WebLog Journal of Public Health and Epidemiology

Research Article
Published: 18 Jun, 2025

The Impact of Future Time Perspective on Learning Engagement: The Indirect Effect of Self-Efficacy

Dr. Xin Wen[1#], Dr. Jiawen Meng[1#], Dr. Baoxia Zuo[2#] and Dr. Jun Zhang[1]**

[1]Department of Education, Sehan University, Yeongam-gun, Jeollanam-do, 650106, Republic of Korea

[2]Department of Foreign Languages, School of Humanities, Tianjin University of Finance and Economics Pearl River College, No. 18, Xiangrui Street, Zhouliang Street, Baodi District, Tianjin, China

[#]All authors contributed equally

Abstract

This study investigates the mechanism by which college students' Future Time Perspective influences their Learning Engagement. We conducted a survey with 550 Chinese undergraduates using three reliable and valid scales measuring Future Time Perspective, Learning Engagement, and Self-Efficacy. The results revealed that: (1) Future Time Perspective significantly and positively predicts Learning Engagement; (2) Self-Efficacy positively predicts Learning Engagement; and (3) Future Time Perspective significantly and positively predicts Self-Efficacy. This research sheds light on the relationship and underlying mechanism between Future Time Perspective and Learning Engagement, and deepens the understanding of how Future Time Perspective influences college students' engagement in learning.

Keywords: Future Time Perspective, Learning Engagement, Self-Efficacy

OPEN ACCESS

Correspondence:
Dr. Jiawen Meng, Department of Education, Sehan University, Jeollanam-do, Republic of Korea, E-mail: Mengjiawen@proton.me
Dr. Jun Zhang, Department of Education, Sehan University, Jeollanam-do, Yeongam County, Republic of Korea, E-mail: zhangjunahnu@163.com

Received Date: *08 Jun 2025*
Accepted Date: *16 Jun 2025*
Published Date: *18 Jun 2025*

Citation:
Wen X, Meng J, Zuo B, Zhang J. The Impact of Future Time Perspective on Learning Engagement: The Indirect Effect of Self-Efficacy. WebLog J Public Health Epidemiol. wjphe.2025.f1801. https://doi.org/10.5281/zenodo.16041529

Introduction

With the continuous reform of higher education in China and increased emphasis on various academic disciplines, there are currently around 3,074 universities in the country, with a total of 47.63 million enrolled students. Although the number of college students has been steadily increasing, a growing issue is the low level of Learning Engagement among students during their academic journey [3, 5]. Learning Engagement refers to the intensity and quality of students' emotional involvement when initiating and carrying out learning activities [4]. It also includes the presence of positive, fulfilling emotional and cognitive states related to academic activities [23], encompassing engagement in behavioral, cognitive, and emotional domains. Research has shown that low Learning Engagement not only leads to academic problems such as declining performance [6] and inefficient or ineffective learning [2, 13], but also contributes to psychological issues such as increased academic burnout [12], self-doubt, and elevated stress levels [10]. Furthermore, it negatively affects students' future employment prospects by reducing professional interest [8], weakening competitiveness, and increasing job-search difficulties [30].

Many scholars [19, 21] have investigated the causes behind low Learning Engagement and identified Future Time Perspective (FTP) as one of the most significant influencing factors. FTP refers to individuals' attitudes toward their imagined future [19] and encompasses intentions related to one's personal future [22]. FTP involves evaluating the future based on expectations, setting goals, formulating plans, and taking action. It is shaped by specific sociocultural contexts and provides individuals with opportunities to shape their destiny [21]. Accordingly, this study proposes Hypothesis 1: College students' Future Time Perspective significantly and positively predicts Learning Engagement.

Some researchers have argued that it is necessary to examine the deeper mechanisms through which Future Time Perspective influences Learning Engagement, as this could help enhance students' engagement by improving their FTP [18, 33]. One of the key factors affecting Learning Engagement is Self-Efficacy—defined as an individual's general confidence in handling various environmental challenges or novel tasks [24, 25]. Students with high Self-Efficacy tend to demonstrate greater Learning Engagement [1, 20], whereas those with low Self-Efficacy exhibit lower levels of engagement [29, 32]. Empirical studies have been conducted on specific university student groups, such as basketball majors [32] and medical students [26]. Additionally, scholars have

studied primary school students [27], secondary school students [14], and students at vocational colleges [15], all confirming a significant positive correlation between Self-Efficacy and Learning Engagement. Based on these findings, this study proposes Hypothesis 2: College students' Self-Efficacy significantly and positively predicts Learning Engagement.

