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Research Article

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

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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.

Key words: future time perspective; learning engagement; self-efficacy

1.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 (Feng, 2024; Cui, 2012). Learning Engagement refers to the intensity and quality of students' emotional involvement when initiating and carrying out learning activities (Connell & Wellborn, 1991). It also includes the presence of positive, fulfilling emotional and cognitive states related to academic activities (Schaufeli, 2002), 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 (Gao, 2023) and inefficient or ineffective learning (Cui & Wen, 2014; Jiang & Ge, 2021), but also contributes to psychological issues such as increased academic burnout (He, 2022), self-doubt, and elevated stress levels (Guo et al., 2023). Furthermore, it negatively affects students' future employment prospects by reducing professional interest (Pan, 2017), weakening competitiveness, and increasing job-search difficulties (Yin, 2023).

Many scholars (Peetsma, 2000; Song, 2004) 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 (Peetsma, 2000) and encompasses intentions related to one's personal future (Seginer, 2003). 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 (Song, 2004). 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 (Zou & Gao, 2023; Ma, 2022). 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 (Schwarzer, 1997; Schwarzer et al., 1997). Students with high Self-Efficacy tend to demonstrate greater Learning Engagement (Chen & Sun, 2024; Su et al., 2024), whereas those with low Self-Efficacy exhibit lower levels of engagement (Tang, 2024; Xu et al., 2023). Empirical studies have been conducted on specific university student groups, such as basketball majors (Zhang, 2024) and medical students (Tao et al., 2025). Additionally, scholars have studied primary school students (Wu, 2024), secondary school students (Li et al., 2024), and students at vocational colleges (Li & Wang, 2024), 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 (Gong et al., 2023) and college students (Yang, 2023; Luo, 2018; Li, 2012), 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.

2 Method

2.1 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.

2.2.1 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 (Song, 2004). In the present study, the Cronbach's alpha coefficient of the scale was 0.91, and the test-retest reliability was 0.92.

2.2.2 Learning Engagement Scale

To measure students' Learning Engagement, we used the scale developed by Liao (2011). 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 (Liao, 2011). In this study, the scale had a Cronbach's alpha of 0.95 and a test-retest reliability of 0.96.

2.2.3 Self-Efficacy Scale

The Self-Efficacy Scale used in this study was the version revised by Wang et al. (2001). 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.

3 Results and Analysis

3.1 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 (Zhang et al., 2024).

3.3 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.

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

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

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

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		

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

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

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

3.4 Structural Equation Model Construction and Testing

We constructed a structural equation model with Future Time Perspective as the independent variable, Learning Engagement as the dependent variable, and Self-Efficacy as the mediating variable. The results showed that the model had good fit indices (see Table 5). 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.

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

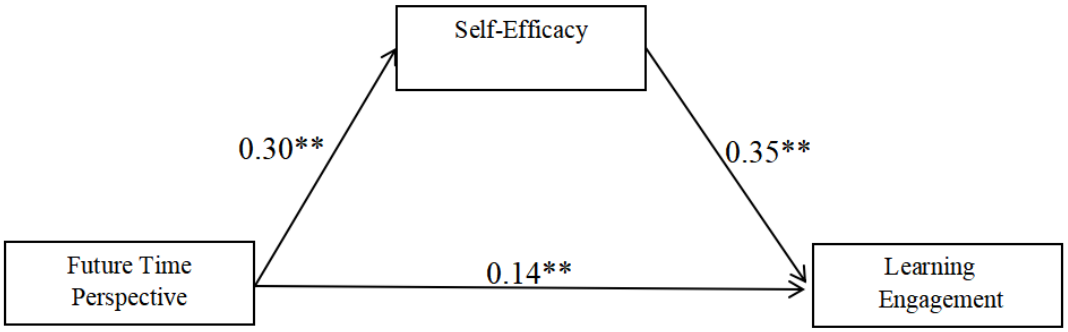

Figure 1: The Indirect Model of Self-Efficacy in the Effect of Future Time Perspective on Learning Engagemen

4 Discussion

This study found that Future Time Perspective significantly predicts Learning Engagement, thus confirming Hypothesis 1. This result is consistent with prior findings (Qu, 2023; Zou & Gao, 2023; Ma, 2022). 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 (Zhu et al., 2018).

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 (Xu et al., 2023). 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 (Zhou & Guo, 2006). 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 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 (Pei, 2022). 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.

5 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.

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