



# Explaining Students' Achievement Motivation Based on Trust in Professors and Perseverance with the Mediating Role of Academic Self-Regulation

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## ABSTRACT

**Objective:** This study aimed to explain students' achievement motivation based on trust in professors and perseverance, emphasizing the mediating role of academic self-regulation.

**Methods and Materials:** A correlational design using path analysis was employed. The sample comprised 219 students (128 males, 91 females; mean age  $21.99 \pm 4.91$  years). Data were collected using Hermans' Achievement Motivation Questionnaire, the Trust in Professors subscale of Moran and Tschannen-Moran's Academic Optimism Scale, Zimmerman and Pons' Academic Self-Regulated Learning Strategies Questionnaire, and Duckworth's Perseverance (Grit) Scale. The structural equations and mediation effects were analyzed using AMOS-26 software and the bootstrapping method.

**Findings:** The proposed path model demonstrated an optimal statistical fit ( $CMIN/df = 1.45$ ,  $RMSEA = 0.045$ ,  $CFI = 0.97$ ). Results indicated that trust in professors ( $\beta = 0.223$ ,  $P = 0.002$ ) and perseverance ( $\beta = 0.263$ ,  $P = 0.001$ ) had significant direct positive effects on achievement motivation. Furthermore, academic self-regulation directly impacted achievement motivation ( $\beta = 0.392$ ,  $P = 0.001$ ) and significantly mediated the relationship between trust in professors (indirect  $\beta = 0.112$ ,  $P = 0.004$ ), perseverance (indirect  $\beta = 0.194$ ,  $P = 0.001$ ), and achievement motivation. Overall, the model explained 47% of the variance in achievement motivation.

**Conclusion:** Trust in professors and individual perseverance are fundamental factors that both directly and indirectly enhance students' achievement motivation. Academic self-regulation serves as a pivotal bridging mechanism in this dynamic, playing a crucial role in boosting student motivation.

**Keywords:** Achievement Motivation, Trust in Professors, Perseverance, Academic Self-Regulation

## 1. Introduction

Higher education presents a complex and demanding environment that necessitates a profound level of cognitive, emotional, and behavioral engagement from students (Haseli Songhori & Salamti, 2024). The transition into university and the subsequent navigation of rigorous academic curricula require learners to operate with high autonomy, making academic achievement motivation a cornerstone of their educational success. Achievement motivation is broadly defined as the internal drive and psychological inclination that compel individuals to strive for excellence, set challenging academic goals, and persist in the face of difficulties and setbacks. It is the core psychological engine that dictates the intensity and direction of a student's learning efforts. Contemporary educational researchers have consistently identified this motivation as a primary catalyst for profound student engagement, enhanced learning outcomes, and optimal psychological well-being within academic settings (Eghbali et al., 2024; khawwaf et al., 2024). When university students possess robust achievement motivation, they are substantially less prone to engage in academic procrastination and exhibit a significantly reduced risk of experiencing emotional or academic burnout (Fatmala, 2025; Nuryana & Wahyuni, 2025). Furthermore, a high degree of achievement motivation serves as a vital psychological buffer against debilitating factors such as test anxiety and emotional distress, actively fostering resilience and adaptability in high-pressure learning environments (Ghaderi, 2024; Seo & Shim, 2024). Given its profound and multifaceted impact on both academic trajectories and personal development, elucidating the specific antecedents and underlying cognitive mechanisms that promote and sustain achievement motivation remains a paramount objective for educators, instructional designers, and educational psychologists alike (Altikulaç et al., 2025).

Among the myriad factors linked to the enhancement of academic motivation, self-regulated learning (SRL) emerges as a core and inextricably connected construct. SRL is generally conceptualized as the active, goal-directed, and cyclical processes through which learners monitor, regulate, and control their cognition, motivation, and behaviors to achieve their specific learning objectives (Toomla et al., 2025; Wang & Read, 2024). The active implementation of self-regulation strategies—such as self-evaluation, environmental structuring, goal-setting, and help-seeking—significantly enhances students' intrinsic motivation,

academic self-efficacy, and mastery-oriented learning behaviors (Ariyan et al., 2024; Sarami & Hojjati, 2023). During periods of significant educational disruption, or within highly autonomous learning formats such as Massive Open Online Courses (MOOCs) and distance education, the capacity to effectively self-regulate has proven absolutely essential for maintaining academic motivation and satisfying the learners' basic psychological needs (Pelikan et al., 2023; Wei et al., 2023).

