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The Influence of Authentic Leadership on Authentic Followership, Positive Psychological Capital, and Project Performance: Testing for the Mediation Effects

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Abstract: This study proposes that leaders and followers in university team projects should have authentic leadership (AL) themselves in order to improve the overall performance of the team project. While previous studies have focused mainly on achieving performance through AL on the firm level, this study endeavored to examine the relationship between university students who are expected to serve in an organization's human resources department in the future and followers' project performance (FPP). This study also considers both followers' positive psychological capital (FPPC) and their authentic followership (AF), which can be affected by the degree of AL. In order to verify the hypotheses, we adopted a partial least square-structural equation model (PLS-SEM) with 175 samples of valid data from two universities in South Korea. Results showed that all four hypotheses, including the direct and indirect effects, were significantly corroborated. In compliance with these results, this study suggests that a leader's AL should be a prerequisite to improve FPP. Furthermore, this study establishes the importance of FPPC through the fact that when a leader is authentic, FPPC and FPP can be cultivated. Having compared our findings with previous research, we predict that if students develop AL at university before becoming part of an organization, they will contribute to the performance of the university as well as to attaining the organization's sustainable performance as a member.

Keywords: authentic leadership; authentic followership; psychological capital; project performance

1. Introduction

Due to global recession and trade disputes between countries, the economy continues to experience low growth, low consumption, and high unemployment [1], while the commitment of employees to organizations, their trust in leaders, and the implications of their roles are fading [2]. Employees no longer have any respect for leaders who are forced to drive and produce results. Existing literature on leadership has paid considerable attention to charismatic and transformational leadership, which emphasizes the capabilities of the leader, such as their use of language, their behavior, skills, and personal traits that help improve the performance of the company [3]. In a situation in which slow growth is evident as the global economy enters a recession, such performance-oriented leadership may only be limited to suggesting theories that underpin the sustainability of an organization because such leadership styles are presented during stable economic growth [4]. In a fiercely competitive environment, the low growth trend is associated with the authoritarian power and inhumane remarks

of employers that have been common in traditional companies, not only causing controversy within the organization but also causing social empathy [5].

Tepper, Moss and Duffy [5] argued that a leader's impersonal behavior increases in frequency and intensity, resulting in cost and loss for teams and organizations. Recently, many incidents of unsatisfactory performance-oriented leadership have been witnessed in the United States [6]. For example, Elizabeth Holmes, the founder of Theranos, stated that one organization was paying hundreds of dollars unnecessarily because of the traditional US blood test. She insisted that the Edison kit, developed by Theranos, could run 250 blood tests by obtaining a small amount of blood from the fingertip [7]. However, according to the Wall Street Journal (WSJ), only 16 types of diseases, including herpes, could be identified by the Edison kit, and the remaining 200 had to be tested for with existing large-scale medical equipment manufactured by Siemens. In this vein, changing perceptions of performance-oriented leadership in this age requires authentic leadership (AL) that employees can follow and respect.

Educational leadership recognizes student achievement as the most important task of the school and develops educational leadership as a tool to achieve and manage outcomes. As such, educational leadership means leadership that leads to the outstanding performance of students and schools. Therefore, research on educational leadership has focused on principals and teachers because they are the education leaders who influence the ultimate goal of schools [8–10]. On the other hand, even though business leadership has a variety of styles, it ultimately allows followers to engage and commit actively to their work and is highly business goal-oriented [11–13]. Thus, the leadership in this study does not mean leadership that can educate students expertly, but leadership that can lead followers in a better direction.

AL emphasizes the leader's mission, character, and consistency [14]. Lack of authenticity leads to moral hazard and corruption and can cause fatal problems for the organization [15]. This study proposes AL as a leadership style to actively respond to social changes that require an ethical organizational culture. Therefore, this study defines AL as a positive role model for employees based on the moral values and beliefs of the leader and defines the behavior of leaders to create a cooperative organizational atmosphere through internal and external agreements and recognition of their limitations.

The previous AL study focused on a company's employees, but this study aims to examine the university students who are quasi-employees [14,16,17]. First, university education actively invites students to participate in classes, with an emphasis on innovative teaching methods to improve the quality of the class beyond the traditional lecture. Second, team activities for student assignments can be an excellent opportunity to develop creativity as well as to develop the leadership, communication, interpersonal, collaboration, and critical thinking skills that a company needs. Third, the analysis of factors that affect the performance of a team project is vital because each team has a distinct method and process for performing the project, and the cause of efficient interaction may differ depending on the characteristics of the team, such as free riding and personal contribution. Based on these analyses, this study is designed to examine the following: (1) The role of leadership between the leader and members, (2) the impact of AL and authentic followership (AF) on project performance, and (3) the influence of positive psychological capital (PPC) in the process. Thus, we will examine the impact of the above relationships and provide some implications for the importance of AL in team project performance.

