

Gender Differences and Key Predictors of Self-Regulated Learning

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Abstract: This study investigates key predictors and gender differences in self-regulated learning (SRL) and motivation among Moroccan university students of English as a foreign language (EFL). It also examines students' motivational profiles and their use of SRL strategies in relation to academic achievement in English. The study involved 403 Moroccan EFL university students (219 females and 184 males), and data were collected using the Motivated Strategies for Learning Questionnaire (MSLQ). Descriptive statistics, independent-samples t-tests, and multiple regression analyses were conducted to assess levels of SRL and motivation, explore gender differences, and identify significant predictors of academic achievement. The findings revealed that students reported generally high levels of SRL strategy use and motivational orientations. Regression analyses indicated that elaboration, self-efficacy, and extrinsic goal orientation were significant predictors of English academic achievement. In terms of gender differences, female students demonstrated significantly higher engagement in SRL strategies than male students, whereas no statistically significant differences were found in motivational beliefs. These findings highlight the importance of fostering effective self-regulated learning strategies and enhancing motivational factors in university EFL contexts, which suggests that educational practices that explicitly support SRL development can contribute to improved academic achievement across genders.

Keywords: self-regulated learning; motivation; gender differences; EFL; university students.

INTRODUCTION

Academic achievement in higher education is increasingly understood as a function not only of learners' cognitive abilities but also of their capacity to actively regulate their own learning processes. In this regard, SRL has emerged as a central construct in contemporary educational research, as students who effectively regulate their learning tend to achieve higher academic outcomes, demonstrate greater persistence, and adapt more successfully to complex and autonomous learning environments (Eilam & Aharon, 2009; Pintrich, 1995; Zimmerman, 1990). SRL is commonly conceptualized as a dynamic process through which learners proactively manage their cognition, motivation, and behavior by setting goals, selecting and applying strategies, monitoring progress, and engaging in reflective self-evaluation (Zimmerman, 2000). In higher education contexts, particularly those characterized by increased learner autonomy and reduced instructional scaffolding, SRL is therefore regarded as a cornerstone of effective academic engagement (Winne, 2016).

Empirical research has consistently demonstrated a significant relationship between SRL and academic achievement across educational levels and contexts. Early foundational work by Pintrich and De Groot (1990) established that self-regulation, self-efficacy, and test anxiety were significant predictors of classroom performance, which highlights the important interplay between motivational beliefs and cognitive strategy use. This line of inquiry has since been expanded through large-scale syntheses. For instance, Jensen et al. (2019), in a meta-analysis of 126 empirical studies, reported that SRL accounted for a substantial proportion of variance in academic outcomes in both secondary and tertiary education. Similarly, Chen et al. (2024), reviewing 32 empirical

studies, and found that SRL processes such as goal setting, progress monitoring, and motivational regulation were consistently associated with improved academic achievement, with self-efficacy and affective regulation emerging as particularly influential across diverse learning environments. In line with these findings, Elesio (2023) showed that SRL strategies such as elaboration, organization, and rehearsal significantly enhanced academic performance among first-year university students, which indicates that SRL is applicable across instructional settings and educational tiers.

The mechanisms behind SRL have been thoroughly studied within well-known conceptual frameworks. Zimmerman's cycle model (2000), conceptualises SRL as a repetitive process with three interrelated phases, including forethought, performance, and self-reflection. In the forethought phase, learners engage in goal setting, strategic planning, and the activation of motivational beliefs such as self-efficacy. The performance phase involves the implementation of cognitive and metacognitive strategies, attention regulation, and self-monitoring. Finally, the self-reflection phase encompasses self-evaluation and causal attribution processes that inform subsequent learning cycles. Zimmerman's cycle model is a significant model that emphasizes learners' agency and the reciprocal interaction between personal, behavioral, and environmental factors (Bandura, 1986).