Other researchers have conducted empirical analyses on Future Time Perspective and Self-Efficacy among community residents [11] and college students [16, 31], revealing a clear positive correlation between FTP and Self-Efficacy. Individuals with higher Self-Efficacy tend to exhibit greater Learning Engagement. Thus, this study proposes Hypothesis 3: College students' Future Time Perspective significantly and positively predicts Self-Efficacy.

In light of the above findings, this study further proposes Hypothesis 4: Self-Efficacy plays a mediating role in the relationship between Future Time Perspective and Learning Engagement.

Method

Participants

The participants in this study were undergraduate students from five universities in China: Harbin Normal University, Shandong University, Shanxi University, Zhejiang University of Technology, and Sun Yat-sen University. The selection of participants was conducted in strict accordance with the relevant provisions of the Declaration of Helsinki. A total of 563 questionnaires were distributed, and 550 valid responses were collected, resulting in a response rate of 97.7%. Among the participants, 227 were male (51.9%) and 257 were female (48.1%). The distribution across academic years was as follows: 79 first-year students (14.8%), 124 second-year students (23.2%), 221 third-year students (41.4%), and 110 fourth-year students (20.6%). Before conducting the survey, participants were fully informed about the purpose and methodology of the questionnaire. Each participant was given the opportunity to provide informed consent, and consent forms were signed by both parties. All participants joined the study voluntarily, and no compensation was provided.

Future Time Perspective Scale

The study adopted the revised version of the Future Time Perspective Scale for college students developed by Song (2004) to measure students' levels of Future Time Perspective. The scale consists of 29 items across five dimensions: Behavioral Commitment, Future Efficacy, Distant Goal Orientation, Purpose Consciousness, and Future Orientation. A 5-point Likert scale was used, with options ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Reverse-scored items include statements such as: "The course of my life is determined by forces I cannot control,""I often feel that life lacks purpose,""I care a lot about others' negative evaluations of my future," and "My understanding of my future is very vague." All other items are positively scored. Higher scores indicate a higher level of Future Time Perspective [21]. In the present study, the Cronbach's alpha coefficient of the scale was 0.91, and the test-retest reliability was 0.92.

Learning Engagement Scale

To measure students' Learning Engagement, we used the scale developed by [17]. This instrument consists of 20 items grouped into three dimensions: Behavioral Engagement, Cognitive Engagement, and Emotional Engagement. The scale uses a 5-point Likert format, with responses ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Higher scores reflect higher levels of Learning Engagement [17]. In this study, the scale had a Cronbach's alpha of 0.95 and a test-retest reliability of 0.96.

Self-Efficacy Scale

The Self-Efficacy Scale used in this study was the version revised by [28]. The scale consists of a single factor with 10 items. Each item uses a 5-point Likert scale: 1 ("completely incorrect"), 2 ("somewhat correct"), 3 ("neutral"), 4 ("mostly correct"), and 5 ("completely correct"). In this study, the scale demonstrated strong reliability, with a Cronbach's alpha of 0.92 and a test-retest reliability of 0.92.

Results and Analysis

Data Analysis Strategy

We used SPSS 27.0 software to analyze the mean, standard deviation, and Pearson correlation coefficients for Future Time Perspective, Learning Engagement, and Self-Efficacy. In addition, we conducted analyses of variance and correlation analyses. To assess the internal structural validity of the questionnaires, confirmatory factor analysis (CFA) was conducted using AMOS software. We also tested whether Self-Efficacy plays a significant mediating role in the relationship between Future Time Perspective and Learning Engagement among university students. The structural model was evaluated against the following model fit criteria: RMSEA < 0.1, SRMR < 0.1, TLI > 0.9, and CFI > 0.9 [32].

Descriptive Statistics and Correlation Analysis

This study examined gender and grade differences in Future Time Perspective, Self-Efficacy, and Learning Engagement. The results showed no significant differences between male and female students on any of the three variables ($p > 0.05$), as presented in Table 1. Similarly, there were no significant differences across academic years in Future Time Perspective, Self-Efficacy, or Learning Engagement scores ($p > 0.05$), as shown in Table 2. The means, standard deviations, and correlation matrix for all variables are presented in Table 3.