2. Literature Review and Hypothesis Development

2.1. Sustainability in Leadership for Education

Organizations need the leadership to develop resources, particularly emphasizing intangible human resources in a changing environment for sustainability [13]. Recently, leadership has been discussed academically for a variety of topics, such as the moral behavior of transformational leadership [12], organizational innovation and leadership [18], and diverse leadership and

integration [11]. Elkins and Keller [19] argued that a transformational leader who provides intellectual incentives and inspiration to employees in technology-based companies improves interrelationships between employees leading to improve projects' performance within teams. Also, Koene, Vogelaar and Soeters [3] suggested that charismatic leadership and caring leadership have a significant impact on an organization's mood and performance, while structure-driven leadership does not have a positive effect on them. In other words, the more charismatic or caring a leader is, the better employees communicate with organizational efficiency and prepare for greater innovation. It means that charismatic and caring leadership, rather than initiating structure leadership helps an organization's sustainability. Likewise, in addition to tangible assets, intangible human leadership that warms inside of follower's heart needs to be managed and developed for the sustainability of the organization.

On the other hand, human resource management (HRM) activities that can enhance human resources with knowledge, abilities, and skills, providing economic value to organizations can improve their performance [20]. Most of the human resources considered the core assets of organizational growth, are quasi-employees who are educated at universities and consist of undergraduate or graduate students. The last step before entering society, universities are expected to play a key role in improving students and business sustainability by educating students in leadership.

For example, organizations around the world are struggling for growth recently due to the Brexit in the UK, the trade war between the US and China, and the diplomacy and trade war between Korea and Japan [4,21]. Besides, with the advent of the fourth industrial revolution, technology has grown exponentially, and organizations are turning to digital businesses. To keep up with digital speed, organizations have begun to focus on developing human resources, business management and technology appropriate for digital transformation [22]. It demonstrates that the organization emphasizes on creative thinking in fighting against human talent and this means that it is crucial for employees to share various ideas through free thinking. In order to overcome these challenges and changes, organizations need new leadership that can cope with change more actively than leadership that induces mutual competition within an organization. In the future, it is expected that we will need AL, more inclusive leadership, rather than the transformational and charismatic leadership. Forming transparent and interactive relationships with employees based on sincerity, AL contributes to the sustainable growth of employees and the organization by providing employees with trust and psychological stability in their relationships with leaders [16,17,23,24]. AL-embracing employees will enhance both employees' psychological capital and organizational growth, encourage them to communicate with leaders and other employees to complement their self-centered propensity, and contribute to the stagnant economic sustainability.

2.2. Reviews on AL and AF

The stream of research on AL has focused on solving problems that may arise within an organization, such as behavioral leadership, organizational goals, and interpersonal fit that have been addressed by previous research on leadership [14,15,17]. Table 1 shows the central literature on AL that has been empirically investigated.

Walumbwa, et al. [25] asserted that the effect of AL has a positive influence on organizational citizenship behavior and employee engagement assessed by a supervisor, and the relationships are mediated by the degree of identification with the employee's boss and the perception of the discretion of the job. Rego, et al. [26] examined the relationship between AL and the psychological capital and creativity of employees. Likewise, the encouraging effect of FPPC on creativity increased as the leader utilized AL better. In other words, the more authentic a leader is, the more employees are inspired to be creative, which in turn can lead the company to organizational efficiency and opportunity. Wang, et al. [27] empirically analyzed the relationship between AL and employees' performance as the moderating effect of PPC and the mediating effect of exchange between leader and employee. Unlike other existing literature, this study found that the relationship between AL and employee performance is stronger when FPPC is low. Conversely, if employees have psychological capital, such as high

hopes, optimism, recovery, and efficiency, it seems that the need for leaders to make up for the lack of employees is likely to be reduced [28]. Promoting the manifestation of AL can affect hopes and positive emotions of employees, and lead the creative performance of employees who play significant roles in achieving organizational performance.

Table 1. Reviews on authentic leadership (AL).

Study Focus	Study Sample	Source
AL, organizational citizenship behavior, work engagement, empowerment	387 followers, 129 supervisors from two Chinese telecom firms	[25]
AL, psychological capital, creativity	201 employees from 33 commerce organizations in Portugal	[26]
AL perception, trust, follower's emotions	102 human resource managers in Spanish companies with over 50 employees	[29]
AL, reflexivity, self-regulation, team performance	206 participants from 53 work teams in the UK and Greece	[30]
AL, leader-member exchange, psychological capital, follower performance	801 employees from Chinese logistics	[27]
AL, positive affect, hope, creativity	219 employees from 37 retail organizations in Portugal	[28]
AL, conservation of resources, crossover, job satisfaction, work-life balance	121 employees from different German firms	[31]
AL, temptation, ethical decision-making, guilt appraisal	118 MBA program students at two universities in United States	[32]
Employee trust, employee-perceived AL, employee work engagement, supervisor-perceived AL	160 of supervisors and employees from firms in Taiwan	[33]

While AL has been mainly studied to the extent that employees are aware of the degree of leader's appreciation, other studies have begun to pay attention to AL that employees perceive themselves. Shamir and Eilam [34] defined AF as "the employee follows a leader with authenticity and the leader-employee has an authentic relationship." Gardner, Avolio, Luthans, May and Walumbwa [23] regarded AF as "a process in which employees approach the relationship between work, ownership and candor about an organization for promoting employees' autonomous motivation." In other words, high AF for employees facilitates an interaction with the leader and authenticity embodied naturally and inherently allows to deliver the leader's AL more effectively [23,34]. For example, Leroy, et al. [35] contended that AL and AF have a positive effect on employee satisfaction with basic needs and that AL strengthens the relationship between AF and satisfaction with basic needs. The satisfaction of employees' basic needs has a positive effect on employee performance and mediates the relationship between AL, AF, and employee performance. In other words, AL and AF are directly or indirectly related to employee performance.

