Learners' Perspectives on the Interplay of Grit and Achievement Emotions in L2 Learning: Insights From Q-Methodology

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Article info	Abstract
	While grit and achievement emotions (AEs) have been separately studied, their interplay in second/foreign language (L2) learning, particularly its impact on L2 achievement, remains underexplored. This study investigated this interplay in a sample of Iranian L2 learners, employing Q-methodology to show shared perspectives on how grit would interact with positive and negative AEs in shaping their L2 learning journey. By using a nonprobability purposeful sampling approach, data from 43 L2 (English) learners were collected through Q-sorting, accompanied by think-aloud protocols to provide deeper insight into their subjective viewpoints. Three factors were identified through varimax rotation and manual adjustment statistical techniques. Factor arrays and qualitative analysis were then used to elucidate participants' perspectives on the interplay between grit and achievement emotions in L2 learning. The Q-sorts analysis revealed three distinct factors: (1) *grit-strengthening negative emotions*, highlighting the paradoxical role of emotions like shame, anxiety, and hopelessness in fostering perseverance; (2) *grit-building positive emotions*, emphasizing how positive emotions motivate L2 learners to persist in their efforts; and (3) *grit's buffering role toward negative emotions*, demonstrating how grit helps mitigate the detrimental effects of negative emotions like anxiety. These findings reveal the multidimensional and complex relationship between grit and AEs, underlining their joint role in L2 learning and provide practical insights for L2 educators to strategically harness emotions to enhance persistence and success in L2 contexts.

Keywords: achievement emotions, grit, L2 achievement, L2 learners, Q-methodology |

1. Introduction

Learning a second or foreign language (L2) is deeply connected to emotions and perseverance. The process of learning a new language often involves a mix of frustration, excitement, and achievement. These emotional experiences play a crucial role in shaping learners' motivation, determination, and overall engagement with their studies (Miah et al., 2024). The complexity of L2 learning, which often entails overcoming setbacks, adapting to novel linguistic structures, and dealing with performance anxiety, underscores the importance of grit, too. Perseverance and passion for long-term goals, hallmarks of grit, enable learners to confront challenges and persist through the demanding nature of L2 learning (Khajavy et al., 2021).

Grit is a construct defined by sustained effort and enduring passion toward achieving long-term objectives (Duckworth et al., 2007). It represents a non-cognitive trait tied to consistent effort and steadfast enthusiasm for meaningful goals. Credé et al. (2017) further maintain that grit combines perseverance and consistent interest, allowing individuals to overcome obstacles and maintain focus over time. In the context of L2 learning, L2 grit, as defined by Teimouri et al. (2022), captures learners' passion for language learning and their determination to persist despite challenges. Previous research has also confirmed the beneficial role of grit in enhancing L2 proficiency (Sudina et al., 2021) and communication abilities (Lee & Hsieh, 2019).

Entwined within the complex interplay of perseverance and setbacks, emotions—particularly AEs—play a pivotal role in the L2 learning process alongside grit. According to Pekrun (2006), AEs are emotional responses to academic accomplishments or failures. In the context of L2 learning, these emotions significantly affect learners' motivation, engagement, and overall language proficiency (Dewaele, 2016). Both grit and AEs are critical in driving success in L2 learning by shaping learners' persistence and influencing their experiences throughout the process (Dewaele, 2016; Duckworth et al., 2007). However, the potential interaction between these two constructs in predicting L2 outcomes remains largely uncharted. Specifically, it is yet to be determined whether grit impacts L2 achievement by influencing AEs, or whether AEs affect L2 achievement by shaping grit. Although prior research has considered the potential of grit and AEs separately (Aray et al., 2022; Zhao & Wang, 2023), to our knowledge, no study has investigated these two constructs together to explore their dynamic interplay using Q-methodology. By addressing this gap, the present study advances the field by offering a novel, learner-centered understanding of how grit and AEs jointly influence L2 learning experiences.

Given the complexity of these dynamics, an interpretive approach is essential to capture the depth and diversity of individual learners' perspectives.

