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## Exploring the Measurement Invariance of the Calling Scale with College Students and Employees

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### Abstract

*The most widely used instrument to assess perceiving a calling, the CVQ(Calling and Vocational Questionnaire), is composed of three constructs: transcendent sermon, purposeful work, and prosocial orientation. Recently assessing perceiving a calling has received great attention and it is critical not only for job incumbents but also college students who are in the job search stage. The purpose of this study is to investigate measurement invariance of the Korean CVQ between employees and college students. 339 job incumbents and 252 college students participated in this study, and based on the multiple group confirmatory factor analysis from the structural equation model, we confirmed the measurement invariance between employees and college students at the scale level. Thus, the perceived calling scale is applicable to both employees and college students without biases. This study provided meaningful information in understanding calling, and we discussed limitations and future directions.*

**Keywords:** measurement invariance, perceiving a calling scale, college students, confirmatory factor analysis

## 1. INTRODUCTION

Bellah, Madsen, Sullivan, Swidler, and Tipton (1985) named and classified the viewpoints of people's perception of their work as job, career, and calling. People who perceive their work as jobs tend to focus only on capital and material income from work. For those who perceive work as a career, they perceive work as a means of raising their social status along with financial income. Lastly, those who perceive work as a calling focus on establishing their identity and meaning through work by recognizing their identity and work rather than the aforementioned financial income and social status [1-2]

As people's interest in the various viewpoints of work in the modern world increases, studies on the calling in various academic fields, from career and counseling psychology to industrial and organizational psychology, and business administration have been conducted. In this process, the concept of calling was extended and used as an academic definition not related to a specific religion. Dik and Duffy (2009), among the most active scholars related to calling, defined calling as a multidimensional concept that includes a call from a transcendent sermon, purposeful work, and prosocial orientation, and developed the Calling and Vocation Questionnaire (CVQ) and a Brief Calling Scale (BCS)[3].

It has been found that the calling has a positive relationship with life-related variables including work meaning, job satisfaction, job commitment, and life satisfaction in relation to job-related attitudes [4-7]. These results were not only found in certain occupational groups, but were also similar to those in various occupations, including college students, zookeepers, clergy, firefighters, teachers, musicians, counselors, nurses, and social

workers [8-14]. There are a number of studies examining perceptions of calling of college students and workers in the field separately, but there are insufficient studies examining the differences in perceptions of calling between college students and workers.

Looking at the studies conducted on college students in relation to the existing sense of calling, Hunter, Dik, and Banning (2010) conducted a qualitative study to grasp the concept of calling that college students have. As a result of the study, three conspicuous factors were derived, which are guiding force, personal fit, well-being, or meaning and altruism [15]. This did not differ significantly from Dik and Duffy (2009)'s calling from a transcendental existence, meaning, and altruism, which are the three factors derived from job incumbents [3].

Duffy and Sedlacek (2010) reported that 44% of students had a sense of calling in a study of more than 5,000 first year students at the university, and 28% of students responded that they were seeking calling [16]. In a study conducted by Domene (2015) on Canadian college students, the degree of calling did not decrease over time, and students in human services majors (e.g., counselors, doctors, nurses) showed significantly higher level of calling than that of students in other majors [17]. The results were consistent with the studies of Dobrow and Tosti-Kharas (2011)[5]. Another study by Hunter, Dik, and Banning (2010) found that 68% of college students stated their calling was very closely related to the career decision process [15]. Based on these research results, it can be seen that the calling is not an unfamiliar concept for college students, but a very important factor in the process of finding a career path. College students who are not engaged in economic activities are also deeply considering what their calling is in relation to their future work before jumping into the workplace [18].

