Applied Language Learning

Research

Motivational Engagement among Persian Farsi Language Learners Across Two Military Institutions

Olivia Holloway, PhD
United States Military Academy, West Point

Siyi Gao, EdD
Defense Language Institute Foreign Language Center

Ra'ed Qasem, PhD
Defense Language Institute Foreign Language Center

Zachary Miller, PhD
United States Military Academy, West Point

This mixed-methods study investigated motivational engagement among beginner-level Persian Farsi (PF) learners at two U.S. military institutions (N = 59), where foreign language (FL) assignments are mandatory and may not align with learners' interests. Participants included 32 cadets at the United States Military Academy (USMA) and 27 service members enrolled in a 48-week PF program at the Defense Language Institute Foreign Language Center (DLIFLC). The study examined how individual learner characteristics affect students' motivational engagement, operationalized as interaction and interest, in PF courses in the two institutions. The study also explored which factors predict students' motivational engagement in studying PF and which factors sustain motivational engagement over time. Data were collected using three standardized instruments, the Short Grit Scale, the L2 (Second Language) Grit Scale, and the Language-Specific Anxiety Scale, along with guided reflective journals administered over one semester, yielding both quantitative indicators and qualitative narrative data. Results showed that L2 Grit emerged as a significant predictor of motivational engagement and was the strongest predictor of learners' initial and sustained interest in PF and their willingness to participate in the classroom. No significant differences were observed for general Grit or FL anxiety. Both L2 Grit and initial engagement significantly predicted sustained engagement, underscoring the

importance of early involvement and perseverance. Initial emotional states, however, did not forecast learner interest or classroom interaction.

Keywords: *Foreign language (FL) learning, Military Education and Training, Motivation, Grit, L2 (Second Language) Grit*

INTRODUCTION

Foreign language (FL) learning in military environments presents unique challenges that differ markedly from traditional academic settings. Programs operate under compressed timelines and link language proficiency directly to mission readiness, creating high-stakes learning conditions that intensify motivational demands (Jodai et al., 2013; Miller & Crowther, 2024). Within this context, the motivational profiles of learners can vary depending on institutional structure and the degree of learner agency. At the Defense Language Institute Foreign Language Center (DLIFLC), service members typically receive mandatory, full-time language assignments essential to their military roles, whereas cadets at the United States Military Academy (USMA) study foreign languages as part of a broader academic curriculum with comparatively greater choice and wider educational goals. Because these institutions differ in learner autonomy, program intensity, and perceived career relevance, examining motivation across DLIFLC and USMA students provides insight into how distinct military learning environments shape engagement, perseverance, and emotional experience in FL learning.

Although research on motivation in civilian second language acquisition (SLA) is extensive (Dörnyei, 2005; Dörnyei & Ryan, 2015), motivation in military language programs remains comparatively understudied. Because these programs operate under assignment-driven enrollment, accelerated timelines, and mission-critical expectations, understanding motivation in this context requires examining how individual learner characteristics function within such demanding environments. Accordingly, the present study investigates how individual differences, specifically L2 Grit, general grit, and foreign language anxiety, interact with institutional context to shape learners' reported interest and interaction over time. Qualitative indicators of motivational orientations and emotional experiences further illuminate how engagement develops in these high-pressure, fast-paced settings. By situating these factors within two distinct military higher-education institutions, the study offers insights that may help strengthen approaches to sustaining motivation in military foreign language programs.

DLIFLC provides intensive and immersive language instruction aligned with operational military requirements. Learners (enlisted and commissioned officers) are assigned to specific languages based on operational needs, not personal preference. Students attend 6 hours of daily instruction through the Basic Course, which ranges from 36 to 64 weeks. Students studying Persian Farsi complete 48 weeks of instruction and take the Defense Language Proficiency Test (DLPT) for listening and reading, and the Oral Proficiency Interview. Graduation requires at least Interagency Language Roundtable (ILR) levels 2 in reading and listening and 1+ in speaking.

USMA integrates military, physical, and leadership training within a four-year undergraduate degree, aiming to develop commissioned officers equipped for strategic and culturally aware leadership. Cadets must take at least two semesters of a FL regardless of prior coursework, proficiency level, or chosen major. They are assigned to one of eight foreign languages based on the number of instructors, each cadet's language aptitude, and other factors. To graduate as commissioned officers, they must earn passing grades in all their courses across three pillars (military, physical education, and academic courses, which include the two FL courses).

LITERATURE REVIEW

Motivation in SLA is shaped by learners' goals and instructional and sociocultural contexts. Two theories primarily inform this study: Dörnyei's L2 Motivational Self System and Deci and Ryan's Self-Determination Theory. The L2 Motivational Self System conceptualizes motivation around future-oriented self-guides, including the Ideal L2 Self (the learner's envisioned identity as a competent language user), and the Ought-to L2 Self (with duties, obligations, and responsibilities to meet external expectations; Dörnyei, 2005; Dörnyei & Ushioda, 2021). When the Ideal L2 Self is vivid and attainable, learners are likely to invest sustained effort in their language development. In contrast, the Ought-to L2 Self fosters anxiety and cautious learning, leading to lower, less stable motivation (Dörnyei, 2005; Dörnyei & Ushioda, 2021).