Pintrich's SRL framework (2000) expanded on Zimmerman's model by identifying four other phases of self-regulation, including planning, monitoring, control, and reflection within various domains such as cognitive, motivational, behavioural, and environmental regulation. This framework emphasises the importance of motivation in maintaining self-

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regulated behaviour and learners' ability to actively manage not just their cognitive processes but also their effort, emotions, and learning environment. Empirical studies related to these models have increasingly sought to identify which specific SRL components most strongly predict academic achievement. For example, Tavakoli and Koosha (2015) demonstrated that heightened metacognitive awareness enhanced learners' self-evaluation skills and their ability to regulate subsequent learning, while Nikoopour and Farsani (2012) found that affective and metacognitive strategies, such as emotion regulation and strategic planning, were critical for sustaining engagement and promoting success among EFL learners. More recently, Khalili et al. (2024) identified emotional and professional contextual factors, including stress management and career orientation, as significant predictors of SRL, which suggests that effective regulation extends beyond cognitive processes to encompass affective and situational challenges, while Sooki et al. (2025) found that SRL was a significant predictor of academic achievement.

The motivational processes underlying SRL have been widely investigated within Self-Determination Theory (SDT), which conceptualises motivation along a continuum ranging from amotivation to intrinsic motivation, with many forms of extrinsic motivation in between (Ryan & Deci, 2000). According to SDT, the satisfaction of learners' basic psychological needs for autonomy, competence, and relatedness enhance self-determined forms of motivation, which in turn promote deeper engagement, persistence, and adaptive self-regulatory behaviors. Empirical evidence indicates that students who exhibit higher levels of autonomous motivation are more likely to employ effective SRL strategies and demonstrate stronger academic performance (Ryan & Deci, 2020). From a Social Cognitive Theory (SCT) perspective, Bandura (1986, 1997) emphasizes the pivotal role of self-efficacy beliefs in shaping learners' goal setting, effort investment, persistence, and resilience in the face of academic challenges. Learners with strong self-efficacy are more inclined to adopt challenging goals, persist through setbacks, and regulate their learning strategically, thereby reinforcing the reciprocal relationship between motivation and self-regulation (Bandura & Locke, 2003).

In addition to cognitive and motivational predictors, gender differences in SRL have received increasing scholarly attention. Schunk and Zimmerman (2011) reported that female students generally exhibit greater use of metacognitive and motivational strategies, whereas male students often demonstrate stronger self-efficacy beliefs. In the same fashion, Ali and Hamid (2018) found that female undergraduates outperformed their male counterparts in the application of SRL strategies, corroborating earlier findings by Pintrich and De Groot (1990). Within the Moroccan context, El Aouri (2013) reported that female students relied more heavily on learning strategies than males, while El Aouri and Zerhouni (2017) documented moderate SRL strategy use and relatively high motivational orientations among non-English majors. However, contradictory evidence complicates this picture. Moghadari-Koosha et al. (2020) reported higher levels of SRL skills among male students, whereas Omari et al. (2020) found no significant gender differences in self-efficacy among Moroccan university students. The discrepancies outlined highlight the necessity for additional empirical research, especially in EFL environments where pedagogical methods and gendered learning experiences may variably influence students' regulating behaviours and motivating beliefs.

Despite the large worldwide literature on SRL and motivation, empirical evidence from Moroccan higher education is scarce. Existing research has frequently explored SRL or motivation in isolation, with few studies using a predictive methodology to determine which specific SRL and motivational constructs had the greatest influence on academic achievement. Furthermore, there is a scarcity of research in Morocco that investigates SRL and motivational profiles, their key predictors and gender differences within a unified empirical framework. Given the exam-oriented style of instruction, Moroccan EFL learners' limited exposure to English outside of the classroom, and the motivating issues they confront, a context-sensitive analysis of SRL and motivation is both timely and necessary (El Karfa, 2019). To fill these gaps, the current study investigates Moroccan EFL university students' motivational orientations and use of SRL strategies, identifies major motivational and SRL predictors of academic achievement, and looks into potential gender differences in motivation and SRL strategy use. This study will hopefully increase understanding of how motivation and self-regulation impact EFL academic achievement through combining insights from SDT and SCT. Therefore, this study is guided by the following research questions:

1. What profiles of motivational orientations and SRL strategies do Moroccan EFL university students exhibit?
2. Which motivational and SRL constructs most strongly predict academic achievement among Moroccan EFL students?
3. To what extent do motivational orientations and the use of SRL strategies differ across gender among Moroccan EFL university students?