Despite the importance of studying the calling of college students, there are doubts about whether the calling scale accurately measures the calling of not only workers but also college students who are not currently working. Raskova and his colleagues (2015) argued that young adults between the ages of 18 and 25, who are transitioning from adolescence to job seekers, who have not yet officially started to work (emerging adults) continue to grow and seek their calling [19]. It was argued that it could be different from the calling of the workers who are currently working because it changes to and is flexible with future plans. Accordingly, the Career Calling Scale for Emerging Adults was newly developed. Before affirming that workers and young people will have different perspective of calling, it is necessary to examine the measurement invariance of the CVQ developed by Dik, Eldridge, and Steger (2008), which are most widely used to measure calling [20].

Calling is an intrinsic characteristic and cannot be measured directly, so it should be measured using a psychological instrument. At this time, it is important to use a scale with proven validity, and make sure that specific groups do not appear high or measure differently. To investigate whether the Korean version of the CVQ-K measures the same level of calling between college students and workers regardless of the presence or absence of a job, we first look at the question level to examine whether it shows differences in the perception of calling. For example, 'My work helps me realize the purpose of my life', 'I was led by something beyond myself to work in the field I am doing', 'My work contributes to the public good', and 'Because I believe I am called to do this work' may not be appropriate for students to respond to. Job incumbents respond to the question based on their current career experience, while students respond based on their expectations of what they want to do in the future. As described above, it can be assumed that there may be differences in calling of college students and workers at the level of the superficial question, but this study uses a more sophisticated statistical technique to examine the actual differences between the two groups at the level of measurement. Since traditional statistical methods (e.g., t-test, one-way variance analysis) have many limitations, such as not taking into account measurement errors, we examine the measurement invariance of the CVQ through the multi-group confirmatory factor analysis [21].

## **2. RESEARCH METHOD**

### **2.1. Participants and Procedure**

This study utilized an online survey system to collect data, and conducted a study on those who voluntarily expressed their intention to participate. This study was conducted with Korean adult job incumbents and

college students, and a total of 591 people participated in the study. The total number of adult workers was 339, and the distribution of the workers group had the highest proportion of respondents as managers, followed by culture and design-related workers, general office workers, and sales workers. Their average age was 39.2 years, of which males accounted for 42.8%, slightly more female than males. The average years of employment was 13.9 years. The college student group was 252, the average age was 19.64 years old, and the male was 44.4%. The most distributed major in the college student group was social science, followed by engineering, natural science, and humanities.

## **2.2. Research Tools**

In this study, we used Korean Calling and Vocation Questionnaire (CVQ-K) developed by Dik, Eldridge, and Steger (2008) [20] and validated with Korean population by Shim and Yoo [22]. The Korean version of the CVQ consists of three sub-elements: transcendent sermon, purposeful work, and prosocial orientation, consisting of a total of 12 questions. 1 point (strongly disagree) and 5 points (strongly agree) of the Likert 5-point scale was adopted, the higher the score means that the higher the individual's perception of calling. The reliability (Cronbach's  $\alpha$ ) of the calling scale shown in the study of Shim and Yoo (2010) was .81, .78, .75, for transcendent sermon, purposeful work, and prosocial orientation, respectively [22].

## **2.3. Statistical Analysis**

In this study, we investigated measurement invariance of the CVQ-K, to examine whether the Korean version of the scale measures calling of college students and workers differently through multi-group confirmatory factor analysis. It should be confirmed that each of the invariance is secured through configural invariance, metric invariance, and scalar invariance. The SPSS 23 program and the AMOS 22.0 program were used for the analysis of the study. First, the reliability and descriptive statistical analyses of the measured variables were performed by utilizing the SPSS 23 program. Next, the AMOS 22.0 program was utilized to conduct a multi-group confirmatory factor analysis, which confirmed whether the CVQ-K is accepted equally for college students and adult workers.

### **2.3.1. Configural Invariance**

Configural invariance is to verify that the measurement model of the group to be compared is the same as each other, it means to analyze the suitability between the models with competitive models for each group. That is, it can be said that the configural invariance between the groups is secured when the same model of the various competitive models for each group appears as the most suitable model. Configural invariance assumptions must be satisfied to verify the measurement invariance in the next step.

