

IJACT 20-9-6

The Role of Professors' Intellectual Stimulation for Intellectual Growth among Chinese Students Who Study in Korea: The Moderating Effect of Growth Need Strength

¹Sangwoo, Hahm, ^{2*}Linlin, Chen

¹Professor, Department of Business Administration, Semyung University
65 Semyung-ro, Jecheon, Chungbuk, Korea

^{2*}Master, Department of Business Administration, Soongsil University
369 Sangdo-Ro, Dongjak-Gu, Seoul, Korea

E-mail: thehahm@semyung.ac.kr; lynnleng1130@gmail.com

Abstract

Professor's role is one of various ways to improve students' academic achievement. Professors can be role models for students, motivate them to achieve higher performance, and have various influences on them. Therefore, depending on professor's role, students' attitudes and behaviors may be different, and their academic achievements may also be different. In this regard, this research focused on the intellectual growth that can be regarded as Chinese students' academic achievement. Thus, the importance of professor's intellectual stimulation behavior was emphasized and it was clarified as a way to improve the intellectual growth. Furthermore, students with a higher level of growth need strength, they are more likely to have higher intellectual growth because they put a premium on their self-growth. In order to increase the influence of professor's intellectual stimulation, we focused on the student's growth need strength. Thus, this research examined the moderating effect of growth need strength between intellectual stimulation and intellectual growth. The results showed that intellectual stimulation improved intellectual growth. In addition, growth need strength positively moderated the relationship between intellectual stimulation and intellectual growth. Therefore, it suggested the implications that professors should behave appropriate behavior according to students' personal characteristics.

Keywords: Intellectual Stimulation, Intellectual Growth, Growth Need Strength, Academy Achievement, Leadership

1. Introduction

Leadership can be viewed as a theme of human society, and it can be seen as a process of social influence based on one's ability to reach the goal with the help of others [1]. They emphasized that leadership styles are behavioral patterns that leaders use to solve organizational problems and that all leadership styles have 'unique' positive and negative characteristics.

Therefore, if leadership is in the organization in accordance with the situation or organization characteristics, it can be seen as effective leadership. Leadership is a factor that has a major impact on the performance of

Manuscript Received: July 28, 2020 / Revised: August 20, 2020 / Accepted: August 31, 2020

Corresponding Author: lynnleng1130@gmail.com

Tel:+ Tel:+82-2-829-8307

Master, Department of Business Administration, Soongsil University, Soongsil Univ., Korea

organizations, managers, and employees [2]. Therefore, professor plays a key role among various ways to improve students' academic performance in the university. Professors are considered to be a role model for students. They may impact on their students by motivating and helping solve difficult problems and so on. Based on this, if Chinese students who study in Korea perceive various supports from their professors, their academic achievement will be increased.

This study focused on intellectual growth, which is regarded as the academic performance of Chinese students who study in Korea. So far, researches on intellectual stimulation remains at an early stage, and research on its effects is lacking [3]. As for approaching to transformational leadership, intellectual stimulation is not the most universally noticed and research on this is not actively carried out [4]. Nonetheless, intellectual stimulation can have a strong impact on team learning and team processes [5]. Therefore, this study emphasizes the importance of intellectual stimulation of professors as a way to improve Chinese students' intellectual growth. In addition, we focused on individual needs to increase the effect of professors' intellectual stimulation. The strength of growth needs can be seen as a desire for individual achievement by developing and learning oneself beyond their current level [6]. Therefore, if Chinese students have higher levels of desire for growth, they make much of their growth and interact with the influence of intellectual stimulation exercised by the professors. According to this, this study attempts to identify the moderating role of growth needs and to test its influence. Ultimately, we emphasize that the professor needs to play a more appropriate role according to the Chinese international students' characteristics. It suggests that students' and professors' characteristics are more similar, their academy performance will be more increased. Hence, the purpose of this study is to investigate the role and the relationship of each variable and to discuss practical implications and future research directions according to the results of empirical analysis.