METHODOLOGY

Participants and Procedure

A quantitative research design was employed to investigate the key predictors of academic achievement in English and to examine potential gender differences in SRL and motivational constructs. A total of 409 undergraduate students enrolled in Bachelor of Arts programs in English initially responded to the questionnaire invitation. Participants were recruited through convenience sampling, with invitations distributed via institutional WhatsApp groups associated with English departments. Following data screening, six responses were excluded due to missing data on the dependent variable (academic achievement of English). The final sample therefore comprised 403 valid participants, including 219 females (54.3%) and 184 males (45.7%).

The study was carried out across three public Moroccan universities offering undergraduate programs in English studies. These institutions were selected to ensure variation in geographical location and institutional context, as well as accessibility and large student enrollments in English departments. The participating universities were Sultan Moulay Slimane University in Beni Mellal (central Morocco), Cadi Ayyad University in Marrakech (southwestern Morocco), and Mohammed V University in Rabat (northwestern Atlantic region). All three institutions are primarily teaching-oriented universities with established programs in the humanities and social sciences.

With regard to age, 36 students (8.9%) were between 17 and 19 years old, 180 students (44.7%) were between 20 and 22 years old, and 187 students (46.4%) were aged 23 years or older. Participants

were informed of the study's objectives and were assured of anonymity and confidentiality prior to participation. Completion of the questionnaire was voluntary, and clear instructions were provided to ensure accurate and meaningful responses.

Instrumentation

Data were collected using a structured, self-administered questionnaire comprising two sections. The first section gathered demographic information, including gender, age, and self-reported final grades in English. Academic achievement in English was operationalized using students' self-reported final semester grades, measured on a 20-point scale in accordance with the Moroccan higher education grading system. These grades served as the dependent variable in the analysis.

The second section of the questionnaire assessed SRL strategies and motivational constructs using an adapted version of the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1993). The adapted instrument measured eight subscales, including intrinsic goal orientation (IGO), extrinsic goal orientation (EGO), task value (TV), self-efficacy (SE), elaboration (ELB), organization (ORG), metacognitive self-regulation (MSR), and time and study environment management (TSDY). Responses were recorded on a

five-point Likert scale ranging from 1 (not at all true of me) to 5 (very true of me).

Questionnaire Reliability and Validity

Pintrich et al. (1993) reported Cronbach's alpha coefficients ranging from .70 to .93 for the original MSLQ, which indicates a strong internal consistency. In the present study, a shortened version of the MSLQ was employed to facilitate participation and reduce respondent fatigue. Internal consistency reliability for the adapted scales was assessed using Cronbach's alpha coefficients. As shown in Table 1, Cronbach's alpha values for the motivational subscales ranged from .66 to .85, while those for the SRL strategy subscales ranged from .60 to .85. To enhance clarity and content validity, a pilot study was conducted with 30 undergraduate students prior to the main data collection. Participants reported general comprehension of the questionnaire items; however, several items from the metacognitive self-regulation and time and study environment subscales were removed to improve reliability. Minor wording modifications were also made, such as replacing the term "school" with "university" to better reflect the higher education context. Following these revisions, the instrument demonstrated sufficient internal consistency for use in the present study.

Table 1. Subscales of MSLQ

Scales	Subscales	Cronbach's Alpha of the original version	Number of Items of the original study	Cronbach's Alpha of the current study	Number of Items of the current study
Motivation	IGO	.74	4	.66	4
	EGO	.62	4	.71	4
	TV	.90	6	.81	4
	SE	.93	8	.77	4
SRL Strategies	ELB	.76	6	.60	3
	ORG	.64	4	.85	4
	MSR	.79	12	.60	3
	TSDY	.76	8	.65	3

Data Analysis

Descriptive and inferential statistical analysis were used to address the objectives of the study. To summarize the participants' answers, descriptive statistics were first used for students' motivational orientations and SRL strategies profiles. For the second research question, multiple regression analysis was conducted to identify key SRL predictors of academic achievement of English. In this study, specific SRL constructs were treated as independent variables, whereas academic achievement of English served as the dependent variable. The contribution of each predictor was assessed through standardised beta (β) coefficients, which facilitated a comparison of the strength of each variable's effect. To address the third research question, an independent-samples t-test was performed to investigate the presence of statistically significant gender differences in SRL constructs and motivational beliefs. All data were analyzed using SPSS Statistics (Version 25).