Extensive empirical evidence strongly underscores the dynamic and reciprocal relationship between an individual's motivational beliefs and their application of self-regulated learning strategies (Sukimin et al., 2023; Yew et al., 2023). Students who effectively and consistently utilize both cognitive and metacognitive learning strategies consistently demonstrate superior academic performance and are substantially better equipped to manage the chronic academic stress associated with higher education (Ragusa et al., 2023; Weyage & Adade, 2024). Moreover, self-regulation acts as a critical psychological bridge, effectively translating inherent cognitive abilities and psychological capital into sustained, observable achievement motivation (Maleki & Hosseini, 2024). Scholars emphasize that a positive academic self-concept and strong motivational beliefs lay the necessary foundation for students to proactively engage in self-regulatory practices, which in turn recursively amplify their internal drive to succeed (Omar et al., 2023; Parsaei Doost et al., 2023). Furthermore, intentionally teaching and fostering these self-regulated learning strategies directly empowers students, particularly those who are heavily engaged in demanding, self-directed academic tasks such as postgraduate academic reading, by augmenting their volitional capacities and motivational reserves (Dewi & Kuswando, 2024). Consequently, self-regulation should not be viewed merely as a byproduct of a student's existing motivation, but rather as a pivotal mediating mechanism that actively processes and synthesizes various internal psychological states and external environmental influences into robust, observable academic achievement motivation (Mızrak & Aliyev, 2024).

While intrinsic cognitive mechanisms like self-regulation are undeniably crucial for academic success, achievement motivation is also profoundly shaped by the interpersonal and relational dynamics present within the educational ecosystem. Foremost among these critical external factors is the students' level of trust in their professors. Interpersonal trust in educational settings encompasses the profound confidence that students have in their instructors'

professional competence, pedagogical reliability, personal benevolence, and authentic commitment to the students' learning and overall well-being (Zhao et al., 2024). The establishment of a strong foundation of trust between educators and learners forms the bedrock of a supportive, optimistic academic environment. This trusting atmosphere directly correlates with significantly enhanced student engagement, the development of robust social capital, and ultimately, superior academic success (Carter-Penny, 2023; Sun et al., 2023).

When university students implicitly trust their professors, they experience a heightened sense of psychological safety within the classroom environment. This safety drastically reduces academic anxiety and encourages the active, fearless pursuit of challenging academic goals. Such a trusting educator-student relationship fosters deep student satisfaction and significantly enhances the learners' identification with, and long-term loyalty to, the academic institution (Abdullah & Wahid, 2025; Susan et al., 2023). Moreover, an educational environment that is characterized by high levels of interpersonal trust effectively alleviates psychological barriers and defensive posturing, allowing students to invest significantly more of their cognitive and emotional resources into proactive, self-regulated learning, rather than expending energy on defensive or avoidant coping strategies. Trust in instructors implicitly validates the learners' academic efforts and provides a secure base from which students can take intellectual risks, thereby directly and powerfully bolstering their achievement motivation. Therefore, examining the relational quality between students and their educators, particularly through the specific lens of interpersonal trust, provides essential, nuanced insights into how external support structures ignite, maintain, and amplify internal motivational processes.

Complementing the vital external relational support provided by trust in educators is the critical internal, intrapersonal trait of perseverance, which is frequently conceptualized in the psychological literature alongside the construct of grit. Perseverance represents an individual's sustained passion and steadfast, unyielding commitment to achieving long-term goals, maintaining focused effort despite inevitable setbacks, numerous challenges, or extended plateaus in visible progress (Sh Rahimpour et al., 2023). In the inherently demanding and often stressful context of higher education, perseverance is an indispensable psychological asset. It has been empirically shown to act as a significant and powerful psychological buffer, actively protecting vulnerable students against the

debilitating, compounding effects of clinical depression, negative family climates, and severe academic burnout (Pongpitpitak et al., 2022).

A growing body of empirical research highlights that perseverance shares a robust, synergistic positive relationship with other vital psychological constructs, including psychological hardiness, resilience, and deep academic engagement (Najarian & Vahedi, 2023; Shokoufeh Rahimpour et al., 2023). Students who naturally exhibit, or have cultivated, high levels of perseverance are significantly more likely to employ sophisticated self-regulated learning strategies. This is because they possess the requisite cognitive and emotional endurance required to continuously monitor, evaluate, and iteratively adjust their complex learning behaviors over long periods. This enduring trait not only drives deep metacognitive engagement but also directly and powerfully fuels achievement motivation, largely because perseverant learners tend to perceive academic difficulties as surmountable, temporary challenges rather than permanent, insurmountable threats to their self-worth or academic future (Jeon, 2025). By sustaining intense effort over prolonged and often difficult periods, perseverance effectively ensures that temporary academic failures or poor grades do not extinguish the student's underlying, foundational motivation to achieve their ultimate educational goals.

