



## TIME PERSPECTIVES AS PREDICTORS OF SELF-EFFICACY: EVIDENCE FROM VIETNAMESE HIGH SCHOOL STUDENTS

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### Information:

Received:09/5/2025

Accepted:19/09/2025

Published:12/2025

### Keywords:

Time perspective, self-efficacy, Vietnamese students, academic psychology

### ABSTRACT

Effective integration methods are essential for taking inferences in statistics. These methods can compute approximations for intractable integrals to calculate for probabilities, expectations, variances, and so on. For deterministic numerical methods, quadrature forms are used to approximate the region beneath the functions. These methods depend on the number of partitions and the finiteness of the integrated regions. Monte Carlo (MC) integration methods can address this problem and provide accurate approximations using generating random sample techniques in statistics. The aims of this paper are to weaken assumptions of the deterministic numerical methods for infinite integrated regions by using the MC integration method. The way to control the accuracy of the MC integration method is also proposed. This MC integration method has been implemented for particular examples with finite and infinite integrated regions. The results show that the proposed methods of applying MC integration can produce better calculations than the deterministic numerical methods and can handle for infinite integrated regions.

## 1. INTRODUCTION

Individuals' perceptions of time play a fundamental role in shaping their thoughts, emotions, and behaviors. Time perspectives (TPs)—defined as the cognitive and emotional orientations that individuals hold toward their past, present, and future—have been widely studied in psychology, particularly since the introduction of the Zimbardo Time Perspective Inventory (ZTPI) by Zimbardo and Boyd (1999). These orientations include five dimensions: past-negative, past-positive, present-hedonistic, present-fatalistic, and future-focused perspectives.

Parallel to this, self-efficacy, as conceptualized by Bandura (1997), refers to an individual's belief in their ability to organize and execute actions required to achieve desired outcomes. Self-efficacy is a central determinant of motivation, persistence, and psychological functioning (Schunk & DiBenedetto, 2020).

Although both constructs—TPs and self-efficacy—have received substantial attention independently, their interrelationship has been less systematically examined. Since TPs influence goal-setting, decision-making, and emotional regulation (Stolarski et al., 2018), they are likely to play a critical role in shaping individuals' confidence in achieving personal

and professional aspirations. For example, a future-oriented perspective may foster stronger self-efficacy by emphasizing planning and perseverance, whereas a past-negative orientation may undermine self-beliefs through rumination and regret.

Understanding how specific TPs predict self-efficacy has important implications for psychological interventions, educational practices, and personal development. In particular, this study investigates the relationships between the five dimensions of time perspective and self-efficacy, offering an integrative framework grounded in motivational and cognitive psychology.

## **2. LITERATURE REVIEW**

TPs represent individuals' cognitive and emotional orientations toward their past, present, and future, shaping how they interpret experiences and regulate behavior. Zimbardo and Boyd's (1999) framework identifies five orientations. A past-positive perspective reflects a nostalgic and appreciative view of one's history, often associated with optimism and resilience, whereas a past-negative perspective involves regret and dissatisfaction, linked to stress and depressive tendencies (Sircova et al., 2014). Present-hedonistic individuals focus on pleasure and novelty, which may encourage creativity but also impulsivity (Sobol-Kwapinska & Jankowski, 2016). Present-fatalistic orientations emphasize helplessness and external control, often resulting in reduced motivation. In contrast, a future-focused orientation emphasizes planning and delayed gratification, and predicts stronger academic and health outcomes (Zhang & Howell, 2011).

Self-efficacy, central to Bandura's (1997) Social Cognitive Theory, refers to beliefs in one's capacity to achieve goals. High self-efficacy supports persistence, resilience, and adaptive coping, while low self-efficacy fosters

avoidance and helplessness (Schunk & DiBenedetto, 2020). These beliefs are shaped by mastery experiences, vicarious learning, social persuasion, and emotional regulation. TPs may influence these pathways. For instance, future-oriented individuals tend to sustain long-term efforts, generating mastery experiences that reinforce self-efficacy (Carelli et al., 2011). Conversely, past-negative and present-fatalistic orientations undermine perceived control, weakening agency and confidence.