RESULTS

Descriptive Overview of SRL Strategies and Motivational Orientations

The results are presented in accordance with the study's three research questions. First, descriptive statistics were computed to examine Moroccan EFL university students' profiles with respect to their use of SRL strategies and motivational orientations.

As shown in table 2, participants reported relatively high levels of SRL strategy use across all four subscales. Mean scores were 3.73 for elaboration (ELB), 3.81 for organization (ORG), 3.80 for metacognitive self-regulation (MSR), and 3.72 for time and study environment management (TSDY), which indicates frequent engagement in SRL behaviors on the five-point Likert scale.

With regard to motivational orientations, students also demonstrated generally high levels of motivation. The mean scores were 3.67 for intrinsic goal orientation (IGO), 3.65 for extrinsic

goal orientation (EGO), 3.76 for task value (TV), and 3.75 for self-efficacy (SE). These results suggest a positive motivational profile among Moroccan EFL university students. The mean academic

achievement score was 11.21 on a 20-point scale, reflecting a moderate level of academic performance in English during the previous semester.

Table 2. Descriptive Statistics of SRL, Motivational Variables and Academic Achievement

Variable	Mean	SD
<i>IGO</i>	3.67	0.73
<i>EGO</i>	3.65	0.92
<i>TV</i>	3.76	0.74
<i>SE</i>	3.75	0.74
<i>ELB</i>	3.73	0.75
<i>ORG</i>	3.81	0.78
<i>MSR</i>	3.80	0.79
<i>TSDY</i>	3.72	0.84
<i>A.ACH</i>	11.21	1.74

Key Predictors of Academic Achievement

To address the second research question, a multiple regression analysis was conducted to identify which SRL strategies and motivational constructs significantly predicted academic achievement. The overall regression model was statistically significant, explaining approximately 18.2% of the variance in academic achievement ($R = .426$, $R^2 = .182$, adjusted $R^2 = .163$, $p < .05$).

As presented in table 3, elaboration (ELB; $\beta = .202$, $p = .002$), self-efficacy (SE; $\beta = .184$, $p = .002$), and extrinsic goal orientation (EGO; $\beta = .139$, $p = .004$) emerged as significant

positive predictors of academic achievement. In addition, time and study environment management (TSDY; $\beta = .113$, $p = .035$) was a statistically significant predictor, whereas organization (ORG) showed a significant negative association with academic achievement ($\beta = -.158$, $p = .019$).

In contrast, intrinsic goal orientation (IGO; $\beta = -.052$, $p = .343$), metacognitive self-regulation (MSR; $\beta = .050$, $p = .406$), and task value (TV; $\beta = -.012$, $p = .836$) did not significantly predict academic achievement. Among the significant predictors, elaboration exhibited the strongest standardized effect, followed by self-efficacy and then extrinsic goal orientation.

Table 3. Regression Coefficients

Independent Variables	B	Beta (β)	t	p
IGO	-2.63	-.05	-.95	.343
EGO	5.59	.13	2.87	.004
TV	-.61	-.01	-.20	.836
SE	9.22	.18	3.10	.002
ELB	9.92	.20	3.19	.002
ORG	-7.50	-.15	-2.35	.019
MSR	2.32	.05	.83	.406
TSDY	4.99	.11	2.11	.035

Note: Dependent Variable: academic achievement =9.694, $R = .426$, $R^2 = .182$, Adjusted $R^2 = .163$, $p < .05$

Gender Differences in SRL Strategies and Motivational Orientations

To examine gender differences in SRL strategies and motivational orientations, independent-samples t-tests were conducted. As shown in table 4, female students reported significantly higher overall use of SRL strategies ($M = 3.84$, $SD = 0.615$) than male students ($M = 3.69$, $SD = 0.642$), $t(401) = -2.348$, $p = .019$.