While the individual impacts of trust in professors, personal perseverance, and self-regulated learning on student achievement motivation have been relatively well-documented in parallel streams of psychological and educational literature, the complex, structural interplay among all these variables operating simultaneously remains surprisingly underexplored. Extant literature has firmly established that academic motivation is highly multifaceted, constantly influenced by a complex matrix of relational, intrapersonal, and strategic factors. However, there exists a notable theoretical and empirical gap regarding how the external relational factor—specifically, trust in professors—and the internal trait factor—perseverance—jointly and concurrently influence academic motivation, particularly through the specific, measurable cognitive-behavioral pathway of academic self-regulation.

From a theoretical standpoint, academic self-regulation is perfectly positioned as an ideal mediating mechanism in this complex psychological dynamic. On one hand, a highly trusting relationship with professors provides the necessary safe, supportive, and predictable external scaffolding that students need to practice, fail, and refine their self-regulatory

behaviors without the paralyzing fear of punitive judgment or academic ridicule. On the other hand, perseverance provides the crucial internal emotional stamina and cognitive resilience required to maintain these highly demanding self-regulatory strategies over the extended duration of a university degree. Together, a trusting academic environment and personal psychological grit synergistically empower the student to become a highly effective, independent, and self-regulated learner. This enhanced capacity for academic self-regulation, in turn, serves as the direct psychological engine that continuously drives, sustains, and elevates their achievement motivation. Understanding this holistic pathway is vital for developing targeted educational interventions that do not merely focus on motivating students superficially, but rather build the trust and resilience necessary for them to regulate their own lifelong learning.

Despite the clear theoretical linkages, empirical studies utilizing robust structural equation modeling to simultaneously test the direct and indirect effects of these combined variables on university students are scarce. Addressing this gap will provide educational practitioners and policy makers with a much clearer, empirically validated blueprint for fostering optimal academic environments. By clarifying how students' internal grit interacts with their perception of instructor trustworthiness to enhance self-regulation, universities can better design instructional strategies, faculty development programs, and student support services that systematically nurture the holistic psychological development of the learner. Therefore, this study aimed to explain students' achievement motivation based on trust in professors and perseverance with the mediating role of academic self-regulation.

## 2. Methods and Materials

### 2.1. Study Design and Participants

This research utilized a correlational design based on path analysis/structural equation modeling. The statistical population comprised university students from Tehran, from which 221 questionnaires were initially collected through purposeful sampling method. After excluding incomplete or distorted responses, a final sample of 219 participants was retained for the main analysis.

### 2.2. Measures

The Achievement Motivation Questionnaire (Hermans, 1987) was used to measure individuals' achievement motivation in the present study. This instrument was designed with the objective of differentiating individuals with high achievement motivation from those with low achievement motivation. The questionnaire consists of 29 items, with response options arranged on a four-point scale (from 1 to 4 or vice versa) and scored based on the intensity of motivation from low to high or high to low. The score range of this questionnaire is from a minimum of 29 to a maximum of 116; such that higher scores indicate greater achievement motivation and lower scores indicate lower achievement motivation. The reliability coefficients of the achievement motivation questionnaire in the current study were calculated using Cronbach's alpha and split-half coefficients. Results showed that Cronbach's alpha coefficient was .78 and the split-half coefficient was .77, indicating the acceptable reliability of the questionnaire. To determine the validity of the Hermans Achievement Motivation Questionnaire in the current study, a confirmatory factor analysis using AMOS-26 software was performed on the questionnaire items. Initial analysis results indicated that some items (numbers 4, 11, 12, 15, 22, 24, 25, and 29) had factor loadings below .30 and, therefore, these items were removed.

In the present study, the Academic Optimism Scale (Moran & Tschannen, 2013), which includes three subscales, was used to measure trust in professors. However, in this study, only the students' trust in professors subscale was utilized. This subscale consists of 10 items, and its total score is obtained by summing the scores of each item, noting that some items are reverse-scored (scored on a 5-point Likert scale from 1 = *very low* to 5 = *very high*). The score range of this subscale is between a minimum of 10 and a maximum of 50, and higher scores indicate students' greater trust in professors. The reliability of this subscale was obtained using a Cronbach's alpha coefficient of .92 and a split-half coefficient of .93, indicating the acceptable reliability of the instrument. To determine the validity of this subscale, confirmatory factor analysis was conducted using AMOS-26 software, and the results of the fit indices showed that the structure of this subscale has an appropriate fit and can be used to measure students' trust in professors in the research sample.