Self-Determination Theory (SDT) provides a complementary account of how the motivation categories vary according to fulfillment of needs for autonomy, competence, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000, 2017, 2020). SDT positions motivation on a continuum ranging from controlled forms, such as external and introjected regulation, to autonomous forms, including identified, integrated, and intrinsic regulation. As learners internalize the value of language learning and shift toward more autonomous forms of regulation, they tend to exhibit deeper, more persistent engagement (Noels et al., 2000). Considered together, the L2 Motivational Self System and SDT illustrate how future-oriented identity processes and basic psychological needs shape motivated action.

These theoretical insights are particularly relevant in military training environments, which introduce distinctive motivational challenges. Military language learners often study assigned languages under accelerated timelines and stringent proficiency requirements. Such conditions frequently give rise to controlled forms of motivation early on, driven by obligations such as passing assessments or meeting institutional benchmarks. However, as learners develop competence and become more aware of the professional relevance of the language, their motives may shift toward more autonomous forms of regulation (Takahashi & Im, 2020).

Within these environments, individual differences further shape how learners engage with the language. Grit, defined as sustained interest and effort toward long-term goals, has been shown to predict achievement under demanding conditions (Duckworth & Quinn, 2009). L2 Grit reflects perseverance and passion specifically toward learning a foreign language. Research has shown

that L2 Grit predicts persistence, engagement, and achievement in language learning more effectively than general grit (Teimouri et al., 2022; Henry & Liu, 2024). For example, Teimouri and colleagues (2022) found that learners with higher L2 Grit participated more actively in classroom discussions, demonstrated deeper cognitive engagement, sustained interest throughout instruction, and achieved higher FL outcomes—even in rigorous settings. In contrast, foreign language anxiety can undermine confidence and reduce willingness to participate, particularly in evaluative or high-pressure military classrooms (Sudina & Plonsky, 2021).

Motivational types offer additional insight into how learners' goals evolve in military language learning environments where students are assigned to learn FLs. Students often begin with external motives but may internalize these motives as they gain competence and recognize the relevance of the language to their future responsibilities (Ryan & Deci, 2020). Although intrinsic motivation is less common in high-stakes learning contexts characterized by strong external demands, autonomous extrinsic motives can still promote strong engagement (Noels et al., 2000). According to control-value theory, positive activating emotions such as enjoyment enhance interest and participation, whereas negative activating emotions such as anxiety may inhibit engagement unless effectively regulated (Pekrun, 1992; Pekrun & Stephens, 2012).

Finally, institutional context further influences learners' motivational experiences. DLIFLC offers immersive, proficiency-driven instruction, while USMA incorporates language education within a broader undergraduate curriculum. Both institutions assign languages based on operational needs. The structure and intensity of language programs differ in ways that may shape motivation (see Csizér, 2020; Miller & Crowther, 2020).

METHOD

This study employed a mixed-methods design to examine motivational engagement, operationalized as interest and interaction, among 59 U.S. military learners studying PF at USMA and DLIFLC. Quantitative data were collected using validated measures of general grit, L2 Grit, and foreign language anxiety (LAS), along with self-reported indicators of interest and interaction, collected at three points over the first semester. Qualitative data were gathered through three guided reflections to explore learners' motivation categories, grounded in Self-Determination Theory, and emotions. Quantitative data were analyzed using a combination of descriptive statistics, *t*-tests, ANOVAs, regression analyses, and mixed-effects modeling. Thematic coding with established reliability procedures was used for analyzing the qualitative data. This comprehensive approach enabled the study to investigate the interplay between learner characteristics and motivational engagement, identify its predictors, and what sustains it over time in intensive military language learning contexts. The study explored the following three research questions:

1. How do individual learner characteristics (general grit, L2 Grit, and foreign language anxiety) compare between institutions and affect students' motivational engagement (interest and interaction) in PF courses?

2. Which factors predict students' motivational engagement in studying PF?
3. Which factors sustain motivational engagement over time among PF students compared at each institution?

Participants

Fifty-nine students of PF (*N* = 59) from the US military participated in this study. All participants were (a) between the ages of 18 and 28 (*M* = 20.6 years, *SD* = 2.59), (b) native English speakers, (c) not heritage speakers of PF, and (d) enrolled in their 1st semester of PF. Out of the 59 total participants, 43 were male and 16 were female. At USMA, ages ranged from 18 to 23 (*M*=19.31), while at DLIFLC, ages ranged from 18 to 28 (*M*=22.15).

Thirty-two (*n* = 32) were enrolled at USMA and were starting their first semester of PF at the beginner level. Among all students, 21 had not selected PF as their first-choice language to study, and none of them were majoring in PF. All 32 USMA participants needed to pass a year (two semesters) of language study as a requirement to finish their 4-year degrees. USMA students' language class is one academic course out of 5 minimum courses taken per semester. The other twenty-seven (*n* = 27) participants studied at the intensive 48-week course at DLIFLC and were beginning their first semester (18 weeks) of PF education. All DLIFLC students were on track to become military linguists in their respective service and were not granted a choice in which language they study. However, in our initial intake, 24 of the 27 at DLIFLC had preferred to study a language other than PF. DLIFLC students must reach graduation goals in under a year and focus solely on language proficiency.