### **2.3.2. Metric Invariance**

Metric invariance is to verify whether the factor loading for the potential variable is the same for each group to be compared, a procedure for verifying whether the potential variable can be interpreted in the same manner in each group to be compared [23]. It is possible to verify by comparing the model and the model goodness-of-fit index. The previous step of the configural invariance is calculated after the equality constraints on the factor loading of each group.

### **2.3.3. Scalar Invariance**

Scalar invariance is to verify whether an individual with the same value at the potential variable level has the same value at the measurement variable level, regardless of the group to which they belong. In order to verify the scalar invariance, the model fit index calculated after the invariance constraints are added to the fit index and the intercept (intercept) of the model of the previous step of the metric invariance.

### 3. RESULTS

#### 3.1. Configural Invariance

To confirm the configural invariance, two groups classified by occupational presence in the baseline model without any restrictions were simultaneously entered. As presented in Table 1, the results of the configural invariance analysis showed that the model fit indices CFI, TLI, and RMSEA were acceptable (CFI = .938, TLI = .92, RMSEA = .057). Through the results, it was confirmed that the CVQ-K was appropriate in the two groups of college students and workers.

#### 3.2. Metric Invariance

The metric invariance was conducted under the premise that the configural invariance was confirmed with the two groups classified by occupational status as a baseline model. The metric invariance model is a model nested in the configural model (baseline model). Therefore, it is possible to verify the difference in the  $\chi^2$  value considering the difference in degrees of freedom between the two models [24]. The  $\chi^2$  difference between the two models was 4.574 and the difference between the degrees of freedom was 9, and the difference between the two models was not statistically significant at the significance level of 5%. Also, considering parsimonious indices such as TLI and RMSEA, there was no significant differences, metric invariance has been established ( $\Delta$ TLI = .008,  $\Delta$ RMSEA = -.003). This can be interpreted to mean that the CVQ-K works in the same way in two groups.

**Table 1. Measurement Invariance Fit Indices**

		$\chi^2$	df	TLI	RMSEA
Model 1	Configural Invariance	294.529	102	.92	.057
Model 2	Metric Invariance	299.103	111	.928	.054
Model 3	Scalar Invariance	405.542	123	.903	.062

#### 3.3. Scalar Invariance

Configural invariance and metric invariance have been established, and then scalar invariance was conducted. Scalar invariance verification was performed by comparing the model fit indices between the metric invariance model (model 2) and the scalar invariance model (model 3) that applied invariance constraints to the intercept of each measured variable. The difference between the two models was 106.4 and the difference between the degrees of freedom was 12, indicating that the difference between the two models was statistically significant at the significance level of 5%. This result implies that the assumption of scalar invariance was rejected. However, the confirmation of the  $\chi^2$  difference through the  $\chi^2$  difference value has a problem that it is greatly influenced by the sample size.

### 4. DISCUSSION

In this study, we examined the measurement invariance of the CVQ-K to see if there are differences in the measurement of the calling between college students in the preparation phase of professional activities and workers currently working. As a result, configural invariance, metric invariance, and scalar invariance are all confirmed, and the CVQ-K showed that it can be used for current workers and college students who have not

started working. This indicates that having professional experience does not matter to recognize the calling.

The results of this study laid the groundwork for longitudinal study of the calling. Although the findings that the calling decreases over time, but the subjects of the study were those who are engaged in a particular group (e.g., musicians) [13]. Whether the same results appear when conducting research on workers are unknown. As shown in the results of this study, the CVQ-K suggests that it is possible to derive a more objective result by measuring calling of college students and workers using the same scale.