That being so, Q-methodology was employed in this study for analyzing L2 learners' subjective viewpoints, combining statistical rigor with qualitative depth. Q-methodology has been particularly effective in studying affective variables in L2 research, allowing researchers to systematically capture how learners feel about their language learning experiences. This approach provides rich insights into how emotional factors like anxiety and enjoyment, as well as traits like grit, influence learners' engagement and performance in L2 contexts (MacIntyre & Khajavy, 2021). Q-methodology was especially suitable for the current study because it enabled the exploration of complex, subjective perspectives on the interplay of grit and AEs—phenomena that are deeply personal and context-dependent. By using Q-methodology in this study, the aim was to examine how L2 learners perceived the roles of grit and emotions in their L2 learning journey. Specifically, this study used Q-methodology to examine Iranian L2 learners' perspectives on how L2 grit interacted with both positive and negative AEs in shaping their persistence and L2 (English) achievement. The findings and patterns identified in the present study can contribute to a deeper understanding of the complex emotional and motivational processes underlying L2 learning.

2. Literature Review

2.1. Grit

The concept of grit, introduced by Duckworth et al. (2007), represents a blend of perseverance and passion for achieving long-term goals, distinguishing it from other motivational constructs such as self-discipline or resilience. This theoretical foundation situates grit within the broader framework of positive psychology, emphasizing sustained effort and enduring interest as essentials for success in challenging endeavors. In 2007, Duckworth and her colleagues conceptualized grit as a trait that enables individuals to overcome obstacles and maintain focus over extended periods.

Since its introduction, grit has been studied across diverse fields, including education, sports, and professional development, demonstrating its predictive power for performance and achievement (Credé et al., 2017). Researchers have further refined its dimensions into two components: consistency of interest (COI) and perseverance of effort (POE), with each playing a unique role in long-term goal attainment. While COI reflects an individual's unwavering commitment to specific objectives, POE captures their ability to persist through difficulties and setbacks (Duckworth & Quinn, 2009).

A significant body of literature underscores the centrality of grit in L2 learning, offering insights into how this trait facilitates L2 success. For instance, Teimouri et al. (2022) have conceptualized L2 grit as a blend of

passion for language learning and an unrelenting commitment to overcoming the inherent challenges in the process. Chen et al. (2021) have further emphasized that L2 grit encompasses time investment, consistency, and resilience, enabling learners to persevere despite obstacles. Gritty L2 learners demonstrate remarkable adaptability in navigating challenges, maintaining effort over time, and achieving their L2 learning goals (Yang, 2021).

Based on empirical evidence, a higher degree of L2 grit has been linked to enhanced proficiency (Mallahi, 2024; Sudina et al., 2021), a stronger inclination toward L2 communication (Lee & Hsieh, 2019), and the development of a persistent growth mindset (Khajavy et al., 2021). MacIntyre and Khajavy (2021) claim that girt propels learners to navigate the demanding cognitive and emotional landscapes of language acquisition. This growing body of research provides compelling support for the role of grit as a transformative force in L2 learners.

2.2. Achievement Emotions

Emotions are multifaceted psychological states that emerge in response to internal or external stimuli, characterized by subjective experiences, physiological responses, and behavioral expressions (Wigfield & Eccles, 2024). Rooted in cognitive and social theories, emotions are understood as dynamic constructs that influence and are influenced by individual goals, values, and situational contexts. The Situated Expectancy-Value Theory (SEVT), for instance, emphasizes the role of cognitive appraisals and situational influences in shaping emotional responses and motivational processes, highlighting how emotions mediate the relationship between perceived value, expectancy for success, and task engagement (Wigfield & Eccles, 2024).