Materials

Three scales were used in this study: Grit-S Scale, Language-Specific Anxiety Scale, and Second Language Grit Scale. At the semester's start, students completed an intake questionnaire gathering demographic information, language-learning choices, satisfaction with PF program enrollment, and responses for the Grit-S and Language-Specific Anxiety Scales. Additionally, students completed guided reflections at three points in the first semester.

Grit-S Scale

The Short Grit Scale (Grit-S; Duckworth & Quinn, 2009) measures trait-level perseverance and passion to accomplish long-term goals. Several studies have examined Grit-S in FL learning (Keegan, 2017; Khajavy et al., 2021; Oxford & Khajavy, 2021). The Grit-S scale has eight items, with four focused on the subfactor *Consistency of Interest* (measuring passion) and four centered on the subfactor *Perseverance of Effort* (measuring perseverance). The items were rated on a 5-point Likert scale. Individuals with high overall Grit-S scores are considered "gritty" and likely to achieve successful outcomes in challenging environments.

Language-Specific Anxiety Scale

The Language-Specific Anxiety Scale (LAS; Sudina & Plonsky, 2021) gauges FL learners' level of anxiety within the classroom. The scale consists of four items measured on a 5-point Likert scale. Participants with higher scores exhibit greater levels of anxiety while learning a FL. The LAS was used due to its simplicity and brevity.

Second Language Grit Scale

The Second Language Grit Scale (L2 Grit; Teimouri et al., 2022) evaluates individuals' grittiness in L2 settings. The scale measures two related subcomponents using nine items via a 5-point Likert scale: *Consistency of Interest* (L2 learning appeal) and *Perseverance of Effort* (persistence in achieving L2 goals).

Guided Reflections (GRs)

We utilized guided reflections (GRs) combining Likert scale measures to capture levels of interest and interaction (as proxies for motivational engagement) and narrative framing to encourage self-reflective writing and provide insight into learners' emotions, definitions of success, and language-learning goals (Barkhuizen, 2008; Barkhuizen & Wette, 2008; Benson, 2014). There were two Likert scale questions, one for interest and one for interaction, with 6 options ranging from "Very Low" to "Very High." The GR narrative prompts were: (a) *When I think of attending this language class, I feel the following emotion(s)* ___; (b) *For me, success in this language class means* ___; and (c) *My current goals for learning this language are* ___.

Data Collection

This study was conducted with approval from the Institutional Review Boards at both institutions. Students eligible to participate were invited via email, and the informed consent materials emphasized that participation was voluntary. Participants were informed that their responses would remain anonymous, that they could withdraw from the study at any time without penalty, and that their decision to participate or decline participation would not be disclosed to their instructors. The initial intake questionnaire collected demographic information, whether the participant had chosen PF and was satisfied with enrollment in the language, a General Grit score, and a Language-Specific Anxiety score.

GRs were collected at three more points through the participants' 18-week first semester of language study at the DLIFLC and USMA. Written GRs were chosen over interviews to optimize respondents' autonomy and sense of privacy. One month into the participants' semester, we collected GR1, followed by GR2 one month later, and GR3 (along with the L2 Grit survey) one month later, which nearly coincided with the end of the semester. For each GR, we allowed participants one week to complete and return the form back to us. All data were collected using online survey sites (Qualtrics at USMA and Microsoft Forms at DLIFLC). USMA participants were awarded 10 points of extra credit (equivalent to 1%) for full participation in the study; participant

names were reported to instructors in the final week of the semester for this purpose. Of 64 USMA students eligible and invited to participate, 32 of them responded to all surveys. At DLIFLC, 27 of the 62 eligible and invited students volunteered to complete all surveys.

Data Analysis

After data were de-identified by each institution, they were shared securely. One researcher from each institution coded qualitative responses on Academic Emotions and FL Motivation. Inter-rater reliability was 82% for Academic Emotions and FL Motivation.

Academic Emotions in the FL setting drew from the narrative prompt "*When I think of attending this language class, I feel the following emotion(s)* __" from each GR. Utilizing studies on Academic Emotions (Pekrun, 1992; Pekrun et al., 2002; Pekrun & Stephens, 2012), we categorized responses into four categories: Positive, Activating (i.e. enjoyment, pride); Positive, Deactivating (i.e. relief); Negative, Activating (i.e. anxiety); and Negative, Deactivating (i.e. hopelessness). When coding narratives, we focused on the dominant emotion communicated in the responses, and disregarded details about physical state (i.e. "tired"). For responses that were ambivalent or featured multiple meanings (such as both positive and negative or both activating and deactivating), both coders discussed to select a dominant category. Remaining ambivalent responses were resolved with a tie-breaking co-author. To simplify data coding and analysis, we grouped emotions into emotional valences: Positive and Negative.