2.3. The Positive Relation between AL and AF

From the perspective of leaders working with employees, AL is defined as a leader's behavioral pattern and promotes both positive psychological capital and an ethical climate to develop self-awareness, internalized moral perspectives, balanced information processing, and relational transparency [16]. Self-awareness is the degree to which a leader perceives his or her strengths and weaknesses, how employees view themselves, and how they affect others [16,36]. Balanced information processing refers to the extent to which a leader objectively analyzes relevant information and requests opinions before making a decision [16,23]. An internalized moral perspective is the degree to which leaders set high standards for moral and ethical conduct, behave under their internalized moral standards and values, guide employees, and express decisions and actions consistent with internalized values [14,23]. Relational transparency refers to the extent to which leaders express their authenticity to their employees, share information, and express their thoughts and

feelings. This relational transparency enhances openness, an opportunity to present leaders' thoughts, challenges, and opinions [26]. A leader's transparent behavior increases mutual trust by minimizing the display of inappropriate feelings and by sharing the leader's sincerity, feelings, and information with employees [36].

Leaders with AL characteristics act on their deep personal values and beliefs to earn respect and trust from employees. It also encourages diverse views and forms collaborative relationships with employees to engage employees and form their sincerity [17,37]. Based on internalized moral character, AL maintains a transparent relationship with employees and interacts with employees by acting in a way that leaders recognize themselves and act on their organizational beliefs and values [14,16]. In other words, authentic leaders link organizational common objectives or tasks to employees, identifying their strengths, helping them directly, and training them appropriately [38].

In AL theory, the influence of the employee's followership, as well as the authenticity of the leader, is becoming increasingly important [14,23,39]. The followership plays an active role in the leader-employee relationship [35,40]. AF ensures that employees follow the leader for authenticity and that they have an authentic relationship with the leader [34]. The purpose of this study is to define the AF as an AL that team members perceive themselves while the leadership of the leader and the members collaborate due to the leader's leadership in the team project.

When employees with AF feel that their behavior is in line with their leaders' values or beliefs, they have a desire to share values and beliefs and follow authentic leaders honorably without expecting personal rewards [34]. In explaining how employees become more autonomous, AF can explain how employees approach relationships between work-related workloads, ownership of the company, honesty, and defensiveness [23]. In the self-verification theory, people try to maintain their beliefs and behavior through individual verification and use the results of the verification as a standard to predict and understand the reactions of others and explain how to act on others [41–43]. AF shows how AL develops within the organization and can help employees improve their self-awareness and self-regulation, leading to improved performance [23]. In short, AF has become an essential factor that cannot be excluded in AL development, since it exhibits behavior equivalent to the main characteristics of AL.

The characteristics of AL are likely to affect the team's employees rather than the team leader's influence, which may affect the team's project performance. AL generated through the interaction between the leader and the employee does not only mean that the leader is authentic and that the employee's performance and commitment to work are improved. Instead, the followership of an employee can be expressed if the employee feels authenticity from the leader.

Hypothesis 1 (H1). *AF will have a positive impact on AF.*

2.4. The Effect of AF on FPPC and FPP

Organizational research focusing on human resources and psychological capital suggests that development, measurement, and management are needed to improve performance [44]. Although scholarly attention has been paid to emphasizing that human and social capital have a positive impact on organizational performance, an organization must be psychologically healthy to be competitive [20,44–46]. Psychological capital is a fundamental capacity for human and social capital to be promoted by each employee and contributes to the competitive advantage of a sustainable organization [47]. Psychological capital is discussed as four main factors: self-efficacy, optimism, a hope and resilience [48,49]. In this study, PPC is defined as the psychological positiveness that can be obtained by the participation of university students in various group projects.

The AL theory arises from the intersection of leadership, ethics, and existing academic literature [15,17] and is considered the fundamental concept of a positive leadership model for leaders to possess, such as innovative, charismatic, ethical, and servant leadership [14].

Several empirical studies on AL agree that the underlying basis for organizational performance is the psychological capital of its members [15,50]. First, if an employee can have enough psychological capital, an AL can occur even if they do not provide training or incentives for the employee [51]. Second, authentic leaders have a great deal of self-efficacy, hopes, optimism, and resilience, and are well equipped with facing the challenges of the business environment by understanding employees and recognizing the vision of potential employees [52]. In other words, authentic leaders have positively influenced employees' stability, trust, and loyalty through trust-based PPC [2,53].