2. Literature Review

2.1 Intellectual Stimulation

Leaders provide vision and motivation to their members. They also help them view various perspectives, and provide resources and cognition [4-5, 7]. Today, the importance of various types of leadership has been emphasized in research related to organizational behavior. Among various types of leadership, transformational leadership can be viewed as an effective leadership model [8]. Among the transformational leadership sub-factors, intellectual stimulation is out of the picture [4], but it has a strong impact on team learning and team processes [5]. Intellectual stimulation means that challenging members reconsider some of their ideas and take different viewpoints on issues facing their work [9]. It is also leaders' behavior that who encourages their creativity and stimulate innovative ideas [10]. Leaders exercising intellectual stimulation continue to encourage members to think and act in new ways by challenging their beliefs and supporting new and innovative behavioral practices [5]. Furthermore, such leader provides a positive psychological and emotional state that helps improve team performance and well-being [5, 11-12]. Therefore, professors' intellectual stimulation in universities may improve students' creativity, provide opportunities to think more deeply about knowledge, and enhance students' performance.

2.2. Intellectual Growth

Intellectual growth implies a gradual increase in knowledge of academic subjects related to curriculum [13]. Intellectual growth has been considered as a concept that includes contents of two levels, including development of intelligent technology and acquisition of academic knowledge [14]. The development of intelligent technology emphasized that students include basic principles, applying ideas calmly, thinking creatively and analytically, and acquiring fact-based knowledge. Acquiring academic knowledge also emphasized that these aspects of the students are improved through an understanding of the way in which they think about particular studies, their research methods, and their relevance to other disciplines. The intellectual growth associated with international students consisted of two factors: language learning, and academic

relevance [15]. They suggested that language learning includes improvements in foreign language proficiency and that academic achievements include improved thinking skills. There are academic aptitudes, personality variables, motivation, and learning habits that play a key role in bringing intellectual growth [14].

2.3 The Relationship Between Intellectual Stimulation and Intellectual Growth

University is seen as an organization, and the professor will play an important role in inducing students' intellectual growth. The professors who promote intellectual stimulation may increase students' cognitive and emotional learning [3, 16]. In addition, intellectual stimulation has implications for intrinsic motivation and it can influence students' effective learning behavior [3]. Therefore, intellectual stimulation exercised by the professor will be related to students' intrinsic motivation and it will enable the students to have an interest in the study. The intrinsic motivation for this learning will allow students to have a positive attitude toward their studies and eventually to produce positive and effective outcomes for their studies. Furthermore, It was suggested that when students recognize professors' dedication, the level of students' intellectual growth will improve [14]. Therefore, when a professor engages in intellectual stimulation such as conveying diverse knowledge acquisition methods, providing opportunities to create challenging ideas, and inducing diverse ways of thinking in knowledge, thus they will be able to grow intellectually. According to this, we set the following hypothesis.

Hypothesis 1: Intellectual stimulation will have a positive influence on intellectual growth.

2.4 Growth Need Strength

The strength of growth needs is defined as the degree to which an individual desires an opportunity for self-direction, learning, and personal accomplishment [17]. It means the motivation of organizational members for growth in the workplace, which represents the desire of the staff for new learning [18]. They emphasized that the need for growth is a key factor in the work motivation theory that forms the basis of the job characteristics model. The strength of growth needs refers to the need for self-growth and development by an individual [19]. They suggested that high-growth members prefer work that requires technology diversity and work importance. On the contrary, it emphasized that low-growth members prefer general work. Therefore, it is expected that their performance will be different according to the level of growth needs. Ultimately, the growth needs is a personal trait associated with the individual's desire to grow and develop personally [20]. Individuals who have the potential to grow in their jobs and are motivated to accept challenges beyond their job descriptions can play a role in contributing to the success of a leader-member exchange relationship [21].