To categorize motivation, we coded responses to item "*My current goals for learning this language are* ___" from each GR. Drawing from SDT in the learning context (Deci & Ryan, 1985; Noels et al., 2000; Ryan & Deci, 2000, 2017, 2020), we coded along six categories from most autonomous to most controlled. These are Intrinsic Motivation (activities generating inherent satisfaction), Integrated Regulation (finding an activity to be "congruent" with one's "core interests and values"), Identified Regulation ("a relatively high degree of volition" due to personal endorsement of an activity), Introjected Regulation ("partially internalized" extrinsic motivation), External Regulation ("driven by externally imposed rewards and punishments"), and Amotivation ("lacking intentionality;" Ryan & Deci, 2020 n.p.). To simplify data coding and analysis, we grouped the aforementioned spectrum of motivations into two macro-categories for motivation: Autonomous (including Intrinsic, Integrated Regulation, and Identified Regulation) and Controlled (Introjected Regulation, External Regulation, and Amotivation).

The purpose of our analyses was to examine how certain learner characteristics and institutional factors relate to motivational engagement in PF courses and how these factors sustain motivational engagement across the semester. Motivational engagement was operationalized using two self-reported indicators collected throughout the semester: Interest and Interaction. We also chose the term *semester* to represent an academic session, although the timeframes at both institutions are admittedly different. For USMA, a semester of PF is 17 weeks comprising 80 lessons of 55 minutes and approximately 70 minutes of associated homework. At DLIFLC, the full PF program spans 48 weeks and is divided into three semesters: approximately 18 weeks for the first semester, 20 weeks for the second, and 10 weeks for the third. Students attend six class

sessions per day (50 minutes each), five days per week, with approximately two hours of homework assigned on weekdays. At both institutions, students requiring additional academic support may attend extra assistance hours.

RQ1 compared individual learner characteristics (Grit, L2 Grit, and FL Anxiety) between institutions and how they affected students' motivational engagement in PF courses. To establish baseline patterns in the dataset, we calculated descriptive statistics for all variables. Inspection of the distributions indicated that variables were approximately normally distributed within each institutional group, with no extreme skewness or outliers. As such, we used independent samples *t*-tests to compare students from USMA and DLIFLC on their Grit, FL Anxiety, L2 Grit, and average Interest and Interaction scores. To examine how learner characteristics related to engagement across institutions, a series of 2×3 ANOVAs were conducted. Institution (USMA versus DLIFLC) served as one factor, while Grit, FL Anxiety, and L2 Grit were divided into tertiles (low, middle, high) to allow comparison across levels of each trait. These models accounted for Interest and Interaction, allowing us to test the independent effects of learner characteristics and potential interactions with institutional context. Effect sizes for both analyses were measured and reported. To confirm our ANOVA results, we used multiple regression analyses with Grit, FL Anxiety, and L2 Grit predicting Interest and Interaction. Diagnostic checks indicated that our dataset sufficiently met the assumptions for regression testing. Regression allowed us to examine the relative contribution of each learner characteristic to motivational engagement while treating predictors as continuous variables.

RQ2 examined which factors predict students' motivational engagement in studying PF. To identify predictors of motivational engagement across the semester, we conducted multiple regression analyses using early-semester variables as predictors. These included Grit, FL Anxiety, L2 Grit, beginning Interest, beginning Interaction, institutional affiliation, and whether PF was each student's first-choice language assignment. Two models were estimated with end-of-semester Interest and Interaction as outcome variables. To examine motivational development from a theoretical perspective, we examined students' written reflections. Because SDT motivation was measured as a categorical self-classification rather than a continuous scale, categories were collapsed into the theoretically established Autonomous versus Controlled distinction for inferential analyses. We conducted a similar analysis with valence scores, collapsing initial emotional states into either a Positive or Negative category. We then coded students with a positive interest change as "increasers" and those with zero or negative change as "non-increasers." Because the outcome variable represented whether students' Interest increased during the semester, we used binary logistic regression to determine whether initial motivational regulation predicted change trajectories. A parallel analysis examined whether early emotional valence predicted changes in Interest.

RQ3 investigated which factors sustained motivational engagement among students of PF over time. To examine engagement across the semester, we used mixed-effects models with repeated measures of Interest and Interaction collected at three timepoints (beginning, middle, and end of the semester). Mixed-effects modeling was appropriate due to multiple observations of each student. These models allowed us to examine whether motivational engagement changed across

the semester and whether learner characteristics or institutional context influenced those trajectories. To complement these quantitative measures, we also analyzed students' written reflections. Like in RQ2, we collapsed SDT categories into Autonomous or Controlled and emotional responses into Positive or Negative. Because these variables were categorical, we utilized chi-square tests of independence. This analysis allowed us to examine whether the qualitative nature of students' motivation and affect shifted across the semester and whether those patterns differed by institutional context, providing additional insight into how motivational engagement was sustained over time.

RESULTS

Research Question 1

RQ1 compared individual learner characteristics, Grit, L2 Grit, and FL Anxiety, between institutions and how they affected students' motivational engagement in PF courses. We first used descriptive statistics and independent samples *t*-tests to summarize key characteristics and compare our population sets. No significant differences were observed for general Grit or FL Anxiety. However, DLIFLC students scored significantly higher on L2 Grit, Interest, and especially Interaction. The latter effect was large, highlighting a robust institutional difference in self-reported levels of learner interaction. Table 1 highlights our results.