A growing awareness of the importance of psychological capital has led to research showing that AL affects the psychological state of employees [17]. Rego, Sousa, Marques and e Cunha [26] argued that authentic leaders also influence employees' optimism by empathizing with their leaders and improving their positive emotions. Avolio, Gardner, Walumbwa, Luthans and May [17] found that authentic leaders have hopeful and credible abilities that not only establish employee willpower but also embrace employee waypower, thereby enhancing employee hopes and enhancing employee self-efficacy.

As such, empirical research has often been implemented that AL stimulates PPC. Rego, Sousa, Marques and e Cunha [26] showed that AL had a positive effect on the psychological capital and creativity of the employee and that the employee's psychological capital positively correlated with creativity. The more authentic the leader of the employee, the higher the PPC and creativity of the employee. Woolley, Caza and Levy [51] directly or indirectly examined the impact of AL on employee PPC. AL has been shown to not only increase psychological capital directly but also indirectly through a positive organizational climate. In other words, leaders recognized as authentic by their employees contribute to creating a more favorable climate within the organization, and employees have a higher PPC in a positive climate.

Hypothesis 2 (H2). *AF will have a positive impact on FPPC.*

Job performance refers to the effectiveness of the job to the extent that employees in the organization can achieve their goals [54]. Since job performance is derived from employees' characteristics and efforts on their jobs and is used to predict their achievements [55], this study defines these job performances as the achievements of lectures as students through team projects (i.e., FPPC), as well as project completion, finishing, process stability, and compliance with requirements.

Authentic leaders are aware of themselves and self-regulated, not only contributing to their development but also affecting job performance [14]. Also, authentic leaders maintain a transparent relationship with their employees and act with integrity to help them trust their leaders. If leaders are transparent in this relationship and barriers to self-projection are not high, leaders can build trust with employees [2]. This high level of trust between leaders and employees makes them more committed to their work [56]. Rich, et al. [57] argued that employees engaged in the job spend a lot of time at work and pay more attention to tasks responsibly because they invest emotional, physical, and cognitive energy in their workplace.

Since authentic leaders are a classic example of high moral standards, honesty, and integrity, their favorable reputation will promote positive expectations among employees and increase the trust and willingness to collaborate with leaders for the benefit of the organization. As authentic leaders control themselves and avoid negative reputations, they feel that they are given more autonomy to do the activities required for successful job performance [17]. Peterson, et al. [58] figured out that the influence of the leader on the positive emotions of employees in an organization was partly positive for job performance. Employees who worked for authentic leaders experience fewer negative emotions and more positive emotions than those who do not. Ultimately, the positive emotions created by these ALs enable employees to work efficiently and achieve improved performance. Ertürk [59] argued that the most robust way for leaders to improve organizational performance is to earn employee trust. Hsieh and Wang [33] found that leaders themselves showed a higher level of authenticity; employees became more credible to their leaders, which allowed them to be more engaged. In other words, when

leaders recognize that they exhibit AL, they can increase their trust in the leader, leading to improved performance within the organization.

Under the above discussion, this study attempts to examine whether the AL viewed by the staff directly defined in this study has a positive effect on the FPP, unlike the existing literature based on the AL viewed by the staff. Therefore, this study assumes the following hypothesis.

Hypothesis 3 (H3). *AF will have a positive impact on FPP.*

2.5. The Positive Relation between FPPC and FPP

Avey, et al. [60] argued that employee attitudes include job satisfaction, organizational commitment, and psychological well-being by attempting to verify the relationship between psychological capital and the attitudes, behavior, and performances of employees through meta-analysis. Improving the FPPC is suitable for developing employees' attitudes and behaviors in a superior way, and their behavior and attitudes toward work improve the performance of the organization. In other words, it shows that FPPC is crucial for improving company performance and promoting the development of human resources. In addition, Alessandri et al. (2018) found that the increase in positive psychological capital encourages employee participation and, in turn, increases performance. In other words, psychological capital is the decisive factor that affects the motivation and behavior of followers in an organization. Thus, organizations should focus on managing and developing authentic leadership continuously. Similarly, Peterson, et al. [61] found that an increase in FPPC improves both employee performance and organizational performance at the same time, but decreasing FPPC reduces employee performance and performance of an organization. It means that FPPC is directly related to employee and organization's performance. On the other hand, studies have often been conducted on PPC as a concept and each element. Luthans, Avolio, Avey and Norman [48] argued that the combined PPC, rather than the individual, had a more positive effect on performance and satisfaction of an organization. Luthans, et al. [62] verified that employees' positive status of hopes, optimism, and resilience, and PPC which is a fundamental concept that combines those three elements, are all related to employee performance. Highly resilient employees are creative, adaptable to change, and continuously address adversity. Furthermore, the more hopeful employees are the more motivated and more confident they are at work, and the more likely they are to find an alternative. The positive mentality of these employees enables them to achieve improved performance in a rapidly changing work environment. As a result, when all factors are combined rather than each of them, employees' sentiment seems to change more positively, having a more positive impact on performance. This study establishes that the student's PPC formed by the psychological stability of the leader handles the task efficiently, which leads to improved performance. Therefore, this study suggests the following hypothesis.