Structural Equation Model Construction and Testing

We constructed a structural equation model with Future Time Perspective as the independent variable, Learning Engagement as

Table 1: Differences in Future Time Perspective, Self-Efficacy, and Learning Engagement Among University Students of Different Genders.

Dependent Variable	Independent Variable	F	Significance	t	Sig (Two-Tailed)
Total Learning Engagement	Gender	8.07	0.005	0.89	0.37
Behavioral Engagement		13.44	0.000	0.75	0.45
Cognitive Engagement		9.27	0.002	0.85	0.39
Emotional Engagement		2.89	0.09	0.89	0.37
Total Self-Efficacy		2.74	0.099	-0.64	0.52
Total Future Time Perspective		8.29	0.004	0.56	0.57
Behavioral Commitment		6.36	0.01	0.94	0.35
Future Efficacy		7.79	0.005	1.13	0.26
Long-Term Goal Orientation		6.89	0.009	-1.01	0.31
Purpose Awareness		6.72	0.01	1.58	0.11
Future Intentions		6.65	0.01	-0.36	0.72

Note: N=550. Gender is a dummy variable, with female=1 and male=2.

Table 2: Differences in Future Time Perspective, Self-Efficacy, and Learning Engagement among University Students of Different Grades.

Dependent Variable		Independent Variable	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
Total Learning Engagement	Between groups	Grade	3.34	3	1.11	2.05	0.11
	Within groups		288.76	530	0.55		
Behavioral Engagement	Between groups		2.53	3	0.85	1.44	0.23
	Within groups		310.36	530	0.59		
Cognitive Engagement	Between groups		3.67	3	1.22	2.18	0.09
	Within groups		297.20	530	0.56		
Emotional Engagement	Between groups		4.36	3	1.45	2.11	0.10
	Within groups		364.59	530	0.69		
Total Self-Efficacy	Between groups		1.38	3	0.46	0.63	0.60
	Within groups		388.85	530	0.73		
Total Future Time Perspective	Between groups		1.95	3	0.65	1.67	0.17
	Within groups		207.24	530	0.39		
Behavioral Commitment	Between groups		1.44	3	0.48	0.85	0.47
	Within groups		300.73	530	0.57		
Future Efficacy	Between groups		2.08	3	0.69	1.30	0.27
	Within groups		281.74	530	0.53		
Long-Term Goal Orientation	Between groups		3.27	3	1.09	1.98	0.12
	Within groups		291.13	530	0.55		
Purpose Awareness	Between groups		6.52	3	2.17	2.45	0.06
	Within groups		469.57	530	0.89		
Future Intentions	Between groups		2.52	3	0.84	1.43	0.23
	Within groups		311.99	530	0.59		

Note: N=550. Grade is a dummy variable, with 1st year = 1, 2nd year = 2, 3rd year = 3, and 4th year = 4.

the dependent variable, and Self-Efficacy as the mediating variable. The results showed that the model had good fit indices (see Table 4). Specifically, Future Time Perspective positively predicted Learning Engagement ($\beta = 0.14$, $p < 0.001$), Future Time Perspective positively predicted Self-Efficacy ($\beta = 0.70$, $p < 0.001$), and Self-Efficacy positively predicted Learning Engagement ($\beta = 0.36$, $p < 0.001$). See Figure 1 for details.

Discussion

This study found that Future Time Perspective significantly predicts Learning Engagement, thus confirming Hypothesis 1. This result is consistent with prior findings [9, 18, 33]. Future Time Perspective reflects individuals' outlook and cognitive evaluation of their future development, which guides their actions in a positive direction. University students with high Future Time Perspective tend to maintain a proactive attitude toward their future, have clear goals, and are capable of rational planning. Consequently, they are more likely to engage in academic efforts to enhance their competencies and increase their level of Learning Engagement. Among the dimensions of Future Time Perspective, those with strong long-term goal orientation, future intentions, and purpose awareness tend to have a clearer vision of their future careers and life. Students with high future efficacy show greater confidence in their development, and individuals with strong behavioral commitment work step-by-step toward their goals. These traits are closely linked to increased Learning Engagement.