Empirical findings support these theoretical links. Future orientation has consistently been linked to higher self-efficacy (Boniwell & Zimbardo, 2015), while past-negative orientations predict lower self-beliefs (Sircova et al., 2014). Past-positive orientations may strengthen self-efficacy by drawing on favorable memories of past achievements (Anagnostopoulos & Griva, 2012). Present-hedonistic orientations show mixed results—promoting creativity in flexible contexts but reducing persistence in structured tasks (Sobol-Kwapinska & Jankowski, 2016). Present-fatalism typically predicts weaker motivation and self-confidence (Zimbardo & Boyd, 1999).

The results of multilevel modeling revealed that future orientation and present-hedonistic TPs were positively associated with career decision-making self-efficacy, while present-fatalistic and past-negative TPs showed negative associations. These findings suggest that, in addition to the well-documented beneficial role of future orientation, the detrimental influence of past-negative and present-fatalistic perspectives should also be taken into account when considering the career development of emerging adults (Kvasková & Almenara, 2021).

Despite these findings, most studies have investigated single TPs in isolation rather than simultaneously testing all five dimensions. This

limits understanding of their combined predictive effects on self-efficacy.

### **3. THE CONTEXT IN VIETNAM**

Research on academic achievement increasingly emphasizes the psychological and contextual factors that shape students' learning processes. In Vietnam, self-efficacy and personality traits have emerged as significant predictors of motivation, perseverance, and educational success, providing insights into how personal and environmental variables interact to influence learning outcomes.

Bui et al. (2019) examined the relationship between parental autonomy support and adolescents' psychological resources, including self-esteem, self-efficacy, and affect, among Vietnamese high school students. Their findings indicated that autonomy-supportive parenting was positively associated with higher self-efficacy, whereas controlling parenting was linked to lower self-esteem and negative affect. This suggests that self-efficacy is not merely an individual trait but is also shaped by contextual and relational factors, particularly during adolescence.

Complementing this evidence, Vũ and Son (2021) found that overall self-belief levels were moderate, with notable weaknesses in perseverance and goal pursuit, highlighting the need to strengthen self-efficacy as a foundation for both psychological well-being and academic success. On the other hand, Nguyễn et al. (2022) reported that all Big Five personality traits were positively associated with academic achievement, with teacher confirmation mediating the effects of conscientiousness, openness, and agreeableness. These findings underscore the interplay between personality traits and supportive social environments in reinforcing students' self-beliefs and confidence.

In essence, studies in the Vietnamese context demonstrate that both internal dispositions (e.g., personality and self-belief) and external influences (e.g., parenting and teacher support) jointly shape students' self-efficacy. Nonetheless, existing research often examines these factors in isolation. A more integrative framework is needed to capture how personality traits and socio-contextual variables interact to shape self-efficacy and, in turn, academic achievement. Such an approach would provide a stronger theoretical basis for designing interventions to foster resilience, motivation, and long-term educational success.

### **4. OVERVIEW OF THE CURRENT STUDY**

TPs provide cognitive frames through which individuals interpret experiences and regulate behavior. Given their influence on motivation and perceived control, they may play a critical role in shaping self-efficacy—the belief in one's ability to organize and execute actions required to achieve goals (Bandura, 1997).

The present study tested all five TPs simultaneously in predicting self-efficacy among Vietnamese high school students. Regression analysis showed that four orientations—future, past-positive, present-fatalistic, and present-hedonistic—were positively associated with self-efficacy, while the past-negative orientation had a negative effect

Based on theory and these findings, the following hypotheses were proposed:

**H1:** Future time perspective will positively predict self-efficacy, as long-term planning and perseverance strengthen mastery beliefs.

**H2:** Past-positive time perspective will positively predict self-efficacy, as favorable recollections of past successes reinforce confidence.

**H3:** Past-negative time perspective will negatively predict self-efficacy, with regret and rumination undermining confidence in one's capabilities.

