career decision self-efficacy, spirituality, engaged learning, psychological sense of community, campus involvement, and service activities)

designate the indirect predictors and two variables (hope and engaged learning) designate the direct predictors of vocational calling. Model 1 accounts for 45% of the variance in vocational calling among women students in the sample. Figure 1 shows the women's structural equation model.

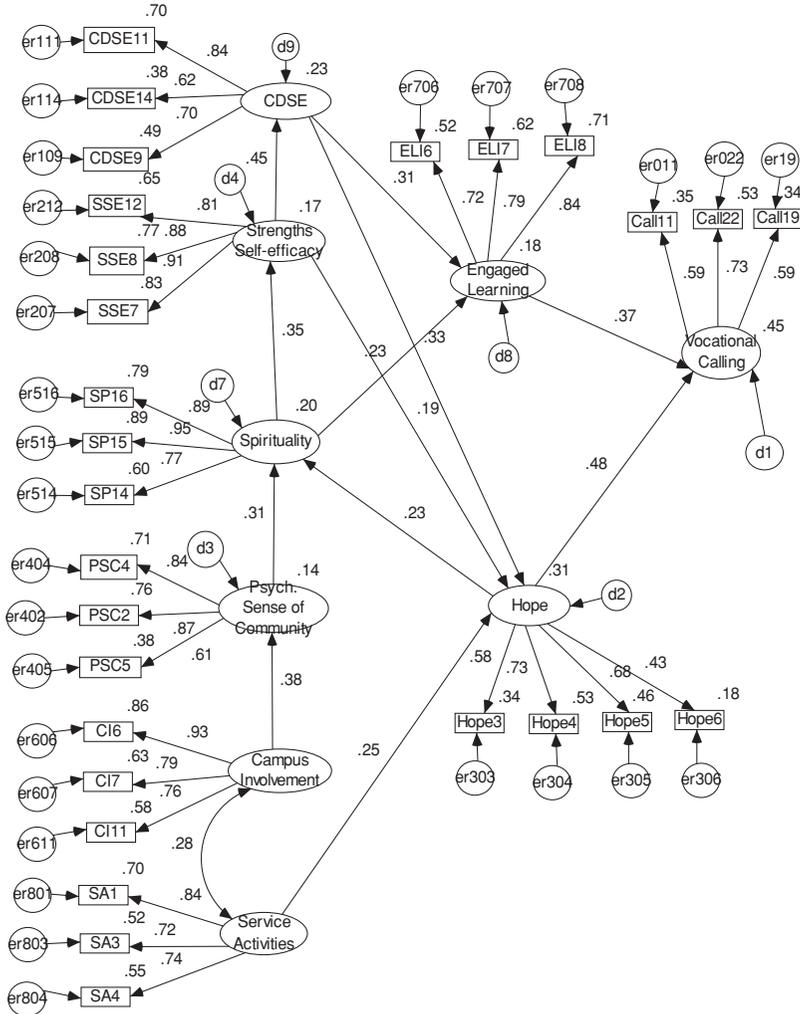


FIGURE 1 Model 1 structural path of vocational calling variables for women. All significant paths are shown. Standardized path coefficients greater than .19 are significant at $p < .05$, greater than .22 are significant at $p < .01$, greater than .30 are significant at $p < .001$. Numbers above variables represent total variance accounted for by the model for that variable.

Men's Structural Model

Hoelter's N was examined because of the small sample size ($n = 92$); the critical N indicated a confidence level of $p < .01$ with at least 85 in the sample. With support for the sample, examination proceeded for the demographic variables. Similar to the women's model, trimming of demographic variables created a more parsimonious model fit. After removing each latent variable with variances not statistically significant, the remaining direct paths to vocational calling were career decision self-efficacy ($\beta = .55$; $p < .001$) and service activities ($\beta = .28$; $p < .01$). The full structural regression shows that five variables (hope, strengths self-efficacy, engaged learning, psychological sense of community, and campus involvement) were indirect contributors and two variables (career decision self-efficacy and service activities) were direct contributors to vocational calling (see Figure 2). Model 2 accounts for 41% of the variance in vocational calling among men.

Discussion

For students in this sample, a sense of vocational calling was influenced through an intricate pattern of personal elements and involvement experiences that differed by gender. These gender differences, consistent with identity and cognitive development theories, were evident throughout the model both in the elements that comprised vocational calling as well as in the variables that predicted a sense of vocational calling. Researchers speculate that gender differences are not really opposite in nature, but rather are nuances in the way women and men experience autonomy and interpersonal relationships. Women generally develop autonomy through intimacy and they tend to organize their self-schemas around relationships, whereas men generally develop autonomy through individuation and responsibility (Baxter Magolda, 1992; Chickering & Reisser, 1993; Erickson, 1959; Gilligan, 1982; Josselson, 1996; Marcia, 1980). The findings in this study are not intended to imply that affective and cognitive processes are exclusive to women or men; rather, distinctives of applications simply may be different.