AEs are a specific subset of emotions connected to academic outcomes and achievement activities (Pekrun, 2006). Pekrun's control-value theory (CVT) posits that AEs arise from learners' appraisals of their control over learning tasks and the value they assign to them, influencing motivation, learning strategies, and academic success. The CVT offers a framework for understanding AEs, which include positive emotions such as hope, enjoyment, and pride, as well as negative emotions like anxiety, hopelessness, and shame. According to CVT, two primary appraisals shape these emotions: control and value. Control refers to individuals' perceptions of their ability to influence outcomes or manage tasks, while value pertains to the importance or relevance they assign to these outcomes. CVT suggests that AEs are shaped by evaluations of control and value in a given situation, but they are also influenced by broader factors such as personal goals, beliefs, and social environments (Pekrun, 2006). While CVT has been widely applied in quantitative and experimental research studies, a few studies have recently

adopted Q-methodology to explore how learners perceive control and value in emotionally charged learning situations. For instance, Kruk et al. (2022) utilized Q-methodology to examine boredom in L2 learning through the lens of CVT, showing how learners' task value and sense of control influenced their emotional engagement. Similarly, Jodaei et al. (2021) highlighted how students' motivational profiles reflected appraisals of control and value in classroom settings. These studies highlight the potential of Q-methodology to operationalize CVT's core constructs in a way that captures learners' subjective experiences—an approach that the present study sought to adopt.

Research on L2 AEs has often focused on specific emotions, particularly anxiety and enjoyment, leaving other significant emotions such as hope, and pride underexplored (Pawlak et al., 2024; Shabani & Moharrami, 2015). Barabadi and Khajavy (2020) examined the link between emotions and L2 achievement and found that foreign language anxiety negatively impacted performance, while positive emotions like enjoyment contributed significantly to learners' success. Similarly, Shao et al. (2020) used structural equation modeling to demonstrate that enjoyment would foster engagement and improve language outcomes, offering a counterbalance to the negative effects of anxiety. The above studies suggest that both positive and negative emotions play critical but distinct roles in shaping L2 success.

On top of that, recent developments in the intersection of positive psychology and emotions have brought additional focus to the role of grit and emotional factors in L2 education. Emerging research highlights the potential links between grit and AEs. For instance, Aray et al. (2022) found that certain emotions (e.g., anger, happiness) could enhance grit, while emotions like sadness or disgust diminish it. Solhi et al. (2023) demonstrated that L2 grit predicted EFL students' emotion regulation and coping strategies, while Zhao and Wang (2023) showed that both positive and negative emotions could mediate the grit-achievement relationship in L2 learning. More recently, Csizér et al. (2024) examined L2 grit in L2 learning contexts, finding associations between L2 grit and positive emotions. Their study suggested that positive emotions had higher average values compared to negative emotions concerning grit. Furthermore, Tsang and Davis (2024) investigated how young learners' boredom and enjoyment related to their grit through the broaden-and-build theory in an EFL context. The study found enjoyment to be a strong predictor of POE, while boredom strongly predicted COI.

In summary, studies have identified potential connections between grit and AEs (Khajavy & Aghaee, 2022; Mei et al., 2024), AEs and L2 achievement (Barabadi & Khajavy, 2020; Shao et al., 2020), and grit and L2 achievement (Teimouri et al., 2022). Although these studies illuminate connections between grit, AEs, and L2 achievement, they predominantly rely on large-scale quantitative methods and structural equation modeling. Hence, little is known

about how learners themselves perceive and experience the interaction between grit and emotions in their language learning journeys. This overreliance on inferential statistics, while valuable, can risk overlooking the complexity and subjectivity of individual emotional experiences. Learners' nuanced interpretations—how they make sense of setbacks, perseverance, pride, or anxiety—remain largely unexplored.

2.3. Q-Methodology and L2 Studies

Q-methodology combines quantitative and qualitative elements, offering a structured way to capture and analyze individual perspectives on complex topics. While traditionally rooted in psychology, its applicability has expanded to fields such as education, health, and policy studies, where understanding personal viewpoints is crucial (Watts & Stenner, 2012). Q-methodology involves participants ranking statements about a given topic, followed by statistical analysis to identify patterns and shared perspectives, making it uniquely suited for exploring nuanced opinions and behaviors (Brown, 1978). In L2 research, the promise of Q-methodology lies in its ability to address the complexity of learner experiences and uncover the diversity of opinions that may not be captured by traditional survey methods (Ire, 2014). This issue makes it an effective approach for examining constructs like motivation, emotions, and attitudes in educational settings (Watts & Stenner, 2012). Recent reviews have also shown that the use of Q-methodology has been burgeoning in L2 research, with increasing interest in its ability to capture learner subjectivity and contextual variability (Morea & Ghanbar, 2024).