**H4:** Present-fatalistic time perspective will positively predict self-efficacy in this context, possibly reflecting adaptive acceptance of uncontrollable factors alongside resilience.

**H5:** Present-hedonistic time perspective will positively predict self-efficacy, as spontaneity and pleasure-seeking may contribute to confidence in handling challenges.

## 5. METHOD

### 5.1. Participants and sampling

A total of 509 high school students from An Giang Province (M age = 16.4, SD = 0.9; expected age range = 16–18 years) were voluntarily and randomly recruited to participate in this cross-sectional survey study.

### 5.2. Measures

**Time Perspectives.** TPs were assessed using the Short Zimbardo Time Perspective Inventory (ZTPI-15; Zhang et al., 2013). The instrument comprises 15 items that capture five dimensions: Past negative TP, Past positive TP, Present hedonistic TP, Present fatalistic TP, and Future TP. Each dimension is measured with three items, rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Subscale scores were calculated as the mean of corresponding items, with higher scores reflecting stronger endorsement of that time perspective. Internal consistency reliability (Cronbach's  $\alpha$ ) in this study was satisfactory: Past negative TP ( $\alpha = .90$ ), Past positive TP ( $\alpha = .86$ ), Present hedonistic TP ( $\alpha = .62$ ), Present fatalistic TP ( $\alpha = .65$ ), and Future TP ( $\alpha = .73$ ).

**Self-Efficacy.** Self-efficacy sources were measured using the scale developed by Usher and Pajares (2009). The scale includes 15 items

covering four sources of self-efficacy: mastery experiences (5 items), vicarious experiences (4 items), social persuasions (4 items), and physiological/emotional states (4 items). Items were rated on a 4-point Likert scale (1 = not at all true to 4 = exactly true). A composite score was computed by averaging across items, with higher scores indicating greater perceived self-efficacy. Internal consistency in this study was excellent (Cronbach's  $\alpha = .91$ ).

In addition to the two scales mentioned, participants also reported demographic information, including age, gender, and education level. These variables were included as covariates in sensitivity analyses.

### 5.3. Procedure

Data collection were conducted online using Google Forms. The study was introduced to students via their teachers and social media groups. After clicking the survey link, participants viewed an information sheet about the voluntarily participation of the survey. The survey presented the TPs scale and the self-efficacy scale first, followed by demographic items. The full survey is expected to take 10–12 minutes to complete. Participation was anonymous and voluntary; participants could withdraw any time without penalty.

## 6. RESULTS

The demographic characteristics of the sample are presented in Table 1. A total of 509 students participated in the study, including 232 males (45.6%) and 277 females (54.4%), indicating a slightly higher proportion of females. In terms of grade level, 184 students (36.1%) were in Grade 10, 145 students (28.5%) were in Grade 11, and 180 students (35.4%) were in Grade 12. These figures suggest that the sample was relatively balanced across grades, with adequate representation of both genders.

**Table 1. Demographic information**

	Frequency	Percent
Male	232	45.6
Female	277	54.4
Grade 10	184	36.1
Grade 11	145	28.5
Grade 12	180	35.4

Descriptive statistics and bivariate correlations among the study variables are presented in Table 2. The mean score for self-efficacy was 3.35 (SD = 0.64), reflecting a moderate level of confidence in one’s abilities. With regard to TPs, students reported the highest endorsement of a positive past orientation (M = 4.01, SD = 0.76) and a future orientation (M = 3.72, SD = 0.68), whereas present fatalistic views were least endorsed (M = 2.80, SD = 0.92).

Correlational analyses indicated that self-efficacy was positively associated with past positive ( $r = .33, p < .01$ ), present hedonistic ( $r = .36, p < .01$ ), and future orientations ( $r = .45, p <$

$.01$ ). The strongest relationship emerged with future orientation, suggesting that students with a stronger sense of efficacy are more likely to adopt a forward-looking perspective. Smaller positive correlations were observed between self-efficacy and past negative ( $r = .06, ns$ ) and present fatalistic orientations ( $r = .15, p < .01$ ), though these associations were weaker in magnitude. Intercorrelations among the time perspective dimensions were also evident, with past positive showing moderate associations with past negative, present hedonistic, and future orientations, while present fatalistic demonstrated weaker links with the other perspectives.