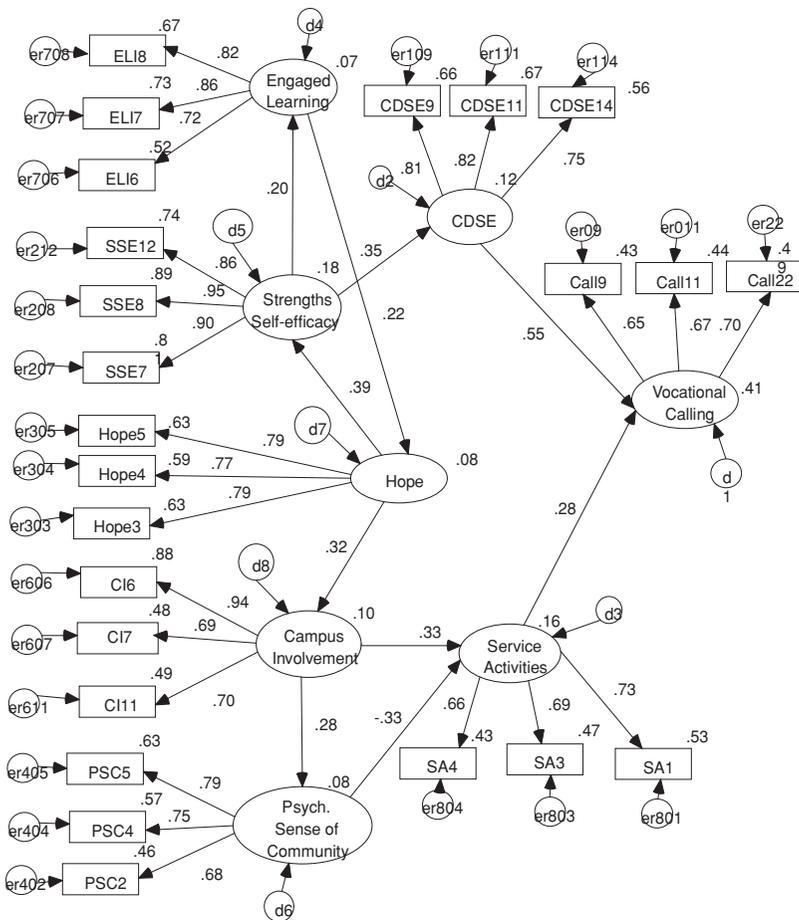


FIGURE 2 Model 2 structural path of vocational calling variables for men. All significant paths are shown. Standardized path coefficients greater than .19 are significant at $p < .05$, greater than .22 are significant at $p < .01$, greater than .30 are significant at $p < .001$. Numbers above variables represent total variance accounted for by the model for that variable.

Indicators That Define Calling

For both women and men, a deep sense of spirituality and meaningfulness were key gauges to vocational calling, which intertwined with affective and cognitive identity responses that were distinct for each gender. The students in this sample recognized a sense of vocational calling as primarily incorporating components

of spirituality and meaningfulness, which is consistent with the literature on vocational calling and supports the definition of vocational calling offered by Buechner (1993) and Dobrow (2006). However, spirituality and meaningfulness only represent part of the construct. Identifying affective and cognitive elements that contribute to a definition of vocational calling provide new insights to the calling literature. Even though affective and cognitive indicators were evident in each population, SEM fitting produced key items that most precisely reflected vocational calling for each gender. Feeling good about themselves and their involvement in activities was the distinguishing feature of women's sense of vocational calling. The crucial component for men involved pragmatic thinking; they consistently thought about the activity and its ramifications, even when not actively involved in its performance.

Women's Paths to Vocational Calling

DIRECT CONTRIBUTORS

Women gained a sense of vocational calling through relational patterns of behavior (hope and engaged learning), drawing from affective domains that contribute to general feelings of confidence in making decisions and learning. Snyder (2002) posits that strong relational attachments precede the development of hope, so relationships with peers and educators could affect women's abilities to develop hope. Engaged learning may also be an avenue for women to foster relationships with peers and professors. Baxter Magolda (1992) found that women are more likely to interpret goal formation through perceptions of self, influenced by their relationships. The motivations for understanding vocational calling may lie in developing relationships for women, whereas for men, providing purposeful service is key. Gottfredson (1996) suggests that social context shapes and contains an individuals' sense of self. Recognizing that gender role stereotypes continue to be evident, women are often primarily valued for nurturing and relationally-oriented characteristics (Eagly et al., 2000; Jones, 1997). For women from conservative Christian backgrounds, the lens of interpreting vocational calling may differ from men's because of a greater focus on relational

identity, while men's lens of interpretation may involve career-focused autonomy.

INDIRECT CONTRIBUTORS FOR WOMEN

Women's journeys in vocational calling comprised many interconnective pieces. Three paths contributed to hope and four paths contributed to engaged learning. Women's confidence in using their personal strengths directly contributed to hope. Thus, the positive emotions and goal-directed confidence associated with hope (Snyder et al., 1991) rose when women used their unique strengths. The second path started with a reciprocal path from campus involvement and service activities, and moved from service activities to hope. The third path began with strengths self-efficacy and led to career decision self-efficacy, the only similar directional path for both women and men. For the women, however, career decision self-efficacy led to the broader conceptual constructs of hope and engaged learning. For men, career decision self-efficacy led directly to vocational calling.