In the current study, the Academic Self-Regulated Learning Strategies Questionnaire (Zimmerman & Pons,

1986) was used to measure academic self-regulation. This questionnaire comprises 15 items assessing 14 self-regulated learning strategies, including self-evaluation, organizing, information seeking, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking peer or teacher assistance, and reviewing records and tests. Responses are scored on a four-point Likert scale from 1 (*rarely*) to 4 (*mostly*), and the total score range of the questionnaire is between 15 and 62, such that higher scores indicate a higher level of academic self-regulation. The reliability of this questionnaire in the current study, using Cronbach’s alpha and Spearman’s split-half coefficients, was obtained as .72 and .76, respectively, which indicates the reliability of the instrument. To determine the validity of the questionnaire, confirmatory factor analysis was conducted using AMOS-26 software. Initial results showed that some items lacked adequate fit indices (items 8, 13, 14, and 15 were removed due to factor loadings below .30), and after their removal, the final structure of the questionnaire had acceptable factor loadings and favorable fit indices, confirming the construct validity of this questionnaire for measuring academic self-regulation in the present research sample.

In the present study, the Grit Scale (Duckworth, 2007) was used to measure perseverance. This scale includes 17 items, and its scoring is conducted on a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with some items being reverse-scored. The total score range of the scale is between 12 and 66, and higher scores indicate a higher level of perseverance. The reliability of this scale in the current study, using Cronbach’s alpha and split-half coefficients, was obtained as .71 and .79, respectively, indicating the acceptable reliability of the instrument. To determine the construct validity of the

perseverance scale, confirmatory factor analysis was conducted using AMOS-26 software. Initial results indicated that some items did not have appropriate fit indices (items 3, 5, 7, and 16 were removed due to factor loadings below .30), and after their removal, the final structure of the scale had acceptable factor loadings and desirable fit indices, indicating the suitability of this scale for measuring perseverance in the present research sample.

### 2.3. Data Analysis

Data analysis was conducted in two stages using descriptive and inferential statistics. Descriptive indices, Pearson correlation matrices, and initial assumption checks—including tests for normal distribution (skewness and kurtosis) and the absence of multicollinearity (Tolerance and VIF indices)—were performed using SPSS 28. Subsequently, path analysis and structural equation modeling (SEM) were executed using AMOS-26 software to evaluate the model’s goodness-of-fit and to test the direct and indirect effects among the variables, with the mediating role of academic self-regulation specifically assessed via the bootstrapping method.

## 3. Findings and Results

In this study, a total of 221 questionnaires were collected, and after the initial review and the exclusion of incomplete questionnaires or those with distorted data, 219 eligible questionnaires were used in the final analyses. The mean age of the participants was 21.99 years with a standard deviation of 4.91. In terms of gender, 91 participants (41.6%) were female, and 128 (58.4%) were male. Descriptive indices of the variables and the correlation coefficients among them are presented in Table 1.

**Table 1**

*Descriptive Indices and Correlation Coefficients Among Research Variables*

Variables	1	2	3	4
1. Achievement Motivation	1			
2. Trust in Professors	.38**	1		
3. Academic Self-Regulation	.45**	.32**	1	
4. Perseverance	.41**	.29**	.52**	1
Mean	82.61	38.42	45.74	62.32
Standard Deviation	9.81	6.24	7.42	8.90
Skewness	-.15	-.22	-.18	-.31
Kurtosis	.42	.35	.28	.49