The study also found that Future Time Perspective significantly predicts Self-Efficacy, validating Hypothesis 2. Zhu et al. found a positive correlation between medical students' Future Time Perspective and their academic Self-Efficacy. In this study, Future Time Perspective, as a personality trait, may facilitate individuals' positive judgments about future tasks through psychological construction of long-term goals and future intentions. Higher Future Time Perspective typically reflects clearer and more positive cognition about the future, which fosters stronger confidence in completing academic tasks, thereby playing a predictive role in enhancing Self-Efficacy [35].

Furthermore, the study confirmed that Self-Efficacy significantly predicts Learning Engagement, supporting Hypothesis 3. According to Bandura, Self-Efficacy involves an individual's judgment about their capability to accomplish specific tasks. High Self-Efficacy individuals tend to choose challenging but achievable goals [29]. Learning Engagement includes behavioral, cognitive, and emotional dimensions. Typically, students with high Self-Efficacy show greater behavioral engagement, invest more effort and time in the face of challenges, and are less likely to avoid difficulties. Self-Efficacy influences behavioral choices, motivational effort, cognitive processes, and emotional responses [34]. In terms of cognitive engagement, students with high Self-Efficacy adopt more optimistic attitudes when encountering academic challenges and are more dedicated to completing tasks. As a result, they exhibit higher levels of Learning Engagement.

The study further confirmed that Future Time Perspective can indirectly predict Learning Engagement through Self-Efficacy, validating Hypothesis 4. According to Bandura's theory of self-efficacy, individuals' beliefs in their capacity to complete tasks

Table 3: Means, Standard Deviations, and Correlation Coefficients of Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13
Sex	1												
Grade	0.10*	1											
Total Learning Engagement	-0.04	-0.01	1										
Behavioral Engagement	-0.03	-0.02	0.93**	1									
Cognitive Engagement	-0.04	-0.02	0.95**	0.84**	1								
Emotional Engagement	-0.04	-0.002	0.95**	0.83**	0.84**	1							
Total Self-Efficacy	0.03	-0.02	0.81**	0.75**	0.76**	0.77**	1						
Total Future Time Perspective	-0.02	0.01	0.73**	0.67**	0.74**	0.66**	0.68**	1					
Behavioral Commitment	-0.04	0.03	0.72**	0.67**	0.72**	0.64**	0.65**	0.89**	1				
Future Efficacy	-0.05	-0.02	0.64**	0.60**	0.67**	0.55**	0.57**	0.86**	0.76**	1			
Long-Term Goal Orientation	0.04	0.001	0.75**	0.70**	0.74**	0.68**	0.68**	0.89**	0.81**	0.76**	1		
Purpose Awareness	-0.07	0.03	0.21**	0.17**	0.23**	0.19**	0.23**	0.55**	0.28**	0.28**	0.23**	1	
Future Intentions	0.02	-0.01	0.69**	0.62**	0.70**	0.63**	0.62**	0.86**	0.79**	0.79**	0.81**	0.22**	1
M			3.67	3.63	3.75	3.64	3.55	3.86	3.93	4.08	3.84	3.49	4.05
SD			0.74	0.77	0.75	0.83	0.86	0.63	0.75	0.73	0.74	0.95	0.77

Table 4: Summarizes the model fit indices.

Model	Index Name	Criterion Value	Result
Future Time Perspective→Self-Efficacy→Learning Engagement	RMSEA	**0.06**	**Good fit**
	TLI	**0.86**	**Good fit**
	CFI	**0.87**	**Good fit**

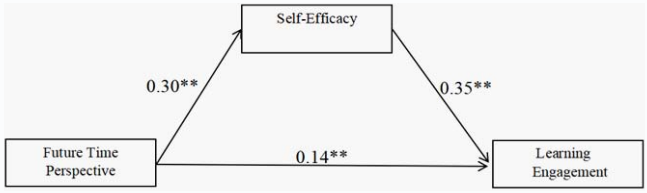

Figure 1: The Indirect Model of Self-Efficacy in the Effect of Future Time Perspective on Learning Engagement.

significantly affect their motivation and performance. Future Time Perspective enhances individuals' clarity about their goals, reinforcing their expectations of success and resulting in higher levels of Learning Engagement. Students with strong Future Time Perspective are also more likely to hold positive self-expectations, boosting their confidence and leading to more initiative and persistence in learning [7]. This mediation model not only enriches theoretical understanding of the relationship between Future Time Perspective and Learning Engagement but also offers practical implications for academic support in higher education—namely, that enhancing students' Self-Efficacy can be an effective means to promote higher Learning Engagement.