2.5 The Moderating Effect of Growth Need Strength

Professors who engage in activities that promote intellectual stimulation promote students' cognitive and emotional learning [3, 16]. Thus, the role of the intellectual stimulation of the professor is expected to improve students' intellectual growth. In addition, as the factor that increases the influence of the intellectual stimulation, the strength of growth needs regarded as the individual characteristics of students will play a key role. This is because the members of a higher level of strength growth of needs to give more value to personal growth, development and achievement, and on this basis they gain more pleasure in challenging and inherently motivated work [22-26]. The desire for growth is a motivation for members to grow and a desire to learn new things [18]. Thus, the students' strength of growth needs will increase their intellectual growth. Those with high growth needs tend to focus on the feedback they receive at work [27]. Thus, if professors provide feedback to students and give them the opportunity to learn more knowledge, high-intensity students will make much of such professors' behavior. Therefore, the interaction between the professor and the student is very important [14]. Such interactions are linearly related to student achievement and students are easily accessible to the

professor, and they can learn more knowledge when they are engaging in lectures [28]. As the relationship between leader and member is important in the organization, the exchange relationship between the professor and students are also important in the universities. Strength Growth needs is an important predictor of leader-member relationship quality [20-21]. In the study [29], it was proved that the growth needs regulate the relationship between the leader-member exchange relationship and the task performance. As a result, the members with high growth needs were more effective than the members with low growth needs. Based on this theory, when professors act intellectually stimulating activities, students who have strong growth needs will make much of professors' intellectual stimulation behavior, and the quality of the relationship with the professor will improve. Therefore, it is predicted that professors' intellectual stimulation interacts with students' who has high level of growth desire, it will lead to higher level of intellectual growth. Hence, we set the following hypotheses.

Hypothesis 2: Strength of growth needs will have a positive influence on intellectual growth.

Hypothesis 3: Strength of growth needs will positively moderate the relationship between intellectual stimulation on intellectual growth.

3. Method

3.1 Research Sample and Characteristics

The sample was surveyed by Chinese international students in Korea and collected through responses. A total of 99 questionnaires were used to conduct empirical analysis in this study. The sample characteristics of the survey respondents are as follows. 55 males (55.6%) and 44 females (44.4%) participated in this survey. In relation to the curriculum, 87 undergraduate students (87.9%), 10 graduate students (10.1%), and 2 other students (2.0%) took part in this survey. In terms of the student's grade level, 24 students (24.2%) had a very high score (A0 to A+), 36 students (36.4%) had a high score (A-), 25 students (25.3%) had a slightly high score (B0 to B+), 9 students (9.1%) had a score (B-), and 5 students (5.0%) had a Slightly low score (C0 to C+).

3.2 Measurement

Three variables were used in this study. Independent variable was intellectual stimulation, dependent variable was intellectual growth, and moderating variable was growth need strength. In this regard, the descriptions of the variables' manipulation and measurement tools are as follows. Intellectual stimulation is defined by the behavior of leaders in developing new solutions to members and solving existing problems. It was measured by four items adapted from [30]. Intellectual growth is defined as a concept that includes improving foreign language learning and academic achievement. It was measured by 4 items scale developed by [15]. Growth need strength is defined as the extent that they wish to improve their orientation and to have opportunities for learning and personal achievement. It was measured by 11 items adapted from [31].

4. Results

4.1 Confirmatory Factor Analysis

Prior to verifying the research hypothesis, the validity and reliability of the measurement variables were examined. In this regard, confirmatory factor analysis was conducted. The model fit of the structural equation is $\chi^2 / df = 1.615$, RMSEA = .079, TLI = .934, CFI = .947, IFI = .948, PNFI = .701, and PGFI = .587. These results show an acceptable fit of [32]. Thus, the validity of the metrics was secured. When the average variance extraction value is higher than .5 and composite reliability value is higher than .7, it is considered acceptable

and valid. According to the analysis results, the average variance extraction value of intellectual stimulation = .846, intellectual growth = .603, and growth need strength = .677. Thus, all the results were above .5. In addition, composite reliability value of intellectual stimulus = .947, intellectual growth = .835, and growth need strength = .954. Thus, all the results were above .7. Therefore, the average variance extraction value and composite reliability value have significant composite reliability.