Table 1

Comparison of Students at USMA versus DLIFLC

	Variable	USMA (*N* = 32) *M* (*SD*)	DLIFLC (*N* = 27) *M* (*SD*)	*t*	*p*	*d*
Individual learner characteristics	Grit	3.62 (0.57)	3.49 (0.66)	0.84	.407	0.22
	FL Anxiety	2.62 (0.81)	2.85 (1.01)	-0.97	.335	-0.26
	L2 Grit	3.37 (0.74)	3.90 (0.69)	-2.84	.006**	-0.74
Motivational engagement	Interest (avg)	4.02 (1.16)	4.68 (1.15)	-2.18	.034*	-0.57
	Interaction (avg)	3.69 (1.00)	4.67 (0.78)	-4.23	<.001***	-1.08

* $p < .05$, ** $p < .01$, *** $p < .001$

To investigate whether personal characteristics interacted with institutional context, we used series of 2×3 ANOVAs. For Interest, only L2 Grit emerged as a significant predictor ($F = 5.58$, $p = .006$, $\eta^2p = .174$). Students high in L2 Grit consistently reported stronger motivation regardless of location. A marginal interaction between L2 Grit and Institution ($F = 2.57$, $p = .086$, $\eta^2p = .089$) suggested that the benefits of high L2 Grit may have been somewhat stronger at USMA, though this did not reach significance. General Grit and FL Anxiety were not significant predictors of Interest. Both institutional contexts and personal characteristics contributed to Interaction.

Students at DLIFLC consistently reported higher interaction across models. L2 Grit again showed a robust effect (F = 8.69, p < .001, η^2p = .247), with high-L2-Grit students reporting greater engagement across institutions. To verify the ANOVA results, we conducted multiple regressions using Grit, FL Anxiety, and L2 Grit scores. These analyses yielded the same conclusions: L2 Grit was the strongest predictor of both Interest (β = .46, p < .001) and Interaction (β = .49, p < .001).

Research Question 2

RQ2 explored which factors predicted students' motivational engagement in studying PF. We first ran two multiple regression analyses to determine which early-semester factors (i.e., Grit, FL Anxiety, L2 Grit, Beginning Interest score, Beginning Interaction score, Institution, and PF first-choice selection) best predicted end-of-semester motivational engagement, measured separately as Interest and Interaction. Significant predictors are found in Table 2.

Table 2

Multiple Regressions Predicting End-Of-Semester Motivational Engagement (Interest and Interaction)

Outcome	Predictor	*β (Std)*	*t*	*p*
	L2 Grit	.46	4.69	<.001***
Interest	Beginning Interest	.63	6.79	<.001***
	Beginning Interaction	-.26	-2.40	.020*
	L2 Grit	.36	3.38	.001**
Interaction	Beginning Interaction	.38	3.01	.004**
	Institution	.24	1.98	.053

* p < .05, ** p < .01, *** p < .001

The regression model predicting end-of-semester interest was significant, F (7, 51) = 14.55, p < .001, with an R^2 of .67. The strongest predictors of interest were L2 Grit and Beginning Interest, indicating that students who started the semester with high language-specific grit and strong interest were most likely to remain motivated by the end. That said, beginning interaction negatively predicted end interest, suggesting that students who engaged heavily early on may have seen a slight decline in interest later. No other variables significantly predicted end-of-semester interest. The regression model predicting end-of-semester interaction was also significant, F (7, 51) = 9.57, p < .001, with an R^2 of .57. Both L2 Grit and Beginning Interaction were significant predictors, indicating that persistence in language learning and early engagement set the stage for continued engagement across the semester. Institutional differences approached significance, with students at DLIFLC tending toward higher interaction overall. All other predictors were nonsignificant.

To examine whether initial motivation type was associated with later increases in interest, we analyzed students' opening SDT regulation categories. A binary logistic regression indicated that beginning-of-semester autonomous motivation was a significant predictor of change trajectory, $B = -1.27$, $p = .029$. Interestingly, the odds ratio showed that students starting the semester with autonomous motivation were *less likely* to become "increasers" in interest later in the semester (OR = 0.28, 95% CI [0.09, 0.88]). In fact, the pattern suggested that students who began with more controlled forms of motivation (e.g., obligation or requirement-based) were more likely to increase their interest over time. We conducted a similar analysis with valence scores and results indicated that early semester emotions did not meaningfully forecast which students' interest would rise over the semester.

Research Question 3

RQ3 investigated which factors sustained motivational engagement among students of PF over time at each institution. Here, we utilized mixed-effects models to examine whether institutional and personal factors predicted changes in Interest and Interaction across each institution's initial academic semester (using beginning-, middle-, and end-of-semester self-ratings). Table 3 provides significant results and summarizes the findings.

Table 3

Mixed-effects models for Interest and Interaction

Outcome	Significant Predictors	Findings
Interest	L2 Grit ($\beta = 0.80$, $p < .001$)***	Higher L2 Grit predicted stronger, stable interest across time.
Interaction	L2 Grit ($\beta = 0.65$, $p < .001$)***	Higher L2 Grit predicted more interaction across time.
	Time x Institution (mid-semester, $\beta = 0.51$, $p = .031$)*	DLIFLC students exhibited a mid-semester surge in engagement.