Hypothesis 4 (H4). *F PPC will have a positive impact on FPP.*

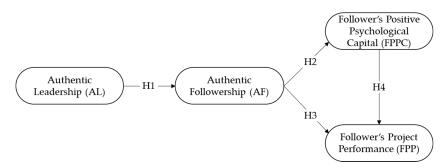Figure 1 shows the summarized relationship between hypothesized paths.

Figure 1. Research model.

3. Methodology

3.1. Variables

AL is the main independent variable in this study. AL is a leader's behavior that encourages positive moods and abilities and develops self-development to achieve greater self-awareness, relational transparency, balanced information processing, and internalized moral perspectives [16]. AL was measured using 16 items of authentic leadership questionnaire (ALQ) [16] and was validated by [25]. AL consists of an internalized moral perspective (4 items), self-awareness (4 items), relational transparency (5 items), and balanced information processing (3 items). All items were measured on the Likert 5-point scale, ranging from 'not at all' to 'frequently, if not always.' For example, questions include "self-awareness to receive feedback for improving interaction with others" and "relational transparency when mistakes are made". Accordingly, this study also measured AL on a 5-point Likert scale.

AF, the first mediator of this study, means that a leader and an employee have an authentic relationship, and the employee approaches ownership and honest relationship to an organization. [23,34]. Leroy, Anseel, Gardner and Sels [35] measured AF after adjusting 16 items developed by Kernis and Goldman [63] to reflect the dimensional structure of [16]. All items were measured on the Likert 5-point scale, from fully disagree to fully-agree, and allowed followers to rate themselves through items of self-awareness, balanced processing, relational transparency, and internalized moral perspective. In this study, the AF question was composed by reorganizing ALQ items for AF reflecting the importance of newly considered AF. AL questionnaire was added to the survey. All of the questions were composed of 4 items and measured on the Likert 5-point scale.

FPPC, another mediator of this study, is the positive psychological capital that university students get from projects that they experience in lectures and are formed through interactions with leaders within teams. Psychological capital is an essential factor for employees in achieving improved performance [47,51]. Lack of psychological capital of employees cannot positively contribute to employee and organizational performance [61]. We utilized a questionnaire proposed by [49]. For example, (1) I can think of many ways to reach my current work goals (optimism) and (2) I am confident in representing my work area in meetings with management. Luthans, et al. [64] measured FPPC with 24 items using psychological capital questionnaire(PCQ) suggested by [49].

The dependent variable in this study is FPP. Unlike job performances that are generally dealt with, the results of this study are the results of the team projects among students in the lectures at universities because the subjects of this study are students. FPP was measured for all respondents using the Likert 10-point scale to assess their immediate superiors, based on worker productivity and criteria for working with team members [62]. In this study, FPP was measured on the Likert 5-point scale.

3.2. Samples

In order to test the hypothesis, this study collected a sample consisting of 49 questions which include demographic characteristics, AL, AF, FPPC, and FPP. The questionnaire was created to clarify the relationship between AL, AF, FPPC, and FPP. The questionnaire is most appropriate in that the purpose of this study is to examine the effect of leadership on project performance when university students perform team projects. The survey was conducted through an online survey to reduce errors and increase convenience in the sample collection process. Before the survey was distributed, the investigator explained the purely academic purpose of this survey and asked students to respond voluntarily. The sampling period was from September to December during the second semester of 2018 and was collected for four months from two universities, one in Seoul and one in South Chungcheung. The basic questions consisted of demographic characteristics such as gender, grade, team leader's experience, team project participation, international internship participation, and business administration major. Also, AL, AF, FPPC, and FPP were measured on Likert 5-point scales. For example, whether they are acting consistently with their beliefs, asking for feedback from

other team members, or being honest about how they feel. 175 valid samples were collected with a recovery rate of 58.3% and verified by path analysis through PLS-SEM. If existing research was limited to an employee's view of a leader, this study examined how the employees view both the leader's and follower's position. For instance, while Leroy, Anseel, Gardner and Sels [35] analyzed follower's leadership focusing on individual characteristics, the survey used in this study means that AF can be measured with regard to project performance. Therefore, the questionnaire is meaningful in that it collected the most appropriate sample to test the hypothesis of this study.

3.3. Analysis Methods

PLS-SEM estimation is excellent for building latent variables and verifying relationships between constructs by factoring the observed variables [65]. PLS-SEM is reliable to find components that are optimized by factoring and maximizes the variance explained about how much the construct affects the dependent variable, thus not requiring normality required for multivariate analysis and being a bit free for a sample size. This study tried to verify using PLS-SEM method through 'plssem' provided by STATA 16. In order to verify the model, fitness was confirmed by measuring confirmatory factor analysis (CFA) in the measurement model, and then the hypothesis between constructs in the structural model was verified. CFA mainly evaluates reliability, convergent, and discriminant validity of the model, and then validates the hypothesis if there are no problems. Likewise, significant results in the structural model must be re-validated through bootstrap with re-sample to be valid.