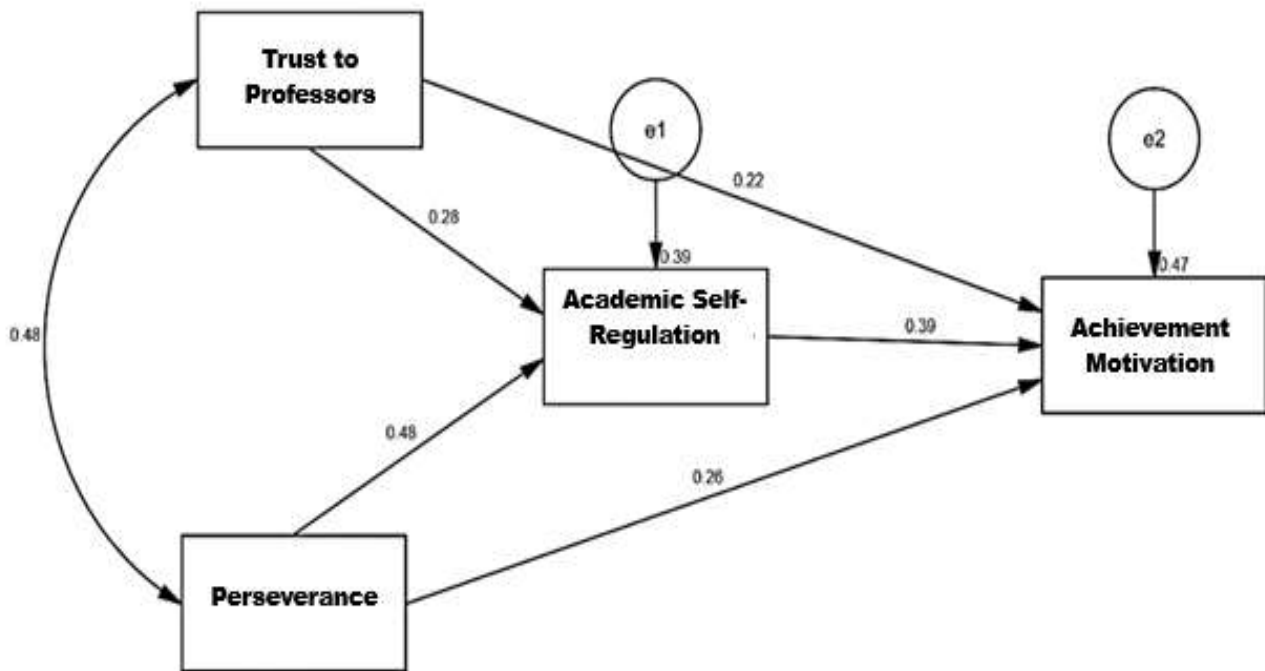
\*\*p<0.01

In Table 1, Pearson correlation coefficients show that the research variables have positive and significant relationships with each other; such that achievement motivation has a positive and significant relationship with trust in professors ( $r = .38$ ), academic self-regulation ( $r = .45$ ), and perseverance ( $r = .41$ ). Trust in professors also showed a positive and significant correlation with academic self-regulation ( $r = .32$ ) and perseverance ( $r = .29$ ). Additionally, academic self-regulation had a stronger positive relationship with perseverance ( $r = .52$ ) ( $P < .01$ ). To assess the normal distribution of the variables, skewness and kurtosis indices were calculated. Findings revealed that all values fall within the acceptable range (skewness

between  $-2$  and  $+2$ , and kurtosis between  $-7$  and  $+7$ , according to Byrne, 2013). Prior to executing the path analysis model to measure the mediating role of academic self-regulation in the relationship between trust in professors and perseverance with achievement motivation, two statistical assumptions regarding the independence of errors and the absence of multicollinearity were examined. The results of the Tolerance and Variance Inflation Factor (VIF) indices indicated that these assumptions were met, and the necessary conditions for conducting the path analysis model were provided. Finally, the standardized version of the path analysis model is displayed in Figure 1.

**Figure 1**

*The Conceptual Model of the Research with Standardized Coefficients*



The results of the path analysis model (Figure 1) demonstrate that trust in professors and perseverance impact achievement motivation both directly and through the mediating role of academic self-regulation. Specifically, perseverance and trust in professors have a significant direct effect on achievement motivation. Furthermore, academic self-regulation plays a key mediating role, and the indirect effect of trust in professors and perseverance on achievement

motivation through it is significant. Therefore, the mediating role of academic self-regulation in this model is considerable. The research model is capable of explaining approximately 47% of the variance in achievement motivation and 39% of the variance in academic self-regulation. The results concerning the direct effects are reported in Table 2.

**Table 2**

*Direct Path Coefficients of the Path Analysis Model Variables*

Paths	Standardized Coefficient ( $\beta$ )	Standard Error	t-value	Lower Bound	Upper Bound	Significance Level ( $P$ )
Trust in Professors →Academic Self-Regulation	.284	.091	3.121	.108	.464	.002
Trust in Professors →Achievement Motivation	.223	.073	3.055	.083	.363	.002
Perseverance →Academic Self-Regulation	.481	.086	5.593	.320	.643	.001
Perseverance →Achievement Motivation	.263	.065	4.046	.149	.383	.001
Academic Self-Regulation →Achievement Motivation	.392	.052	7.538	.298	.491	.001

The results in Table 2 showed that the direct effect of trust in professors on academic self-regulation ( $\beta = .284, P = .002$ ) and achievement motivation ( $\beta = .223, P = .002$ ) was positive and significant. Also, perseverance had a strong and positive direct effect on academic self-regulation ( $\beta = .481, P = .001$ ) and achievement motivation ( $\beta = .263,$

$P = .001$ ). Academic self-regulation also demonstrated a positive and significant direct effect on achievement motivation ( $\beta = .392, P = .001$ ). In the following, findings related to the analysis of the mediating role are reported in Table 3.