4.2 Descriptive Statistics, Reliability, and Correlation Analysis

The results of the reliability analysis is shown in Table 1. Intellectual stimulation = .950, growth need strength = .945, and intellectual growth = .828. This shows that the reliability is more than .7, which is an acceptable result of [34]. The results of correlation analysis indicated that there were positive correlations between intellectual stimulation, growth desire level, and intellectual stimulation.

Table 1. The results of descriptive statistics, reliability, and correlation analysis

	Reliability	Mean	Standard deviation	1	2	3
1. Intellectual stimulation	.950	5.5884	.97828	-		
2. Growth need strength	.945	6.0551	.77366	.481***	-	
3. Intellectual growth	.828	6.0126	.77458	.392***	.411***	-

*: $p < .05$, **: $p < .01$, ***: $p < .001$

4.3 Regression Analysis

As a result of regression analysis is shown in Table 2. Intellectual stimulation ($\beta = .392, p < .001$) had a positive effect on intellectual growth. Therefore, the hypothesis 1 was supported. In addition, growth need strength ($\beta = .289, p < .01$) had a positive effect on intellectual growth. Thus, the hypothesis 2 was supported. Finally, growth need strength ($\beta = .202, p < .05$) positively moderated the relationship between intellectual stimulation and intellectual growth. Therefore, the hypothesis 3 was supported.

Table. 2 The moderating effect of growth need strength verification

Dependent variable : Intellectual growth							
	Step 1		Step 2		Step 3		VIF
	β	t	β	t	β	t	
Intellectual stimulation	.392***	4.202	.253*	2.460	.224*	2.203	1.323
Growth need strength			.289**	2.808	.338**	3.275	1.364

Moderating effect			.202*	2.226	1.049
R^2 (Adjusted R^2)	.154(0.145)	.218(0.202)	.257(0.233)		
ΔR^2 (Δ Adjusted R^2)	-	.064(.057)	.039(.031)		
F	17.654***	13.396***	10.951***		

*: $p < .05$, **: $p < .01$, ***: $p < .001$

Figure 1 is a simple graph of moderating effect of growth need strength. It shows that intellectual growth increases when intellectual stimulation is high. It also shows that intellectual growth is higher when students' have higher level of growth need strength rather than lower level of growth need strength.