**Table 2. Descriptive statistics and Pearson’s correlations**

	M	SD	(1)	(2)	(3)	(4)	(5)
(1) Self-efficacy	3.35	0.64	1				
(2) Past negative TP	3.64	0.99	.06	1			
(3) Past positive TP	4.01	0.76	.33**	.34**	1		
(4) Present fatalistic TP	2.80	0.92	.15**	.30**	.22**	1	
(5) Present hedonistic TP	3.62	0.71	.36**	.35**	.45**	.31**	1

(6) Future TP	3.72	0.68	.45**	.14**	.39**	.06	.37**
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Note: \*\*  $p < 0.01$

The linear regression included the five dimensions of TPs were used to predict self-efficacy. The overall model was statistically significant,  $F(5, 503) = 37.44, p < .001$ ,

explaining 27.1% of the variance in self-efficacy (adjusted  $R^2 = 26.4\%$ ). This result indicates that TPs collectively play an important role in shaping students' beliefs in their capabilities.

**Table 3. Linear regression results**

	Unstandardized Coefficients		Standardized Coefficients		
	B	SE	Beta	t	p-value
(Constant)	1.253	.172		7.275	.000
Past negative TP	-.085	.027	-.132	-3.107	.002
Past positive TP	.108	.038	.129	2.845	.005
Present fatalistic TP	.058	.029	.083	2.023	.044
Present hedonistic TP	.179	.041	.201	4.356	.000
Future TP	.312	.040	.337	7.876	.000

Note: *Dependent Variable: Self-efficacy*

In terms of individual predictors, future TP emerged as the strongest positive predictor of self-efficacy ( $\beta = .337, p < .001$ ), confirming that students who emphasize long-term planning and perseverance are more confident in their ability to achieve goals. Thus, hypothesis 1 was supported.

Past-positive time perspective was also positively associated with self-efficacy ( $\beta = .129, p = .005$ ), suggesting that favorable recollections of past experiences contribute to stronger mastery beliefs. By contrast, past-negative time perspective showed a significant negative effect ( $\beta = -.132, p = .002$ ), indicating that regret and rumination over past failures diminish students' confidence in their own capabilities. Thus, hypothesis 2 and 3 were supported.

Interestingly, both present orientations were found to positively predict self-efficacy,

although their effects were smaller in magnitude. Present-hedonistic time perspective had a significant positive association ( $\beta = .201, p < .001$ ), implying that spontaneity and pleasure-seeking behaviors may enhance students' confidence in handling challenges. Likewise, present-fatalistic time perspective showed a weaker but statistically significant positive relationship with self-efficacy ( $\beta = .083, p = .044$ ). Although present-fatalism is often linked to helplessness, in this context it may reflect adaptive acceptance of uncontrollable circumstances, thereby contributing modestly to resilience and self-beliefs. Thus, hypothesis 4 and 5 were supported.

## 7. DISCUSSION

The present study examined the predictive relationships between five time perspectives (TPs) and self-efficacy among Vietnamese high school students. Consistent with theoretical

expectations (Bandura, 1997; Zimbardo & Boyd, 1999), the findings demonstrate that temporal orientations significantly shape individuals' beliefs in their capabilities. Specifically, future, past-positive, present-hedonistic, and present-fatalistic orientations were positively associated with self-efficacy, whereas the past-negative orientation predicted lower self-efficacy. Together, these results highlight the multifaceted role of TPs in influencing motivational beliefs.

The positive association between future orientation and self-efficacy aligns with previous research emphasizing the motivational benefits of long-term planning and persistence (Boniwell & Zimbardo, 2015; Carelli et al., 2011). Students with strong future perspectives are more likely to engage in goal-setting and sustained effort, which foster mastery experiences and reinforce confidence. Similarly, the link between past-positive orientation and higher self-efficacy suggests that favorable recollections of past achievements serve as psychological resources that strengthen self-beliefs (Anagnostopoulos & Griva, 2012). These findings underscore the role of both future expectations and positive memories in cultivating resilient self-concepts among adolescents.