Instead of choosing a career for a job security or economic reasons, having a calling helps college students to find a job that has a mission and can feel meaning goes beyond the life satisfaction and improves their academic achievement [25]. This study suggests that there is a need for a career search program that can find out what students think is meaningful, not just studying in a classroom. Vocational calling is an attitude toward work that can be developed through education and learning, as different from personality or temperament. If college students are given time to think about and explore their skills before they find employment, they will be given the opportunity to work in a more serious position in choosing a major in a college course.

Despite the above many strengths, you cannot brush off the limitations. First, we did not distinguish between students with part-time or internship experience in selecting study subjects for college students. Because it is impossible to work full-time at the same time as a college student, we conducted a group of college students who prioritized their studies without distinguishing between students who had worked full-time and those who did not. However, it is also necessary to further refine the group of college students to verify that they represent differences in measuring the sense of calling between students who have no professional experience and those with professional experience.

Duffy, Allan, Autin, and Bott claimed that perceiving a calling and living a calling are a different concept. Perceiving a calling is a step that recognizes a calling, and living a calling means that the perceived call is actually being executed in the current life [26]. Their follow-up studies have consistently showed that the factors that distinguish those two concepts [26]. Perceiving a calling was a very important factor for college students who took their first steps at a time when they were contemplating careers, whether they had a job or not [27] and found that the calling they recognized was no different from the calling recognized by workers. However, when approached from living a calling, it is difficult to see that college students are implementing their calling because their work is studying rather than working in a job that generates capital through labor. The only living a calling research conducted with college students did not support their hypothesis [6], and they argued that the reasons mentioned in the discussion were because the subjects of the study were college students. It is difficult for college students to think of themselves as a means of implementing a calling while studying, and to recognize that they are finally making a calling to their studies, so it is unreasonable to study living a calling with university students. The results suggests that research on living a calling may be suitable for workers who make capital through their current careers, but it may be a rather unreasonable concept for college students who are studying. In subsequent studies, we will have to look at whether the scale of living a calling is the same among college students who have perceiving a calling, but who are difficult to see if they are doing so, and workers who are given the opportunity to living a calling.

## REFERENCES

- [1] Bellah, R., Madsen, R., Sullivan, W., Swidler, A., & Tipton S. (1985). *Habits of the heart: Individualism and commitment in American life*. Berkeley, CA: University of California Press.
- [2] Wrzesniewski, A., McCauley, C., Rozin, P., & Schwartz, B. (1997). Jobs, careers, and callings: People's relations to their work, *Journal of Research in Personality*, 33(31), 21–33.
- [3] Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work: Definitions and prospects for research and practice. *The Counseling Psychologist*, 37(3), 424–450.
- [4] Creed, P. A., Rogers, M. E., Praskova, A., & Searle, J. (2014). Career calling as a personal resource moderator between environmental demands and burnout in Australian junior doctors. *Journal of Career Development*, 41(6), 547–561.
- [5] Dobrow, S. R., & Tosti-kharas, J. (2011). Calling: The development of scale measure, *Personnel Psychology*, 64(4), 1001–1049.