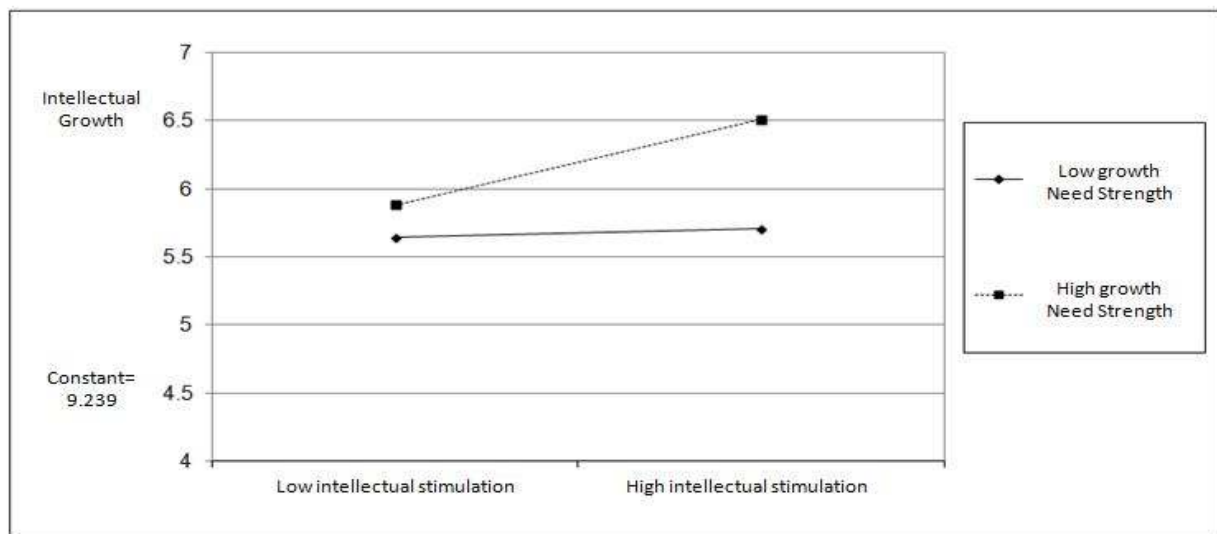


Figure 1. The graph of moderating effect for growth need strength

5. Conclusion

5.1 Conclusion and Research Implications

This study examined the influence of professors' intellectual stimulation on students' intellectual growth. The analysis verified that intellectual stimulation enhances intellectual growth. It suggests that professor's intellectual stimulation may enhance students' intellectual growth. Thus, professor's role is important for students in intellectual growth in universities. In relation to academic knowledge improvement, this suggests that a variety of behaviors play an important role, including the way in which the professor transfers knowledge to students, intellectual stimulation, and even motivation to be interested in learning. It was also verified that growth need strength increased intellectual growth. From an individual perspective, it suggests that students or organizational members with high growth need strength are willing to grow in their work and can be motivated for growth. Furthermore, they tend to achieve higher performance than those with low growth needs strength. Finally, the moderating effect of growth needs strength was verified, which suggests that intellectual growth increases when intellectual stimulation is high. It also shows that intellectual growth is higher when

students have higher level of growth need strength rather than lower level of growth need strength. Thus, professors should try to cause students recognize intellectual stimulating. This paper suggests that professors need to exercise appropriate behaviors according to their personal characteristics and that their performance can be enhanced when they are compatible with students in various aspects.

5.2 Limitations and Future Directions

The limitations and future control of this study are as follows.

First, intellectual stimulation was considered to increase intellectual growth. In future research, it is necessary to clarify each influence by focusing on various professors' leadership as a way to improve the performance of international students. Second, this study only focuses on intellectual growth in relation to international students' performance. In future research, it will be necessary to focus on various variables such as personal growth, creativity, cultural adaptation, and stress in addition to intellectual growth. Furthermore, in addition to students' achievements, it would be worth looking at the preceding variables, focusing on various achievements such as teaching and school performances.

References

- [1] M. Rafiq Awan and K. Mahmood, "Relationship among leadership style, organizational culture and employee commitment in university libraries," *Library Management*, Vol. 31, No. 4/5, pp. 253-266, May 2010. DOI: <https://doi.org/10.1108/01435121011046326>
- [2] H. Wang, K. S. Law, R. D. Hackett, D. Wang and Z. X. Chen, "Leader-member exchange as a mediator of the relationship between transformational leadership and followers' performance and organizational citizenship behavior," *Academy of Management Journal*, Vol. 48, No. 3, pp. 420-432, June 2005. DOI: <https://doi.org/10.5465/AMJ.2005.17407908>
- [3] S. Bolkan, A. K. Goodboy and D. J. Griffin, "Teacher leadership and intellectual stimulation: Improving students' approaches to studying through intrinsic motivation," *Communication Research Reports*, Vol. 28, No. 4, pp. 337-346, October–December 2011. DOI: <https://doi.org/10.1080/08824096.2011.615958>
- [4] A. E. Rafferty and M. A. Griffin, "Dimensions of transformational leadership: Conceptual and empirical extensions," *The Leadership Quarterly*, Vol. 15, No. 3, pp. 329-354, June 2004. DOI: <https://doi.org/10.1016/j.leaqua.2004.02.009>
- [5] I. Sánchez-Cardona, M. Salanova and S. Llorens-Gumbau, "Leadership intellectual stimulation and team learning: The mediating role of team positive affect," *Universitas Psychologica*, Vol. 17, No. 1, pp. 1-16, Jan/Mar 2018. DOI: <https://doi.org/10.11144/Javeriana.upsy17-1.list>
- [6] B. Boonzaier, B. Ficker and B. Rust, "A review of research on the job characteristics model and the attendant job diagnostic survey," *South African Journal of Business Management*, Vol. 32, No. 1, pp. 11-34, March 2001. DOI: <https://doi.org/10.4102/sajbm.v32i1.712>
- [7] B. M. Bass, *Leadership and performance beyond expectations*, New York: The Free Press, June, 1985.
- [8] B. J. Avolio and F. J. Yammarino, *Transformational and Charismatic Leadership: The road ahead (10th ed.)*, Bingle, UK : Emerald Group Pub, 2013.
- [9] K. Breevaart, A. Bakker, J. Hetland, E. Demerouti, O. K. Olsen and R. Espevik, "Daily transactional and transformational leadership and daily employee engagement," *Journal of Occupational and Organizational Psychology*, Vol. 87, No. 1, pp. 138-157, March 2014. DOI: <https://doi.org/10.1111/joop.12041>
- [10] B. N. Smith, R. V. Montagno, and T. N. Kuzmenko, "Transformational and servant leadership: Content and contextual comparisons," *Journal of Leadership & Organizational Studies*, Vol. 10, No. 4, pp. 80-91, 2004.