The potential of Q-methodology within L2 research is growing. Several studies have successfully applied Q-methodology to explore contextual and affective dimensions of L2 learning/teaching. Collins and Angelova (2015), for example, employed the approach to uncover diverse learner preferences in a teaching of English to speakers of other languages (TESOL) course, revealing profiles ranging from group-centered learners to those favoring independent or online study modes. Similarly, Jodaei et al. (2021) utilized Q-methodology to examine motivation dynamics in Iranian EFL classrooms, identifying distinct factors that shaped interactions between teacher and learner motivation. Kruk et al. (2022) utilized the method to investigate boredom among a sample of EFL learners in Iran, revealing critical sources of disengagement, such as teacher behaviors, activity design, and learner attitudes.

These findings underscore the method's capacity to provide an active and interactive framework, going beyond respondents' static response measures. Recent Q-methodology research has further emphasized its utility in exploring the emotional and affective dimensions of language learning. For instance, Fraschini (2023) conducted an intensive single-case study with

university students of Korean, revealing complex, context-dependent emotional patterns and highlighting the role of epistemic emotions in foreign language learning. In a broader theoretical contribution, Thumvichit (2022) provided an overview of Q-methodology in applied linguistics, illustrating its capacity to uncover learner subjectivity, particularly in relation to emotional responses in online learning settings. Adding to this growing body of work, Wen and Liu (2025) explored the emotional dynamics of advanced Chinese as a second language learners across six learning contexts, identifying three emotional profiles—pride and interest, burnout and confusion, and nervousness and anxiety—each shaped by interactions with self, peers, teachers, and curricular elements. All in all, the above studies demonstrate Q-methodology's strength in capturing nuanced, dynamic, and context-sensitive learner perspectives within L2 research.

In sum, despite the advances and contributions of the studied described above, significant gaps persist in the literature. Little research has systematically explored the subjective interplay of L2 grit and AEs from learners' perspectives using Q-methodology. Given the scarcity of qualitative insights, the present study adopted Q-methodology to capture the diversity of L2 learners' viewpoints on how grit and emotions interact in L2 learning. By focusing on subjective perceptions rather than solely observable outcomes, this approach could offer a novel, learner-centered contribution to the understanding of emotional and motivational dynamics in L2 achievement.

3. Method

3.1. Participants and Setting

Forty-three students (31 females and 12 males), majoring in English translation and teaching, were selected through convenience sampling from two universities in Iran. As noted by Brown (2004), a sample size in the range of 40 to 60 participants is often considered adequate for Q-methodological research, although the appropriate number can vary depending on the study's aims and design. This is because Q-methodology focuses on capturing diverse viewpoints rather than generalizing findings to a larger population. The participants, whose first language (L1) was Persian, were between 19 and 25 years old. They voluntarily participated in the study and completed the sorting of Q-statements through an online platform, ensuring ease of access and data collection. This approach aligns with the methodological emphasis on understanding individual perspectives in a context-specific manner. Moreover, the data were collected using Google Forms, which was configured to prevent multiple submissions from the same participants by requiring sign-in via email. Also, prior to data collection, ethical approval was obtained from the university's research ethics committee, and the participants provided informed consent.

3.2. Data Collection and Analysis

Following the core principles in Q-methodology, the data collection and analysis adhered to several systematic steps: first, defining the research question; second, making comprehensive Q-set; third, distributing the Q-sorts among subjects; fourth, conducting statistical analyses; and finally, interpreting or explaining the findings (Watts & Stenner, 2012).