**Table 3**

*The Mediating Effect of Academic Self-Regulation in the Relationship Between Dimensions of Trust in Professors and Perseverance with Achievement Motivation*

Paths	Standardized Coefficient ( $\beta$ )	Standard Error	Lower Bound	Upper Bound	Significance Level ( $P$ )
Trust in Professors →Academic Self-Regulation →Achievement Motivation	.112	.049	.031	.198	.004
Perseverance →Academic Self-Regulation →Achievement Motivation	.194	.053	.095	.296	.001

The results of the bootstrap test in Table 3 indicated that academic self-regulation plays a significant role as a mediating variable in the relationship between trust in

professors ( $\beta = .112, P = .004$ ) and perseverance ( $\beta = .194, P = .001$ ) with achievement motivation. The model fit indices are reported in Table 4.

**Table 4**

*Fit Indices of the Research Conceptual Model*

Fit Indices	CMIN	DF	CMIN/df	AGFI	IFI	GFI	CFI	RMSEA	PCLOSE	P
Research Model	5.82	4	1.45	.92	.97	.94	.97	.045	.12	.06
Decision Criterion	–	–	$1 < x < 3$	$> .80$	$> .90$	$> .90$	$> .90$	$< .05$		

Based on the data in Table 4, the model fit indices are all within the desirable range ( $CMIN/df = 1.45, AGFI = .92, GFI = .94, IFI = .97, CFI = .97, RMSEA = .045, PCLOSE = .12, P = .06$ ). These results indicate that the proposed model is consistent with the research data and has an acceptable statistical fit. Based on Figure 1 and the results of Tables 2 and 3, trust in professors and perseverance predict achievement motivation both directly and indirectly

through the mediation of academic self-regulation; such that perseverance has a stronger direct effect on achievement motivation compared to trust in professors, whereas academic self-regulation showed a positive and significant direct effect on achievement motivation and also played an important mediating role; the indirect effect of both independent variables on achievement motivation through academic self-regulation was significant. These findings

suggest that academic self-regulation has a key mediating role in explaining the relationship between trust in professors, perseverance, and achievement motivation.

#### 4. Discussion

The primary objective of the present study was to develop and evaluate a structural model explaining students' achievement motivation based on their trust in professors and their perseverance, while specifically examining the mediating role of academic self-regulation. The findings derived from the path analysis ("2).docx" یافتہ ہا) demonstrated that the proposed conceptual model possessed a strong predictive capacity, successfully explaining 47% of the total variance in students' achievement motivation ( $R^2 = 0.47$ ) and 39% of the variance in academic self-regulation ( $R^2 = 0.39$ ). These substantial effect sizes highlight the profound explanatory power of integrating both relational and intrapersonal factors when attempting to understand academic drive. The results revealed a significant and positive direct effect of trust in professors on students' achievement motivation ( $\beta = 0.223$ ,  $p = 0.002$ ). This aligns with previous theoretical and empirical frameworks which posit that interpersonal security and relational trust are fundamental prerequisites for autonomous motivation (Carter-Penny, 2023; Sun et al., 2023). When university students perceive their academic environment as supportive and deeply trust their professors' pedagogical intentions and competence, they experience a significant reduction in academic anxiety and fear of failure (Susan et al., 2023; Zhao et al., 2024). This trusting psychological climate fulfills the learners' basic need for relatedness, which in turn acts as a powerful catalyst for intrinsic motivation, encouraging them to actively engage with challenging academic materials rather than resorting to avoidance behaviors (Abdullah & Wahid, 2025; Fatmala, 2025; Nuryana & Wahyuni, 2025).

In addition to the relational aspects, the structural model indicated a significant and positive direct effect of personal perseverance on achievement motivation ( $\beta = 0.263$ ,  $p = 0.001$ ). This specific finding strongly supports contemporary literature that emphasizes the critical role of psychological grit and sustained effort in educational success (Shokoufeh Rahimpour et al., 2023; Sh Rahimpour et al., 2023). Perseverance equips students with the essential cognitive and emotional endurance required to navigate the inherently stressful and demanding landscape of higher education without succumbing to burnout or academic

apathy (Najarian & Vahedi, 2023; Pongpitpitak et al., 2022). Students who exhibit high levels of perseverance naturally tend to reframe academic setbacks, difficult assignments, and temporary failures as surmountable challenges rather than permanent threats to their self-worth or capability (Jeon, 2025; Seo & Shim, 2024). This resilient cognitive reframing prevents the depletion of their motivational resources. Consequently, the intrinsic stamina and long-term goal orientation associated with perseverance serve as a continuous psychological engine that directly and robustly fuels a mastery-oriented motivational state, preventing the emotional exhaustion that frequently derails academic achievement (Ghaderi, 2024; khawwaf et al., 2024). By maintaining consistent effort despite obstacles, perseverant students construct a positive feedback loop where incremental progress continuously reinforces their overarching motivation to succeed (Omar et al., 2023; Sarami & Hojjati, 2023).