4. Data Analysis and Results

4.1. Measurement Model Assessment

Table 2 shows the results of non-response bias analysis and respondents' information. 175 samples were obtained from this study. To determine whether a non-response bias occurred during the survey, we compared fast responders with slow responders. In the comparison method, χ^2-test and *t*-test were performed, and both were insignificant at the 0.05 level. Male respondents were 57.14%, about 15% higher than female respondents. The numbers of undergraduate students in grades 2, 3, and 4 were similar, with 38.86% of respondents in fourth grade. More than three-fifths of respondents said they had experience with a leader. 82.29% of respondents have participated in more than three team projects, 67.43% of them have participated in more than four projects. Besides, 68% of students did not attend overseas internships, and more than half said they did not experience internships. As 78.29% of students who majored in business administration responded, most of the respondents majored in business management.

The acceptability of the model in this study was evaluated by the reliability, convergence and discriminant validity of items converging on each construct, and internal consistency among items. This study achieved high reliability and effectiveness by excluding items whose factor loading threshold value did not exceed 0.7 from the analysis [66]. Therefore, 21 items were selected for further analysis after deleting items to be excluded in consideration of factor loading values of all items for each item. Considering the results, the factor loading values of all variables were much higher than recommended level of 0.7 with less than 0.001 *p*-values (see Table 3).

Table 2. Sample demographic.

Variable	Classification	Total		Early Respondents		Late Respondents	
		N	**%**	**N**	**%**	**N**	**%**
Gender	Male	100	57.14	48	55.81	52	58.43
	Female	75	42.86	38	44.19	37	41.57
School year	2	54	30.86	32	37.21	22	24.72
	3	53	30.29	29	33.72	24	26.97
	4	68	38.86	25	29.07	43	48.31
Experience of leader	Yes	112	64	56	65.12	56	62.92
	No	63	36	30	34.88	33	37.08
Experience of team project	0	10	5.71	5	5.81	5	5.62
	1	7	4	3	3.49	4	4.49
	2	14	8	6	6.98	8	8.99
	3	26	14.86	10	11.63	16	17.98
	>4	118	67.43	62	72.09	56	62.92
International internship	Yes	56	32	11	12.79	45	50.56
	No	119	68	75	87.21	44	49.44
Major in Management	Yes	137	78.29	64	74.42	73	82.02
	No	38	21.71	22	25.58	16	17.98

Note: no significance between early and late respondents using χ^2 analysis and *t*-test.

Table 3. Confirmatory factor loadings.

Construct	Code	Scale Item	Factor Loading	Mean	S.D.
Authentic leadership [25,27]	AL1	Our team leader seeks feedback from team members to improve their interaction with them.	0.83 ***	3.97	0.96
	AL2	My team leader knows when to reconsider his position.	0.83 ***	3.70	1.00
	AL3	My team leader knows how his actions affect his team.	0.80 ***	3.98	0.99
	AL4	Our team leader makes good decisions.	0.71 ***	3.99	0.96
	AL5	My team leader strongly encourages me to act with confidence.	0.83 ***	3.94	1.02
	AL6	Our team leader follows ethical standards for difficult decisions.	0.76 ***	3.86	0.98
	AL7	Our team leader admits when he makes a mistake.	0.79 ***	4.17	0.83
	AL8	Our team leader encourages all team members to express their ideas.	0.84 ***	3.97	0.95
	AL9	Our team leader reviews the data thoroughly before making a decision.	0.85 ***	3.97	1.00
	AL10	Our team leader listens to various opinions carefully before making a conclusion.	0.89 ***	4.01	0.95

Table 3. *Cont.*

Construct	Code	Scale Item	Factor Loading	Mean	S.D.
Authentic followership [35]	AF1	I show a behavioral consistent with my beliefs as a team member.	0.79 ***	3.89	0.87
	AF2	I make decisions that fit my values as a team member.	0.87 ***	4.16	0.71
	AF3	I act with confidence as a team member.	0.82 ***	3.98	0.88
	AF4	I express my feelings honestly as a team member.	0.78 ***	3.78	0.98
Follower's positive psychological capital [26,64]	FPPC1	I can easily cope with the stress of playing a role.	0.80 ***	3.29	1.10
	FPPC2	I can cope well when faced with a demanding role.	0.86 ***	3.79	0.78
	FPPC3	I always try to be positive about what I'm doing.	0.81 ***	3.95	0.91
Follower's project performance [61,62]	FPP1	I do my job well in my team.	0.84 ***	4.29	0.67
	FPP2	I get my work done within the time set by the team.	0.74 ***	4.19	0.75
	FPP3	I am responsible for my role in the team.	0.89 ***	4.27	0.67
	FPP4	I adhere to the formal requirements set by the team.	0.75 ***	4.29	0.69

Note: *** $p < 0.001$.

Table 4 shows Cronbach's alpha, composite reliability, correlations between latent variables, average variance extracted (AVE), and the square root of AVE. Appropriate internal consistency is seen when Cronbach's alpha and composite reliability values are above 0.7 [66]. Considering the results of this study, the composite reliability of all variables were over 0.86, which was much higher than the standard, indicating proper convergent validity.

Table 4. Inter-construct correlations: convergent and discriminant validity.