In contrast, no statistically significant gender differences were found in motivational orientations. Male students reported a mean motivation score of 3.44 ($SD = 0.483$), while female students reported a mean score of 3.42 ($SD = 0.456$), $t(401) = 0.422$, $p = .673$. These results indicate that, although female students engaged more frequently in SRL strategies, male and female students demonstrated comparable levels of motivational beliefs.

Table 4. Gender Difference in Motivation and SRL Strategies Usage

Variables	Gender	Number	Mean	SD	t	p
SRL strategies	Male	184	3.69	0.64	-2.34	0.019
	Female	219	3.84	0.61		
Motivational beliefs	Male	184	3.44	0.48	.42	0.673
	Female	219	3.42	0.45		

DISCUSSION

Descriptive Overview of SRL Strategies and Motivational Orientations

The purpose of this study was to identify SRL and motivation profiles, determine the key predictors of academic achievement among Moroccan EFL university students, and examine gender differences in SRL. The descriptive findings indicated that Moroccan EFL university students reported relatively high levels of engagement in SRL strategies, with mean scores of 3.73 for elaboration (ELB), 3.81 for organization (ORG), 3.80 for metacognitive self-regulation (MSR), and 3.72 for time and study environment management (TSDY). These results suggest that students frequently engage in SRL behaviors, with organizational and metacognitive regulation strategies reported slightly more prominently than other strategy types. This pattern supports earlier research emphasizing the importance of SRL for effective learning and academic success (Pintrich & De Groot, 1990; Jensen et al., 2019).

With respect to motivational orientations, students demonstrated generally high levels of motivation across all measured constructs. Mean scores for intrinsic goal orientation (IGO), extrinsic goal orientation (EGO), task value (TV), and self-efficacy (SE) indicate that Moroccan EFL university students hold positive motivational beliefs, with task value and self-efficacy reported at slightly higher levels than goal orientations. The relatively larger variability observed in extrinsic goal orientation suggests individual differences in the importance attached to external rewards, whereas intrinsic motivation and task value appeared more consistent across the sample. These findings are consistent with Chen et al. (2024), who highlighted the central role of task value and self-efficacy in promoting positive learning outcomes.

Overall, the results reveal a generally positive profile of SRL strategy use and motivational orientations among Moroccan EFL university students. This finding aligns with El Aouri and Zerhouni (2017), who reported moderate to high levels of SRL strategy use and motivation among Moroccan learners. In contrast to the findings of Moghadari-Koosha et al. (2020), which identified gender-based differences in motivational orientations, the present study found consistently high motivational levels across the sample, with no statistically significant gender differences.

Key Predictors of Academic Achievement

The regression analysis identified elaboration (ELB), self-efficacy (SE), and extrinsic goal orientation (EGO) as significant predictors of academic achievement in English among Moroccan EFL university students. Among these variables, ELB emerged as the strongest predictor of academic achievement. As a deep-level cognitive learning strategy, elaboration facilitates meaningful

learning by encouraging learners to integrate new information with prior knowledge, organize ideas coherently, and actively process instructional content. This finding corroborates previous research identifying ELB as a significant predictor of academic achievement (Jensen et al., 2019; Maison et al., 2019; Moghadari-Koosha et al., 2020). The prominence of ELB suggests that Moroccan EFL university students who frequently engage in activities such as summarizing content, linking new information to existing knowledge, paraphrasing concepts, and generating examples may achieve higher levels of academic performance.

Self-efficacy emerged as the second strongest predictor of academic achievement, supporting Bandura's (1986) SCT, which emphasizes the role of efficacy beliefs in shaping learners' effort, persistence, and strategic behavior. This finding is consistent with previous studies demonstrating the importance of self-efficacy for academic performance (Maison et al., 2019; Moghadari-Koosha et al., 2020; Murayama, 2018; Meng & Zhang, 2023). Higher levels of self-efficacy may be associated with students' willingness to set challenging yet attainable goals, persist in the face of academic difficulties, and employ effective SRL strategies, which together may contribute to improved academic outcomes.