Conclusion

Future Time Perspective not only directly and positively predicts Learning Engagement, but also exerts an indirect positive effect through Self-Efficacy. This suggests that enhancing students' Future Time Perspective—such as improving their ability to plan and anticipate future goals—may help stimulate their learning motivation. This effect is largely achieved by boosting their confidence in their own learning abilities (Self-Efficacy). Therefore, educators should prioritize fostering students' future-oriented thinking while also providing targeted support and guidance to strengthen their Self-Efficacy, thereby promoting more effective Learning Engagement.

Funding

This paper was supported by the Sehan University Research Fund in 2025.

References

1. Chen D, Sun H. The Influence of Exercise Attitude on Physical Education Learning Engagement of College Students: The Mediating Role of Self-Efficacy. Journal of Gansu Normal Colleges, 2024; 29 (5), 105-109.
2. Cui S, Wen H.F. The Causes and Strategies of Low Efficiency in College Classrooms. Modern Education Management, 2014; (9), 100-103.
3. Cui W.Q. Research on the Current Status and Countermeasures of College Students' Learning Engagement in the Contemporary Era. Higher Education Exploration, 2012; (06), 67-71.
4. Connell J.P & Wellborn J.G. Competence, autonomy and relatedness: A motivational analysis of self-system processes. In M. Gunnar & L. A. Sroufe (Eds.), Minnesota Symposium on Child Psychology: Vol. 23. Self processes in development (pp. 43-77). Chicago: University of Chicago Press. 1991.
5. Feng Y. Factors Influencing College Students' Learning Engagement and Strategies for Its Enhancement. Sci-Tech Pulse, 2024; (25), 163-165.
6. Gao Z.H. Addressing "Phubbing" in Higher Education Classrooms: A Strategic Framework Based on Learning Engagement Determinants and Behavioral Intervention Design. Journal of Taiyuan Urban Vocational College, 2023; (12), 117-119.