Construct	Cronbach's Alpha	Composite Reliability	rho	AVE [a]	AL	AF	FPPC	FPP
AL	0.94	0.95	0.95	0.66	**0.81** [b]			
AF	0.83	0.89	0.93	0.66	0.49	**0.81**		
FPPC	0.76	0.86	0.76	0.68	0.46	0.56	**0.82**	
FPP	0.82	0.88	0.86	0.65	0.29	0.44	0.39	**0.81**

Notes: [a] Average variance extracted, [b] Diagonal values are the square root of AVE.

Discriminant validity is explained by the AVE values of all variables and is higher than the recommended standard of 0.5. As a result of comparing the AVE value with the square root of AVE, the AVE value of each latent variable was significantly higher than the correlation value between latent variables and was more closely related to self-measurement than other variables. Therefore, it can be considered that there is discriminant validity [67,68]. In addition to AVE, PLS-SEM has higher validity as the rho is more than 0.7 and, in this model, the lowest value of the rho of the latent variable was 0.76 [65].

4.2. Structural Model Assessment Using PLS-SEM

Although all items used in this study passed the CFA, including discriminant validity, common method bias (CMB) can be problematic in collinearity evaluation when all paths in the hypothesis are

connected [69]. Kock and Lynn [70] suggested that the VF (variance inflation factor) between latent variables should not exceed threshold 5 in PLS-SEM. The upper variance VIF found in our SEM model was 1.446 and CMB was not an issue.

PLS-SEM was used to validate the structural model to verify the effects of the four latent variables. This study presents the PLS estimation results as shown in Figure 2 so that the verification results can be visually easily verified. Figure 2 modeled the hypotheses between constructs presented in this study as paths, the standardized path coefficients for the model, and the variances described (R^2). As the hypothesis of this study showed, the path from AL to AF was significant and H1 was supported ($R^2 = 0.23$, $\beta = 0.45$, $p < 0.001$).
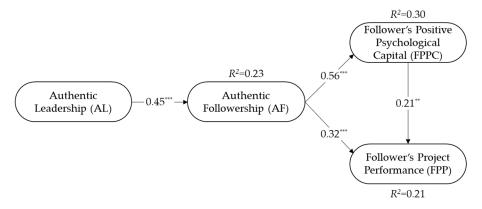

Figure 2. Results of PLS-SEM. Note: (1) Path coefficients are standardized, (2) * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The paths from AF to FPPC (H2) and FPP (H3) were found to be significant, and since the path coefficients were 0.56 and 0.32, respectively, both H2 ($R^2 = 0.30$) and H3 ($R^2 = 0.21$) were supported ($p < 0.001$). Among them, AF showed a more positive effect on FPPC. Like H4 in this study, FPPC was found to have a positive effect on FPP ($R^2 = 0.21$, $\beta = 0.21$, $p < 0.01$). As a result, the model as a whole has sufficient explanatory power for AF, FPPC, and FPP.

This study presents Figure 3 to compare direct and indirect effects graphically. Looking at the direct effects, the direct effect of AF on FPPC was the highest (0.555), and the direct effect between AL and AF was the next highest (0.486). The direct effect between AF and FPP was not somewhat high (0.32), but the indirect effect was quite high (0.116). Among the indirect effects, the effect of AL on FPPC was the highest (0.27), followed by the effect of AL on FPP (0.212).
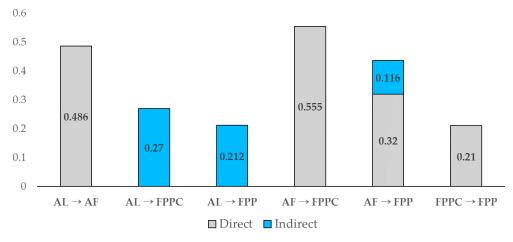

Figure 3. Graphical comparison between direct and indirect effects.

This study adopts bootstrapping to verify the indirect effects inherent in the model between constructs. 2000 resampling method with bootstrap was performed to investigate the significance of the indirect effect. In Table 5, the indirect effect of AL on both FPPC and FPP through AF was 0.27, 0.16, respectively, with 0.05 standard error. Both indirect effects were significant as they did not include zero in the 95% confidence intervals of the normal, percentile, and bias-corrected confidence intervals.

Table 5. Significance testing of indirect effects with bootstrap.

Statistics	AL → AF → FPPC	AL → AF → FPP
Indirect effect	0.27	0.16
Standard error	0.05	0.05
z-statistic	5.10	3.10
p-value	0.00	0.00
Conf. interval (*N*)	(0.166, 0.373)	(0.056, 0.254)
Conf. interval (*P*)	(0.173, 0.379)	(0.066, 0.261)
Conf. interval (*BC*)	(0.173, 0.379)	(0.071, 0.268)

Notes: (1) 2000 iterations for bootstrapping, (2) confidence level is 95%, (3) *N*; normal confidence interval, *P*; percentile confidence interval, *BC*; bias-corrected confidence interval.

5. Conclusions and Discussion

This study examined the effects of AL and AF on PPC between leaders and employees of university students who had experience in the project and examined the specific effects of PPC on the relationship with FPPC.