Crucially, the current research confirmed the pivotal, central mediating role of academic self-regulation within this psychological matrix. The path analysis results demonstrated that trust in professors significantly predicted academic self-regulation ( $\beta = 0.284$ ,  $p = 0.002$ ), while perseverance exhibited a particularly strong, positive direct effect on self-regulation ( $\beta = 0.481$ ,  $p = 0.001$ ). Furthermore, academic self-regulation itself exerted a robust positive direct effect on achievement motivation ( $\beta = 0.392$ ,  $p = 0.001$ ). The significance of the indirect pathways was verified, showing that trust in professors influenced achievement motivation indirectly through self-regulation ( $\beta = 0.112$ ,  $p = 0.004$ ), and perseverance similarly exerted a significant indirect effect on motivation via this self-regulatory mechanism ( $\beta = 0.194$ ,  $p = 0.001$ ). These comprehensive findings corroborate the theoretical perspective that self-regulated learning is a dynamic, complex process that relies heavily on both external scaffolding and internal emotional fortitude (Mizrak & Aliyev, 2024; Toomla et al., 2025; Wang & Read, 2024). A trusting relationship with university faculty provides a secure, predictable environment that empowers students to actively experiment with, fail at, and ultimately refine complex self-regulatory strategies—such as intricate goal-setting, self-monitoring, and proactive help-seeking—without the debilitating fear of punitive evaluation (Ariyan et al., 2024; Weyage & Adade, 2024). Concurrently, perseverance supplies the indispensable cognitive stamina needed to consistently apply and maintain these highly demanding, energy-intensive self-regulatory practices over

the extended duration of an academic degree (Sukimin et al., 2023; Yew et al., 2023).

When students successfully execute self-regulated learning strategies, they experience a profound increase in their academic self-efficacy and a heightened sense of personal autonomy over their learning trajectory, which directly translates into sustained, observable achievement motivation (Maleki & Hosseini, 2024; Parsaei Doost et al., 2023; Ragusa et al., 2023). This interconnected mechanism highlights that while supportive external environments and resilient innate traits are undeniably foundational, it is the active, deliberate cognitive mediation of the learner—specifically through structuring and managing their own learning processes—that ultimately synthesizes these elements into long-term academic motivation (Dewi & Kuswandono, 2024; Pelikan et al., 2023; Wei et al., 2023). The study underscores a synergistic psychological reality: the external interpersonal environment (trust in educators) and the internal intrapersonal trait (perseverance) jointly facilitate and enhance the strategic cognitive behaviors (self-regulation) that culminate in optimal motivational states (Altikulaç et al., 2025; Eghbali et al., 2024; Haseli Songhori & Salanti, 2024). The combined predictive power of these variables emphasizes the critical necessity for universities to implement holistic educational models that simultaneously foster supportive faculty-student dynamics and build individual student resilience, thereby cultivating highly effective, self-directed, and motivated learners.

## 5. Conclusion

In conclusion, this study demonstrates that students' academic achievement motivation is deeply rooted in a synergistic interplay between their relational educational environment and their internal psychological fortitude, fundamentally driven by their capacity for self-regulation. The findings clearly establish that when students cultivate a profound sense of trust in their professors, viewing them as supportive, transparent, and competent guides, they are significantly more likely to feel secure enough to engage deeply with their academic pursuits. Concurrently, personal perseverance acts as a critical internal engine, providing the necessary cognitive and emotional stamina for students to persist through inevitable academic challenges, complex assignments, and temporary setbacks without losing their intrinsic drive. However, the most pivotal insight from this research lies in the central mediating role of academic self-regulation. Trust and perseverance do not operate in a

vacuum to generate motivation; rather, they serve as the crucial foundational elements that empower students to take active, strategic control of their own learning processes. A supportive, trusting environment combined with individual grit enables students to confidently and effectively set goals, monitor their progress, and adapt their study strategies. It is through this deliberate and active self-regulation that the latent potential of relational trust and personal perseverance is transformed into observable, sustained achievement motivation. The substantial explanatory power of this model confirms that motivated learners are not simply born, nor are they solely the product of excellent curriculum delivery. Instead, they emerge from a comprehensive educational ecosystem that simultaneously nurtures psychological security and individual resilience. Therefore, to truly optimize academic success, universities must move beyond traditional instructional paradigms and design holistic experiences that foster empathetic faculty-student relationships, actively build student perseverance, and explicitly teach self-regulatory skills, thereby cultivating a generation of highly motivated, autonomous learners.