* $p < .05$, ** $p < .01$, *** $p < .001$

Learners with higher L2 Grit reported consistently stronger Interest throughout the semester. However, the overall effect of time was not statistically significant, indicating that interest levels remained relatively stable across the semester. In addition, L2 Grit significantly predicted Interaction. A significant Time × Institution interaction also emerged for the mid-semester timepoint. This interaction indicates that DLIFLC learners exhibited a mid-semester increase in interaction levels; scores surged initially and dropped at end of the semester yet remained higher than the initial interaction levels. The interaction among USMA cadets remained relatively stable throughout the semester. Taken together, these analyses indicate that both institutional context and L2 Grit contributed to differences in motivational engagement. Across all models, L2 Grit emerged as the strongest predictor of motivational engagement.

To examine emotional states and motivations throughout the semester, we coded responses from participants GRs using Pekrun's Academic Emotions Framework and SDT. We used Chi-square tests to determine if differences existed at each institution. Emotion-type distributions did not vary significantly between USMA and DLIFLC at the beginning, middle, or end of the semester, suggesting that students at both locations experienced broadly similar emotions across the term. A different pattern emerged for SDT-type distribution by institution. SDT categorizations for students at USMA and DLIFLC did not significantly differ at the beginning or middle of the courses. By the end, however, USMA cadets reported more autonomous motivations, while those at DLIFLC became more mixed with an increase in controlled motivations. This institutional difference at end-of-semester approached statistical significance, $\chi^2 = 3.43$, $p = .064$. Table 4 provides a sample of reflections from students at both locations and in what SDT category we coded their responses.

Table 4

Motivational commentary from students at USMA and DLIFLC

Institution	Part.	Time* (1, 2, 3)	Reflection	SDT Category
USMA	103	2	*"To become fluent enough that I will be able to get around conversationally if I get selected for [semester abroad]."*	Identified Regulation
	114	2	*"To continue to survive and get through this year."*	External Regulation
	127	2	*"Pass the TEE [final exam] and improve on the last WPR [unit exam]."*	External Regulation
	111	3	*"To be able to basically communicate in Persian and have a base of knowledge for future learning in language."*	Integrated Regulation
DLIFLC	215	1	*"I'd like to learn the language and pass the DLPT."*	External Regulation
	221	1	*"Being able to read faster with less difficulty and have an easier time translating sentences."*	Integrated Regulation
	204	3	*"Being able to journal completely in Persian."*	Intrinsic Motivation
	220	3	*"3, 3, 2 on DLPT, the ability to use Farsi in my daily life confidently."*	Identified Regulation

*Time 1 – beginning of semester; Time 2 – middle of semester; Time 3 – end of semester

DISCUSSION

There were three key findings in this study, which examined how individual learner characteristics and institutional context shape motivational engagement among PF learners in two U.S. military language programs, as well as the factors that predict changes in students' motivational engagement over time.

The first finding was that L2 Grit consistently predicted higher levels of interest and interaction. This aligns with prior research demonstrating that domain-specific grit is a powerful predictor of sustained engagement in SLA (Teimouri et al., 2022; Henry & Liu, 2024). Based on the participants, we see that students from DLIFLC have higher L2 Grit. Students at DLIFLC are recruited to learn languages and become military linguists, whereas USMA students are recruited to become military officers and pursue various majors.

The second finding indicates that students who began the semester with high levels of L2 Grit and strong interest were the most likely to remain highly interested by the end of the course. Nonetheless, analysis of the participants revealed that high initial interaction negatively predicted end-of-semester interest. Although students entered the semester with high levels of self-reported interaction (see Table 2), some experienced a decline in interest over time, possibly due to fatigue with the programs' intensity. Both institutions feature unique instructional environments. As described earlier, DLIFLC students study PF in an accelerated, high-stakes setting that requires approximately six hours of daily instruction, five days per week, and approximately two hours of homework each day. USMA students are responsible for at least four academic classes and other physical education and military duties alongside their language class. At the beginning of the semester, many students reported strong enthusiasm and engagement, likely reflecting both the novelty of the language-learning experience and the perceived professional relevance of PF for future military assignments. Such findings align with Dörnyei's (2005) L2 Motivational Self System, particularly the role of the Ideal L2 Self, in which learners initially envision themselves as competent future language users contributing to military missions.

The third finding illustrated shifts in learners' motivational orientations over the semester. Logistic regression analysis showed that some students who initially demonstrated controlled motivation were more likely to develop increased interest later in the semester, whereas those who began with high levels of autonomous motivation tended to maintain relatively stable interest throughout. This non-linear trajectory echoes findings by Takahashi and Im (2020) and Oxford and Khajavy (2021) that extrinsically motivated learners may later internalize goals as their competence and the perceived relevance of the language grow. It also aligns with the internalization process outlined in SDT, whereby learners gradually adopt more self-endorsed forms of regulation as they begin to find personal value in the activity (Ryan & Deci, 2020).

Although the relationship is not causal, students at DLIFLC reported a marked increase in interaction (see Table 3) during the middle of the semester, followed by a slight decline toward

the end, whereas USMA cadets' remained relatively stable across the semester. These patterns have important implications for intensive military language programs. The observed surge in interaction among DLIFLC participants suggests that immersion-style instruction may initially foster high levels of engagement and participation. However, institutions and instructors should also anticipate potential fatigue as the semester progresses.