- [6] Duffy, R. D., Bott, E. M., Allan, B. A., Torrey, C. L., & Dik, B. J. (2012). Perceiving a calling, living a calling, and job satisfaction: Testing a moderated, multiple mediator model. *Journal of Counseling Psychology*, 59(1), 50–59.
- [7] Duffy, R. D. & Sedlacek, W. E. (2007). The presence of and search for a calling: Connections to career development. *Journal of Vocational Behavior*, 70(3), 590–601.
- [8] Ko, E. A. & Lee, H. J. (2016). The Moderating Effect of Calling in the Relationship Between Personality and Career Attitude Maturity: Focusing on Extroversion, Agreeableness, Conscientiousness. *Faith & Scholarship*, 21(1), 59-80.
- [9] Kim, D. W., & Choi, N. S. (2012). A Study on the Factors Affecting Calling and Ethics of Medical Social Worker, *Korean Public Personnel Administration Review*, 11(2), 221-244.
- [10] Jung, S. H., & Lee, H. J. (2016). The Mediating Effect of Perceived Calling in a Relationship between the Spiritual Maturity and Career Maturity of Christian College Students. *Korean Journal of Christian Counseling*, 27(2), 225-253.
- [11] Bunderson, Stuart J., & Thompson, J. A. (2009). Meaningful Work. *Administrative Science Quarterly*, 54(1), 32–57.
- [12] Dik, B. J., Duffy, R. D., & Eldrige, B. M. (2009). Calling and vocational in career counseling: Recommendations for promoting meaningful work, *Professional Psychology: Research and Practice*, 40(6), 625-632.
- [13] Dobrow, S. R. (2012). Dynamics of calling : A longitudinal study of musicians, *Journal of Organizational Behavior*; 34(4), 431-452.
- [14] Hagmaier, T., & Abele, A. E. (2012). The multidimensionality of calling: Conceptualization measurement and a bicultural perspective. *Journal of Vocational Behavior*, 81(1), 39–51.
- [15] Hunter, I., Dik, B. J., & Banning, J. H. (2010). College students' perceptions of calling in work and life: A qualitative analysis, *Journal of Vocational Behavior*, 76(2), 178–186.
- [16] Duffy, R. D., & Sedlacek, W. E. (2010). The salience of a career calling among college students: Exploring group differences and links to religiousness, life meaning, and life satisfaction, *The Career Development Quarterly*, 59(1), 27-41.
- [17] Domene, J. F. (2015). Trajectories of calling in undergraduate students with varying career expectations, *Journal of Psychology and Christianity*, 34(4), 315-324.
- [18] Wrzesniewski, A. (2012). Callings. In K. S. Cameron & G. M. Spreitzer (Eds.), *The Oxford handbook of positive organizational scholarship* (pp. 45-55). Oxford, UK: Oxford University Press.
- [19] Praskova, A., Creed, P. A., & Hood, M. (2015). The development and initial validation of a career calling scale for emerging adults. *Journal of Career Assessment*, 23, 91-106.
- [20] Dik, B. J., Eldridge, B. M., Steger, M. F. (August, 2008). *Development of the Calling and Vocation Questionnaire(CVQ)*. Paper presented to the 117th Annual Convention of the American Psychological Association, Boston, MA.
- [21] Lee, K. H. & Seong, T. J. (2018). Investigation of the Measurement Equivalence in Vocational Interest Scale of CACV Between Male and Female, *The Korean Society for the Study of Career Education*, 31(2), 223-238.
- [22] Shim, Y. R., & Yoo, S. K. (2012). Development and Validation of the Korean Version of the Calling and Vocation Questionnaire(CVQ-K), *The Korean Journal of Counseling and Psychotherapy*, 24(4), 847-872.
- [23] Steenkamp, J. B. E. M., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research, *Journal of Consumer Research*, 25(1), 78-90.
- [24] Hong, S. H, Hwang, M. H., & Lee, E. S. (2005). Latent Means Analysis of the Career-Barrier Scale for Korean female adolescents, *The Korean Journal of Educational Psychology*, 19(4), 1159-1177.
- [25] Park, Y. L., Choi, J., Min, J., Lee, B, Noh, J., & Lee, H. (2014). *Grit as a mediator of perceiving a calling and academic-related performance*. Poster presented at the 122nd Annual American Psychological Association Convention, Washington, D. C.
- [26] Duffy, R. D., Allan, B. A., & Bott, E. M. (2012). Calling and life satisfaction among undergraduate students: Investigating mediators and moderators, *Journal of Happiness Studies*, 13(3), 469–479.
- [27] Jung, W. H. & Kim, H. W. (2017). The Effects of Career Calling on the Life Satisfaction among College Students: The Mediating Effects of Social Support and Planned Happenstance Skills. *Korean Journal of Youth Studies*, 24(2), 445-472.