## 6. Limitations & Suggestions

Despite the robust findings and the substantial variance explained by the structural model, the present study is subject to several methodological limitations that must be acknowledged when interpreting the results. First, the cross-sectional design of the research restricts the ability to establish definitive causal relationships between trust in professors, perseverance, academic self-regulation, and achievement motivation. While the directional paths are strongly grounded in psychological theory, the data merely reflect a snapshot in time, and reciprocal or bidirectional influences cannot be entirely ruled out. Second, the reliance on self-report questionnaires to assess all the variables may introduce response biases, such as social desirability bias or common method variance, which can potentially inflate the strength of the observed relationships between the constructs. Participants might have subconsciously overestimated their levels of perseverance or their self-regulatory behaviors to align with perceived academic ideals. Furthermore, the sample was exclusively drawn from university students in Tehran, which limits the generalizability of the findings. The unique cultural, socioeconomic, and institutional characteristics of this specific demographic may not accurately reflect the psychological dynamics of students in different

geographical regions, varied cultural contexts, or alternative educational settings, such as vocational schools or entirely asynchronous online programs. Finally, the study did not account for several potential confounding variables, such as students' baseline cognitive abilities, prior academic achievement, mental health status, or socioeconomic backgrounds, all of which could independently influence both their capacity for self-regulation and their overall achievement motivation.

To address the aforementioned limitations and advance the understanding of academic motivation, future research should prioritize longitudinal and experimental designs. Longitudinal studies tracking cohorts of students across multiple academic semesters would provide invaluable insights into how trust in professors and personal perseverance evolve over time, and how these temporal changes subsequently impact the developmental trajectory of academic self-regulation and motivation. Such designs would allow researchers to infer causality with much greater confidence. Additionally, experimental or quasi-experimental studies that actively manipulate the classroom environment to foster trust, or implement targeted interventions designed to boost student perseverance, could definitively isolate the effects of these variables. Future investigations should also seek to diversify their participant pools by including students from various geographical locations, diverse cultural backgrounds, and distinct educational systems, thereby enhancing the external validity and generalizability of the proposed structural model. Expanding the conceptual framework by incorporating other potential mediating or moderating variables would also be highly beneficial. For instance, exploring the moderating role of gender, academic discipline, or year of study could reveal nuanced differences in how these psychological mechanisms operate across different student subgroups. Furthermore, incorporating qualitative or mixed-methods approaches, such as in-depth student interviews or focus groups, would provide a richer, more contextualized understanding of the specific behaviors and communicative practices that professors utilize to build trust, as well as the subjective, lived experiences of students as they navigate academic challenges using perseverance and self-regulation.

Based on the empirical findings of this study, several practical implications emerge for educational administrators, curriculum designers, and university professors seeking to optimize student motivation and academic success. Primarily, universities must recognize that fostering achievement motivation extends far beyond

merely presenting rigorous academic content; it requires the active cultivation of a highly supportive and trusting relational environment. Institutions should implement comprehensive professional development programs for faculty members that emphasize pedagogical transparency, empathetic communication, and supportive mentoring techniques. Equipping professors with the interpersonal skills necessary to build strong, trusting relationships with their students is a foundational step in reducing academic anxiety and establishing a safe climate conducive to self-regulated learning. Simultaneously, academic institutions should proactively implement initiatives designed to enhance students' intrapersonal resilience and perseverance. Workshops focusing on developing a growth mindset, stress management techniques, and cognitive reframing can help students build the psychological grit required to view academic setbacks as valuable learning opportunities rather than insurmountable failures. Finally, the critical mediating role of academic self-regulation suggests that self-regulatory skills should not be treated merely as a byproduct of a university education, but should be explicitly and systematically taught within the curriculum. Integrating instruction on effective goal-setting, time management, self-reflection, and strategic help-seeking directly into first-year orientation programs and ongoing academic support services will empower students with the practical cognitive tools they need to independently bridge the gap between their intrinsic perseverance, their supportive learning environment, and their ultimate achievement motivation.

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### **Declaration of Interest**

The authors of this article declared no conflict of interest.

### **Ethical Considerations**

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

### **Transparency of Data**

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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## Authors' Contributions

All authors equally contributed to this article.

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