These findings carry important implications for intensive military language programs. Maintaining motivational engagement over time may require greater instructional variation and increased opportunities for authentic communicative interaction. In addition, structured support systems that reinforce learners' sense of competence and the perceived L2 relevance may help sustain motivation across intensive training cycles. Incorporating communicative speaking tasks, collaborative activities (Csizér, 2020; Miller & Crowther, 2020), reflective goal-setting, and metacognitive strategy instruction (Allen et al., 2008) may further support learners' long-term motivational engagement. Similarly, early identification and targeted support for students experiencing academic difficulties may help prevent declining confidence and reduced interest from becoming entrenched over time.

Limitations

Despite its contributions, this study presents limitations. First, the sample size (N = 59) was small and focused on two military institutions, potentially limiting the generalizability of the findings. Future research should include a broader range of military learning contexts, languages, and learner profiles to enhance external validity.

Second, although the study adopted a mixed-methods approach, the qualitative data came from guided reflections, which may have been influenced by social desirability bias (e.g., seeking to please the researchers) and followed learners for only one term. Longitudinal designs spanning the full curriculum and the transition to operational assignments would clarify whether autonomous motivation and L2 Grit remain stable beyond classroom settings. Future research could incorporate in-depth, anonymous interviews, longitudinal narrative analyses, students' grade data across assessments, and/or retention data to provide a more comprehensive understanding of instructional effectiveness and learners' evolving motivational patterns.

Finally, while L2 Grit emerged as a strong predictor of learners' reported interest and interaction, the study did not explore the mechanisms through which it develops or interacts with psychological constructs such as resilience, mindset, or identity. Further research could unpack these relationships and explore how to cultivate L2 Grit in military learners.

CONCLUSION

The study explored three key questions: (1) How do individual learner characteristics (general grit, L2 Grit, and foreign language anxiety) compare between institutions and affect students' motivational engagement (interest and interaction) in PF courses? (2) Which factors predict students' motivational engagement in studying PF? (3) Which factors sustain motivational engagement over time among PF students at each institution? By examining these questions across two military foreign language learning contexts, the study contributes to the growing body of research on motivation in military second language acquisition.

Across both quantitative and qualitative analyses, L2 Grit emerged as the most consistent and robust predictor of learners' interest and interaction, surpassing the influence of general grit and foreign language anxiety. Learners with higher levels of L2 grit demonstrated stronger and more sustained motivational engagement throughout the semester, regardless of institutional context. This finding highlights the importance of domain-specific grit in high-stakes language learning environments.

Early-semester engagement also played a critical role in shaping motivational trajectories. Initial levels of interest strongly predicted end-of-semester interest. Similarly, initial levels of interaction predicted end-of-semester interaction. Self-reported interest remained relatively stable throughout the semester at both institutions, suggesting that early interest establishes an enduring foundation. Additionally, institutional context shaped interaction. DLIFLC learners demonstrated higher levels of interaction overall and a mid-semester increase, whereas USMA cadets showed more stable but comparatively lower interaction.

This study underscores the importance of fostering L2 grit and early engagement in language learning programs. For military language education, this suggests a need to design instructional practices and support systems that facilitate meaningful engagement and encourage autonomous motivation. Future longitudinal research spanning full training cycles can further elucidate how motivation evolves across military language learners' trajectories.

Authors

Olivia E. Holloway is an Associate Professor of Portuguese in the Department of English and World Languages at the U.S. Military Academy (USMA). She earned a PhD in Portuguese from Indiana University. Her research interests include embodied learning and motivation in second language acquisition and the warrior ethos as envisioned by Portugal, Brazil, and Japan. At USMA she serves as Director of the Portuguese Program and Officer in Charge of the Portuguese Forum capoeira program.

Siyi Gao is an Associate Professor at the Defense Language Institute Foreign Language Center, where she serves as an Academic Specialist at the Persian Farsi School. She holds a doctoral degree from Johns Hopkins University in Entrepreneurial Leadership in Education. She has nearly

two decades of experience teaching Chinese as a second language across mainland China, Greece, and the United States. Her research interests include teacher professional development, technology integration, motivation, and educational leadership.

Ra'ed Qasem is a Professor at the Defense Language Institute Foreign Language Center, where he currently serves as the Dean of the Persian Farsi School. With over 25 years of experience in the field of Foreign Language Education, he has taught languages and directed language programs across three countries, bringing a broad international perspective to his work.

Zachary F. Miller is an Associate Professor of Portuguese in the Department of English and World Languages at West Point. He earned an MA in Portuguese from the University of New Mexico and a PhD in Second Language Studies from Michigan State University. His research interests include second language acquisition in a military context and the effects of emotion and motivation on L2 learning.