Unexpectedly, both present-hedonistic and present-fatalistic orientations showed positive associations with self-efficacy. While present-hedonism is often associated with impulsivity and risk-taking (Sobol-Kwapinska & Jankowski, 2016), in this context it may also reflect adaptive flexibility and creativity, which contribute to confidence in handling challenges. The positive effect of present-fatalism is particularly noteworthy, as it contrasts with prior studies linking fatalistic beliefs to diminished motivation and self-control (Zimbardo & Boyd, 1999). One possible explanation is cultural: in

collectivist societies such as Vietnam, acceptance of external constraints may foster resilience by encouraging students to focus on controllable aspects of their lives. This adaptive interpretation of fatalism may enhance perceived self-efficacy, particularly in navigating academic pressures.

Conversely, the negative association between past-negative orientation and self-efficacy is consistent with prior findings that regret, rumination, and dissatisfaction undermine confidence and agency (Sircova et al., 2014). Students who dwell on past failures may internalize these experiences as evidence of incompetence, thereby reducing their motivation and persistence.

## **8. IMPLICATIONS, LIMITATIONS, AND CONCLUSION**

These findings have several practical implications. First, interventions to strengthen self-efficacy should incorporate time perspective training, helping students to develop more future-oriented and past-positive outlooks while reducing maladaptive rumination on negative past experiences. Programs such as Time Perspective Therapy (Zimbardo & Boyd, 2015) may be adapted for educational contexts to promote adaptive temporal orientations. Second, the unexpected positive effects of present-fatalistic and present-hedonistic perspectives suggest that educators should recognize the nuanced ways in which cultural and contextual factors shape motivation. For example, channeling hedonistic tendencies into constructive outlets, such as creative projects, may enhance engagement and confidence. Similarly, reframing fatalism as acceptance of uncontrollable circumstances could support resilience and perseverance.

At a broader level, the study contributes to an integrative framework linking Time Perspective Theory (Zimbardo & Boyd, 1999) and Social

Cognitive Theory (Bandura, 1997). By demonstrating that temporal orientations significantly predict self-efficacy, the findings highlight the importance of cognitive timeframes as motivational resources that can be cultivated through educational and psychological interventions.

## 9. LIMITATIONS AND FUTURE RESEARCH

Despite its contributions, the study has several limitations. First, its cross-sectional design prevents causal inferences. Longitudinal studies are needed to examine how changes in TPs predict the development of self-efficacy over time. Second, the reliance on self-report measures may introduce social desirability bias.

Incorporating multi-method approaches, such as behavioral tasks or teacher evaluations, could provide a more comprehensive assessment of self-efficacy. Third, the sample consisted of Vietnamese high school students, which limits the generalizability of findings to other age groups and cultural contexts. Future research should replicate this model across different educational levels and societies to explore the cultural specificity of the positive effects of present-fatalism and present-hedonism. Finally, the study did not consider potential moderating variables, such as gender, socioeconomic status, or academic achievement. Examining these factors may help clarify the conditions under which particular TPs exert stronger or weaker effects on self-efficacy.

## 10. CONCLUSION

This study provides novel evidence that TPs significantly predict self-efficacy among Vietnamese high school students. Future and past-positive orientations strengthened self-beliefs, whereas the past-negative orientation weakened them. Unexpectedly, present-hedonistic and present-fatalistic orientations also

showed positive associations with self-efficacy, suggesting culturally specific dynamics in how temporal orientations shape motivation. By integrating Time Perspective Theory and Social Cognitive Theory, the study advances understanding of the cognitive and motivational mechanisms underlying self-efficacy development. These findings underscore the importance of fostering adaptive temporal orientations in educational settings to promote resilience, persistence, and long-term success.

## Acknowledgement

This research is funded by An Giang University (AGU), Vietnam National University HoChiMinh City (VNU-HCM) under grant number 25.05.SP.

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