7. Pei C.Y. The Relationship between Future Time Perspective and Learning Engagement in Senior High School Students: An Intervention Research Based on Chain Intermediary Model. Master's Thesis. 2022.
8. Pan Y.Q. Long-term effects of choice of major, social support, learning engagement on college students' interest in their major. Acta Psychologica Sinica, 2017; 49 (12), 1513-1523.
9. Qu M.H. Research on the relationship between future time insight and learning input of college students-the intermediary role of self-control. Psychological Monthly, 2023; 18 (18), 52-56.
10. Guo J.P, Wang S.C, Liu G.Y. How Does University Student's Academic Stress Affect Their Mental Health Problem? Joint Moderating Effects of Academic Self-Efficacy and Stress Coping Strategy. China Higher Education Research, 2023; (5), 25-31.
11. Gong Y.X, Li X.B, Yang Y.L, Lyu C.H. The impact of future time perspective on anxiety A chain mediating model of self-efficacy and coping. Psychological Research, 2023; 16 (5), 402-410.
12. He C.X. Research on the influencing factors of college students' learning burnout: based on the investigation of students in a university in Beijing. Psychologies, 2022; 17 (13), 11-14.
13. Jiang P, Ge Y.L. Analysis of the Causes and Countermeasures of the Low Learning Enthusiasm of Contemporary College Students. Innovation and Practice of Teaching Methods, 2021; 4 (5), 58-60.
14. Li Y.F, Wu J.Q, Ai L.X. The Relationship between Adolescent Peer Support and Physical Education Learning Engagement: a Chain Mediated Relationship Between Esteem and Exercise Self-Efficacy. Fujian Sports Science and Technology, 2024; 43 (4), 98-104.
15. Li C.J, Wang Y.Y. The Influence of Professional Recognition Degree on Learning Engagement of Agricultural Vocational College Students: Focused on the Mediating Role of Self-Efficacy. Journal of Anhui Agricultural Sciences, 2024; 52 (9), 276-278.
16. Luo Q.W. Relationship between General Self-efficacy and Future Time Perception of College Students. Journal of Heilongjiang Vocational Institute of Ecological Engineering, 2018; 31 (04),127-128.
17. Liao Y.G. The development and current status of a questionnaire on college students' learning engagement. Journal of Jimei University: Education Science Edition, 2011; 12 (2), 39–44.
18. Ma R.H. The Influence of Future Time Perspective of Research University Students on Learning Outcome —— The Mediating Role of Learning Engagement. Master's Thesis. 2022.
19. Peetsma T.T. Future time perspective as a predictor of school investment. Scandinavian Journal of Educational Research, 2000; 44 (2), 177-192. https://doi.org/10.1080/713696667
20. Su J.X, Tian Y.L, Jia B. Study on Academic Self-Efficacy and Learning Engagement among College Students: A Moderated Mediation Model. China-Arab States Science and Technology Forum, 2024; (10), 136-140.
21. Song Q.Z. Theoretical and empirical research on future time perspective of university students. PhD dissertation. 2004.
22. Seginer R. Adolescent Future Orientation: An Integrated Cultural and Ecological Perspective. Online Readings in Psychology and Culture, 2003; 6 (1). 1-13. http://dx.doi.org/10.9707/2307-0919.1056.
23. Schaufeli W.B, Martinez I.M, Pinto A.M, Salanova M & Bakker A.B. Burnout and engagement in university students: A cross-national study. Journal of cross-cultural psychology, 2002; 33 (5), 464-481.
24. Schwarzer R. Optimistic self-beliefs: Assessment of general perceived self-efficacy in thirteen cultures. World Psychology, 1997; 3 (1), 177-190.
25. Schwarzer R, Born A, Iwawaki S, Lee Y-M, et al. The assessment of optimistic self-beliefs: Comparison of the Chinese, Indonesian, Japanese, and Korean versions of the General Self-Efficacy scale. Psychologia: An International Journal of Psychology in the Orient, 1997; 40 (1), 1–13.
26. Tao Y.F, Cheng W.L, Zeng Z. Effect of self-efficacy on medical students' learning engagement: Basing on the mediating effect of professional commitment. China Journal of Health Psychology, 2025; 33(1), 136-143.
27. WU F, CHEN S.M, ZHAO Z.N. Comparative Study on College Students' Learning Engagement, Learning Time and Learning Outcomes: Based on Undergraduates Online-Offline Learning Experience Survey in F Province. Research on Higher Education in China, 2024; (10), 22-27.
28. Wang C.K, Hu Z.F, Liu Y. Evidences for Reliability and Validity of the Chinese Version of General Self Efficacy Scale. Applied Psychology, 2001; (1), 37-40.
29. Xu Z. H, Wang X.Q, Zhao Z.X, Zhan N. The influence of college students' self-efficacy on learning engagement: the mediating role of emotion regulation. Psychological Monthly, 2023; 18 (11), 99-101.
30. Yin Z. H. Investigating the Influencing Factors and Improving Measures of College and University Students' Employment Competitiveness in the New Era. Journal of University of Science and Technology Beijing (Social Sciences Edition), 2023; 39 (2), 174-180.
31. Yang Y.L. Development of College Students' Pacing Style Scale and Its Relationship with Future Time Perspective and Self-Efficacy. Master's Thesis. 2023.
32. Zhang J, Xiang S.G, Li X.W, Tang Y, Hu Q. The impact of stress on sleep quality: a mediation analysis based on longitudinal data. *Frontiers in Psychology*, 15, Article11431234. 2024. http://dx.doi.org/10.3389/fpsyg.2024.1431234.
33. Zou J.Y, Gao W. The mediating effect of learning engagement on the relationship between future time perspective and academic achievement among undergraduate nursing students. Journal of Nursing Science, 2023; 38 (18), 85-89.
34. Zhou W.X, Guo G. P. Self-efficacy: The Conception Theory and Applications. Journal of Renmin University of China, 2006; (1), 91-97.
35. Zhu L, Mu L.L, Xu H.S. The Relationship Between Medical Students' Learning Engagement, Future Time Perspective, and Academic Self-Efficacy: A Structural Equation Modeling Approach. Journal of Kaifeng Institute of Education, 2018; 38 (1), 179-180.