- [11] A. Pirola-Merlo, C. E. J. Hartel, L. Mann, and G. Hirst, "How leaders influence the impact of affective events on team climate and performance in R&D teams," *The Leadership Quarterly*, Vol. 13, No. 5, pp. 561-581, October 2002. DOI: [https://doi.org/10.1016/S1048-9843\(02\)00144-3](https://doi.org/10.1016/S1048-9843(02)00144-3)
- [12] M. Salanova, S. Llorens, E. Cifre, and I. M. Martínez, "We need a Hero! Toward a validation of the Healthy and Resilient Organization (HERO) Model," *Group & Organization Management*, Vol. 37, No. 6, pp. 785-822, December 2012. DOI: <https://doi.org/10.1177/1059601112470405>
- [13] W. M. Alexander, "The junior high school: A changing view," *Middle School Journal*, Vol. 26, No. 3, pp. 21-24, January 1995.
- [14] J. F. Volkwein, M. C. King, and P. T. Terenzini, "Student-faculty relationships and intellectual growth among transfer students," *The Journal of Higher Education*, Vol. 57, No. 4, pp. 413-430, July/August 1986. DOI: <https://doi.org/10.2307/1980995>
- [15] E. C. Ingraham and D. L. Peterson, "Assessing the impact of study abroad on student learning at Michigan State University," *Frontiers: The Interdisciplinary Journal of Study Abroad*, Vol. 10, No.1, pp. 83-100, 2004.
- [16] S. Bolkan and A. K. Goodboy, "Transformational leadership in the classroom: The development and validation of the student intellectual stimulation scale," *Communication Reports*, Vol. 23, No. 2, pp. 91-105, July-December 2010. DOI: <https://doi.org/10.1080/08934215.2010.511399>
- [17] F. C. Lunenburg, "Motivating by enriching jobs to make them more interesting and challenging," *International Journal of Management, Business, and Administration*, Vol. 15, No. 1, pp. 1-11, 2011.
- [18] G. B. Graen, T. A. Scandura, and M. R. Graen, "A Field Experimental Test of the Moderating Effects of Growth Need Strength on Productivity," *Journal of Applied Psychology*, Vol. 71, No. 3, pp. 484-491, August 1986. DOI: <https://doi.org/10.1037/0021-9010.71.3.484>
- [19] H. W. Park and S. W. Hahm, "Study on Human Stress of Task Difference with Personality," *Advanced Science and Technology Letters*, Vol. 130, pp. 98-100, 2016.
- [20] A. S. Phillips and A. G. Bedeian, "Leader-follower exchange quality: The role of personal and interpersonal attributes," *Academy of Management Journal*, Vol. 37, No. 4, pp. 990-1001, August 1994. DOI: <https://doi.org/10.2307/256608>
- [21] G. B. Graen and T. A. Scandura, "Toward a psychology of dyadic organizing," *Research in Organizational Behavior*, Vol. 9, pp. 175-208, 1987.
- [22] P. C. Bottger and I. K. Chew, "The job characteristics model and growth satisfaction: Main effects of assimilation of work experience and context satisfaction," *Human Relations*, Vol. 39, No. 6, pp. 575-594, June 1986. DOI: <https://doi.org/10.1177/001872678603900606>
- [23] X. Huang and J. Iun, "The impact of subordinate-supervisor similarity in growth-need strength on work outcomes: the mediating role of perceived similarity," *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 27, No. 8, pp. 1121-1148, December 2006. DOI: <https://doi.org/10.1002/job.415>
- [24] B. T. Loher, R. A. Noe, N. L. Moeller, and M. P. Fitzgerald, "A meta-analysis of the relation of job characteristics to job satisfaction," *Journal of Applied Psychology*, Vol. 70, No. 2, pp. 280-289, May 1985. DOI: <https://doi.org/10.1037/0021-9010.70.2.280>
- [25] P. E. Spector, "Higher-order need strength as a moderator of the job scope-employee outcome relationship: A meta-analysis," *Journal of Occupational Psychology*, Vol. 58, No. 2, pp. 119-127, June 1985. DOI: <https://doi.org/10.1111/j.2044-8325.1985.tb00187.x>
- [26] R. B. Tieg, L. E. Tetrick, and Y. Fried, "Growth need strength and context satisfactions as moderators of the relations of the job characteristics model," *Journal of Management*, Vol. 18, No. 3, pp. 575-593, September 1992. DOI: <https://doi.org/10.1177/014920639201800308>
- [27] J. P. Wanous, "Individual differences and reactions to job characteristics," *Journal of Applied Psychology*, Vol. 59, No. 5, pp. 616-622, October 1974. DOI: <https://doi.org/10.1037/h0037337>
- [28] J. Centra and D. Rock, "College environments and student achievement," *American Educational Research Journal*, Vol. 8, pp. 623-634, November 1971.