REFERENCES

Allen, J. P., Robbins, S. B., Casillas, A., & Oh, I.-S. (2008). Third-year college retention and transfer: Effects of academic performance, motivation, and social connectedness. *Research in Higher Education*, *49*(7), 647–664. https://doi.org/10.1007/s11162-008-9098-3

Barkhuizen, G. (2008). A narrative approach to exploring context in language teaching. *ELT Journal, 62*(3), 231–239. https://doi.org/10.1093/elt/ccm043

Barkhuizen, G., & Wette, R. (2008). Narrative frames for investigating the experiences of language teachers. *System, 36*(3), 372–387. https://doi.org/10.1016/j.system.2008.02.002

Benson, P. (2014). Narrative inquiry in applied linguistics research. *Annual Review of Applied Linguistics, 34*, 154–170. https://doi.org/10.1017/S0267190514000099

Csizér, K. (2020). The L2 motivational self system. In M. Lamb, K. Csizér, A. Henry, & S. Ryan (Eds.), *The Palgrave handbook of motivation for language learning* (pp. 71–93). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-28380-3_4

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior.* Springer. https://doi.org/10.1007/978-1-4899-2271-7

Dörnyei, Z. (2002). The motivational basis of language learning tasks. In P. Robinson (Ed.), *Individual differences and instructed language learning* (pp. 137–158). John Benjamins. https://doi.org/10.1075/lllt.2.10dor

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition.* Routledge. https://doi.org/10.4324/9781410613349

Dörnyei, Z. (2019). Towards a better understanding of the L2 learning experience, the Cinderella of the L2 motivational self system. *Studies in Second Language Learning and Teaching, 9*(1), 19–30. https://doi.org/10.14746/ssllt.2019.9.1.2

Dörnyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited.* Routledge. https://doi.org/10.4324/9781315779553

Dörnyei, Z., & Ushioda, E. (2021). *Teaching and researching motivation* (3rd ed.). Routledge. https://doi.org/10.4324/9781351006743

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (Grit–S). *Journal of Personality Assessment, 91*(2), 166–174. https://doi.org/10.1080/00223890802634290

Henry, A., & Liu, M. (2024). L2 motivation and self-regulated learning: An integrated model. *System, 123,* 103301. https://doi.org/10.1016/j.system.2024.103301

Jodai, H., Zafarghandi, A. M., & Tous, M. D. (2013). Motivation, integrativeness, organizational influence, anxiety, and English achievement: Evidence from a military university. *ERIC.* https://files.eric.ed.gov/fulltext/ED586751.pdf

Keegan, K. (2017). Identifying and Building Grit in Language Learners. *English Teaching Forum*, *55*(3), 2-9. https://eric.ed.gov/?id=EJ1156469

Khajavy, G. H., MacIntyre, P. D., & Hariri, J. (2021). A closer look at grit and language mindset as predictors of foreign language achievement. *Studies in Second Language Acquisition*, *43*(2), 379–402. https://doi.org/10.1017/S0272263120000480

Miller, Z. F. (2016). Military and civilian L2 instructors: Decoding perceptions of U.S. service academy cadets. *Applied Language Learning, 26*(2), 25–52. https://www.dliflc.edu/wp-content/uploads/2021/12/Applied-Language-Learning_Vol26_Pt2.pdf

Miller, Z. F., & Crowther, D. (2020). Foreign language learning motivation in a U.S. military academy: A comparative case study on the effects from the learning environment. *Applied Language Learning, 30*(1–2), 41–59. https://www.researchgate.net/publication/339887540

Miller, Z. F., & Crowther, D. (2024). Foreign language learning in a specialized institution: Opportunities and challenges. *Foreign Language Annals, 57*(1), 48–66. https://doi.org/10.1111/flan.12730

Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language? Motivational orientations and self-determination theory. *Language Learning, 50*(1), 57–85.

Oxford, R. & Khajavy, G. H. (2021). Exploring Grit: "Grit Linguistics" and Research on Domain-General Grit and L2 Grit. *Journal for the Psychology of Language Learning*, *3*(2), 7–36. https://doi.org/10.52598/jpll/3/2/2

Pekrun, R. (1992). The impact of emotions on learning and achievement: Towards a theory of cognitive/motivational mediators. *Applied Psychology, 41*(4), 359–376. https://doi.org/10.1111/j.1464-0597.1992.tb00712.x

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational Psychologist, 37*(2), 91–105. https://doi.org/10.1207/S15326985EP3702_4

Pekrun, R., & Stephens, E. J. (2012). Academic emotions. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook: Vol. 2. Individual differences and cultural and contextual factors* (pp. 3–31). American Psychological Association. https://doi.org/10.1037/13274-001

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* Guilford Press. https://doi.org/10.1521/978.14625/28806

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology, 61*, Article 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_SDT.pdf

Sudina, E., & Plonsky, L. (2021). Language learning grit, achievement, and anxiety among L2 and L3 learners in Russia. *ITL-International Journal of Applied Linguistics*, *172*(2), 161-198. https://doi.org/10.1075/itl.20001.sud

Teimouri, Y., Plonsky, L., & Tabandeh, F. (2022). L2 Grit: Passion and perseverance for second-language learning. *Language Teaching Research, 26*(5), 893–918. https://doi.org/10.1177/1362168820921895

Takahashi, C., & Im, S. (2020). Comparing self-determination theory and the L2 motivational self system and their relationships to L2 proficiency. *Studies in Second Language Learning and Teaching, 10*(4), 673–696. https://doi.org/10.14746/ssllt.2020.10.4.2