First, it was found that the leader's AL had a significant effect on the employee's AL (i.e., AF) in the group projects operated by university lectures. The leader's authentic words and actions have a positive impact on employees, making them feel authentic too [26,39]. The leader's AL seems to draw direct significance in terms of enabling the member's AF and enabling employees to exercise the AL. The leader's AL and the employee's AF are interrelated and are directly proportional to each other [23]. Organizational leaders, therefore, should devote themselves to authentic interactions with employees rather than trying to exercise their leadership.

Second, the member's self-viewed AL (i.e., AF) had a significant effect on the member's PPC. Authentic leaders increase their psychological capital, including their optimism and hopes, by enhancing their empathy and positive feelings about their leaders [47,48,61,64]. Authentic leaders contribute to creating a more favorable climate within the organization where members increase their confidence, hopes, and resilience in their work, thereby increasing the psychological capital of employees. While university students are all electing project leaders according to consensus principles to undertake projects, they have already learned from experience that inclusive leaders who give a positive direction to all members, rather than performance-oriented leaders, have better results. If students learn in the university curriculum that PPC in a team causes a virtuous cycle, a university student as a quasi-employee will be more likely to contribute to the organization's sustainability in the future [25,71].

Third, the member's AF had a significant impact on the performance of the team project. Members who recognize the leader's AL and exercise the AL on their own have a high level of confidence in their leader, which leads their members to get more involved and improving their performance in the organization. Employees have a habit of observing the authentic leader's behavior and imitating that behavior as an excellent benchmark at the same time. For example, when an authentic leader needs to make crucial decisions within a team, members remember the moment as if they were taking a picture, and if that decision were made more ethically and in the right direction, they would have more confidence in the leader [32]. If a leader in a project does not lead a team in a biased or narrow perspective, or if the team's opinions are balanced, rather than considering the age, gender, and

educational background of the team members, members naturally assimilate themselves to the team, accumulate AF, and attempt to enhance the FPP for the team [25].

Fourth, FPPC plays a significant mediation role in the relationship between member AL and FPP. Improved FPPC will change employee attitudes and behavior, and the positive work climate thus formed from desirable attitudes and behavior will improve organizational performance. Employees with high PPCs are creative, constantly adapting to change, and struggling with adversity when faced with difficulties [26,28]. These FPPCs enable improved performance in a rapidly changing work environment.

The implications of this study are as follows: First, research on AL has been steadily progressed in the interests of corporate employees, but few studies have investigated the relationship between AL and team project outcomes for quasi-employee university students. Recently, global enterprises have been struggling with low growth and rapid changes in the business environment, and have begun to strengthen their capacities to manage human resources [4,21,22]. For organizations faced with these challenges, AL is needed for the organization's sustainable growth, in which employees share diverse opinions and express psychological stability [16,17,23,24]. Universities also need to cultivate AL as a small society, not just in the organizations, because students work in teams like organizations because of changes in the educational system. If universities provide students with opportunities to cultivate AL, they can make a significant contribution to the sustainable organizational growth as future leaders or employees in organizations in an environment of low growth. This study is meaningful in that it examines the importance of AL in project activities by examining the relationship between AL and FPP through university students who are expected to serve as organizational employees in the future and examines the specific impact of PPC in the process.

Second, unlike previous literature based on the leader's AL viewed from the employee's perspective, this study is considered meaningful in that it expands the scope of the existing AL research by investigating the mediating effect of AF implemented on the employees themselves by the leader's AL on performance. Existing literature has emphasized that among the four components of AL, AL should be considered necessary within the organization by enabling trust, emotion and information sharing among leaders and employees [14,16,17,36,37]. Recently, however, some studies have begun to consider AF as well as AL [17,23,39]. If university students experience AL as a leader or AF as a team member in the course of experiencing a variety of lectures and projects in class, he or she will learn how to indeed follow the leader through sharing values and beliefs [23,34]. Although leaders to be authentic is essential, it means that they can improve performance more effectively when AF is activated for their employees. Therefore, this study is meaningful to recognizing the importance of AF and suggesting the contribution that can be made to the company's performance if the team member has AF, not just the AL in the leader.

Third, by surveying university students, not employees, this study emphasizes the importance of cultivating PPC through team projects to be successful employees in the future. In particular, research indicates that team members play central roles in shaping PPC. However, some previous studies have shown that bosses intentionally tend to be impersonal, such as destructive, severe, or harsh, to members of the organization to improve performance [5,72]. For instance, Tepper, Moss and Duffy [5] found that 13% of US workers in the United States suffered from the leader's abusive supervision, resulting in an annual loss of about $24 billion. It suggests that if a leader acts impersonally, it can pay off in the short term but lead to a substantial loss in the long run. University students, who were the subject of this study, were surveyed after one semester, and thus were suitable for measuring mid- to the long-term performance of FPP. In other words, in the long run, if leaders enable organizational staffs to form PPC through AL rather than impersonal behavior, it can be confirmed that it leads to high performance [26,61,62]. Moreover, since students have to do team projects not only in school but also in the workplace where they will be employed in the future, if they form a PPC through project activities from university, this can lead to good results in carrying out future team project activities.

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