Four paths led to engaged learning. The first (strengths self-efficacy to career decision self-efficacy to engaged learning) was already identified. The second and third paths began with either strengths self-efficacy or hope and from there moved through spirituality to engaged learning. Women's confidence in developing their personal strengths and making goal-oriented decisions were mediated by their spiritual beliefs, which then influenced their engagement in the learning process. The final path started with the reciprocal association between service activities and campus involvement; it then led from campus involvement to psychological sense of community to spirituality to engaged learning. In this path, campus involvement led to psychological sense of community, which then contributed to spirituality.

Men's Paths to Vocational Calling

DIRECT CONTRIBUTORS

Men's direct paths from career decision self-efficacy and service activities to vocational calling represent practical abilities that sharpen individual understanding. Lent, Brown, and Hackett

(2002) note that career decision self-efficacy tends to be associated with cognitive processes, such as determining an ideal job, choosing a career that fits a desired lifestyle, and deciding important values in an occupation. Eyler and Giles (1999) indicate that service activities connected with students' majors or vocational interests may help men clarify career goals. It appears that men, more than women, recognized a sense of vocational calling as they engaged in these practical career-oriented decision-making activities. An explanation for this distinction from the gender literature is that men generally build their sense of autonomous self by understanding and navigating specific pragmatic choices (Eagly, Wood, & Diekmann, 2000; Kohlberg, 1984; Marcia, 1980; Whitt, Pascarella, Nesheim, Marth, & Pierson, 2003).

INDIRECT CONTRIBUTORS

Linear paths identified men's journeys from career decision self-efficacy and service activities, which led to vocational calling. First, men who were confident using their personal strengths were more likely to have confidence in making career decisions. These findings indicate that a greater understanding of personal abilities contributes to greater confidence in career decisions, and the integration ultimately affects satisfaction and sense of purpose (Betz, 2007; Holland, 1997; Larson, Wei, Wu, Borgen, & Bailey, 2007). Second, men who were involved in service activities were more likely to be involved on campus and less likely to report a psychological sense of community. Campus involvement positively contributed to both service activities and psychological sense of community, suggesting that involvement is an avenue by which men develop a sense of identity. However, if men's identity develops through autonomous thinking skills and individuation (Marcia, 1966, 1980), then the focus of that involvement becomes extremely important. For example, if men's involvement in campus activities leads them toward a strong psychological sense of community, they are less likely to participate in service activities and less likely to report a sense of vocational calling. So there may be some point at which psychological sense of community hinders vocational calling. Third, hope was the final indirect contributor, which affected men's confidence in using personal strengths. Men who were more confident in using their strengths were more

engaged learners and were more confident in their career decision-making skills. Hope also positively contributed to campus involvement that subsequently contributed to involvement in service activities.

ABSENT CONTRIBUTOR FOR MEN

Conspicuously absent in men's sense of vocational calling was the spirituality variable. This absence was initially puzzling, as both men and women indicated strong spiritual beliefs that were an essential part of their lives. Knowing that spiritual beliefs were an important element in the lives of the men in this sample, and that they had indicated there was a spiritual component involved in their understanding of vocational calling, the lack of connections in the model appeared to be incongruent, but further consideration led to a plausible theoretical explanation. Defined solely by abstract concepts, the spirituality variable lacked practical applications. If these men move toward vocational calling through practical application associated with careers, then perhaps the variable did not accurately assess the supernatural as it contributed to daily living, thus minimizing connections in the model.

Limitations and Implications for Practice

Several limitations were identified. First, the sample consisted of students who chose to complete the survey, so they did not represent the global student population of junior and senior students at the university and generalizations concerning all men and women cannot be made. Second, the study was conducted at a private, conservative Christian university, so findings may be unique to students with particular faith backgrounds. Finally, students were sampled at a specific point in time, which limits speculation about development over time.

Educators, in academic and student life and particularly on Christian college campuses, have significant opportunities to influence students' lives individually and corporately through curricular and cocurricular activities. In the classroom, educators can initiate broad discussions about God's purpose for creation and enhance those discussions with specific experiential activities that guide students in understanding their unique sense of self. Outside the classroom, educators who encourage involvement in

campus activities can investigate ways to connect the pursuit of these activities with volunteer service that will ultimately influence a sense of vocational calling. Finally, addressing spiritual components of vocational calling with tangible experiences is essential in order to foster connections.

As the first of its kind to examine personal and involvement variables that affect a sense of vocational calling among Christian college students, this research extended the calling literature through empirical examination of college students before they enter into a specific vocation. In understanding more about the nuances of vocational calling, educators at Christian universities can help students make connections between the practical and the abstract, between thinking and feeling, and between reality and the supernatural. Through these connections, students can begin to comprehend a sense of vocational calling in the purposeful activities that go beyond self-satisfaction, the deeply meaningful experiences that serve a higher purpose and ultimately connect them with God and humanity.

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