Extrinsic goal orientation, although the weakest among the significant predictors, also showed a positive association with academic achievement. This finding suggests that external incentives, such as degree attainment or future career prospects, may play a role in motivating Moroccan EFL university students to perform academically. While extrinsic motivation alone may be insufficient to sustain long-term engagement, it may complement cognitive strategies and efficacy beliefs by providing additional incentives that support academic effort. In this sense, students who combine effective cognitive strategies such as ELB with strong self-efficacy beliefs and extrinsic motivational goals may be better positioned to achieve higher academic performance.

Gender Differences in SRL Strategies and Motivational Orientations

An important contribution of this study lies in its examination of gender differences in SRL strategies and motivational orientations. The findings indicate that female students reported significantly higher levels of SRL strategy use than male students, whereas no statistically significant gender differences were observed in motivational beliefs. This pattern suggests that female students may engage more frequently in SRL strategies, while both genders demonstrate comparable levels of academic motivation. These findings are consistent with previous research reporting higher SRL strategy use among female students (Ali & Hamid, 2018; Alotaibi et al., 2017; El Aouri & Zerhouni, 2017; Moghadari-Koosha et al., 2020). Prior studies have shown that female learners tend to employ strategies such as goal setting, time management, organization, elaboration, and help-seeking

more frequently, which may support more effective regulation of learning behaviors and academic performance.

The observed gender differences in SRL strategy use may be influenced by a range of contextual and psychological factors. Research suggests that female students often exhibit higher levels of metacognitive awareness, enabling them to plan, monitor, and reflect on their learning more effectively (Cleary et al., 2018; Dignath & Büttner, 2008). Moreover, females may prioritize academic goals, demonstrate stronger organizational skills, and engage more actively in reflective learning practices, which could contribute to greater use of SRL strategies (Hong et al., 2021). Psychological factors such as emotional regulation and academic anxiety may also play a role, as SRL strategies can serve as mechanisms for managing stress and maintaining academic engagement (Pekrun et al., 2002). These findings underscore the importance of fostering SRL strategy development among Moroccan university students, particularly male learners, who may benefit from targeted instructional support in this area.

The absence of significant gender differences in motivational beliefs is consistent with Omari et al. (2020), who similarly reported comparable motivation levels among Moroccan EFL university students. This similarity may reflect shared educational environments, institutional expectations, and societal norms that emphasize academic achievement for both genders. Factors such as equal access to higher education, comparable learning resources, and similar career aspirations associated with English studies in Morocco may contribute to these parallel motivational profiles (Côme & Yassine, 2015; Bahnasse et al., 2023).

CONCLUSION

This study examined SRL strategies and motivational orientations among Moroccan EFL university students, with the aim of identifying key predictors of academic achievement in English and exploring potential gender differences. The findings indicate that students reported frequent engagement in SRL strategies alongside generally strong motivational beliefs, with task value and self-efficacy rated more highly than goal orientations. The regression analyses further demonstrated that elaboration, self-efficacy, and extrinsic goal orientation emerged as significant predictors of academic achievement, with elaboration exerting the strongest influence. The results highlight the importance of deep-level cognitive strategies and motivational beliefs in supporting academic performance in EFL contexts. In addition, gender-related patterns were observed, as female students reported significantly higher use of SRL strategies, whereas motivational beliefs were largely comparable across genders, which suggests that differences may lie more in the deployment of learning strategies than in underlying motivational orientations.

This study contributes to the limited body of research on SRL and motivation in Moroccan higher education by providing empirical evidence from an under-researched EFL context and by identifying specific SRL and motivational constructs that predict academic achievement. At the same time, several limitations should be acknowledged. The use of a convenience sample may limit the generalizability of the findings, and the focus on three public universities may not fully represent the diversity of Moroccan higher education institutions. Future research could address these limitations by including a wider range of institutions, incorporating additional demographic and contextual variables, and

examining skill-specific outcomes in English. Despite these limitations, the findings offer meaningful pedagogical implications, highlighting the need to promote effective SRL strategies, particularly elaboration, and to support students' motivational beliefs in order to enhance teaching and learning practices in Moroccan EFL higher education.

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