-
- [29] G. Graen, M. A. Novak, and P. Sommerkamp, "The effects of leader—member exchange and job design on productivity and satisfaction: Testing a dual attachment model," *Organizational Behavior and Human Performance*, Vol. 30, No. 1, pp. 109-131, August 1982.
DOI: [https://doi.org/10.1016/0030-5073\(82\)90236-7](https://doi.org/10.1016/0030-5073(82)90236-7)
- [30] B. M. Bass and B. J. Avolio, *The Multifactor Leadership Questionnaire*, Redwoodcity, CA, Mind Garden, Inc, 1995.
- [31] J. R. Hackman and G. R. Oldham, *The Job Diagnostic Survey: An instrument for the diagnosis of jobs and the evaluation of job redesign projects*, Technical Report No.4, Department of Administrative Sciences, Yale University, 1974.
- [32] N. Osman, D. Purwana, and A. Saptono, "Do Performance Appraisal, Compensation And job Satisfaction Influence Employees' Loyalty Of Generation Y?," *Journal of Business and Behavioural Entrepreneurship*, Vol. 1, No. 1, pp. 35-49, December 2017.
DOI: <https://doi.org/10.21009/JOBBE.001.1.04>
- [33] M. K. Lee, C. M. Cheung, and Z. Chen, "Acceptance of Internet-based learning medium: the role of extrinsic and intrinsic motivation," *Information & Management*, Vol. 42, No. 8, pp. 1095-1104, December 2005. DOI: <https://doi.org/10.1016/j.im.2003.10.007>
- [34] J. Nunnally, *Psychometric Methods*, New York: McGraw-Hill, 1978.