Step 1. Defining a Research Question

Formulating an appropriate research question is a critical step in Q-methodology, as it directly shapes the design and development of the Q-set (Watts & Stenner, 2012). The specific focus of the investigation, determined by the research question, influences how the Q-statements are structured. Building on the reviewed literature and the increasing focus on grit and emotions in the L2 learning process, this study aimed to explore the diverse experiences of L2 learners concerning the potential interplay between AEs and grit within the context of L2 learning. With this aim in mind, the following research question was developed: How do L2 learners perceive the relationship between grit, achievement emotions, and their language learning achievement?

Q-methodology is well suited to this question as it systematically captures subjective viewpoints and reveals shared patterns in how L2 learners view the interplay of these complex psychological constructs.

Step 2. Developing or Making a Q-Set

In Q-methodology, a Q-set is utilized to gather the necessary data, consisting of a collection of diverse statements that aim to capture EFL participants' perspectives on a specific subject. For this study, the Q-set was derived from existing literature on emotion and grit within the context of L2 studies. The initial pool of 85 statements was generated from a comprehensive review of existing literature on grit and AEs in second L2 learning. To guide inclusion, we ensured that each statement was theoretically grounded in recognized conceptual frameworks—basically Duckworth et al.'s (2007) model for grit and Pekrun's (2006) CVT for AEs. We also aimed for broad coverage across different subdimensions, such as POE and COI of L2 grit, and positive and negative emotions regarding AEs.

Following this, four experts in applied linguistics and educational psychology were invited to review the initial pool. Each expert rated the statements for clarity, theoretical relevance, and representativeness on a 4-point Likert scale. Statements that scored below a mean threshold of 3.0 on any criterion were either revised or removed. Raters' discrepancies were discussed in a follow-up round to reach consensus.

Next, a pilot group of five L2 learners reviewed the refined set of statements. They were not asked to complete a Q-sort; rather, they provided

feedback on the clarity, wording, and interpretability of each item. Based on their input, minor adjustments in phrasing were made to enhance accessibility and avoid ambiguity. The final Q-set consisted of 40 statements, with 20 statements addressing grit and 20 focusing on AEs. Within each category, we ensured a balanced distribution of subcomponents—for instance, both perseverance and consistency aspects of grit, and both positive (e.g., enjoyment, pride) and negative (e.g., anxiety, boredom) achievement emotions. This balanced design was intended to reduce construct bias and ensure comprehensive coverage.

Step 3. Administering the Q-Sorts

In a Q-methodology study, the core data collection technique involves a sorting activity, where participants organize statements based on their perspectives. Each participant was asked to complete the Q-sort task individually. The statements were presented in random order, and participants were instructed to read through the entire set before beginning the sorting process. They were then asked to rank the statements along an 11-point scale ranging from -5 to +5 according to how much each statement reflected their personal perspective. A score of -5 indicated that the statement was "least characteristic of me," while a score of +5 signified that the statement was "most characteristic of me." Intermediate values reflected gradations of perceived relevance or representativeness. The participants sorted the statements using a fixed, quasi-normal distribution pattern to ensure a forced-choice ranking. A forced distribution was chosen over a free sort to reduce response bias, promote comparability across participants, and ensure cognitive engagement with the full range of statements (Brown & Pirtle, 2008). This pattern required the participants to place a limited number of statements at the extreme ends of the scale and progressively more statements toward the middle values. Specifically, the distribution consisted of one statement, each at -5 and +5, two statements, each at -4 and +4, three statements, each at -3 and +3, and so on, tending to form a symmetric, bell-shaped sorting structure. This forced distribution in Q-methodology was used to prompt the participants to make thoughtful distinctions among the statements.

A concurrent think-aloud protocol was employed during the sorting process, in which the participants verbalized their thoughts as they considered where to place each statement. They were encouraged to verbalize their thoughts freely, with gentle prompts (e.g., "What are you thinking as you place that statement?") used when necessary to sustain articulation. The verbalizations were audio-recorded, transcribed, and analyzed using thematic coding to identify recurring rationales and emotional experiences related to the sorted statements. This method was intentionally selected to capture the participants' immediate cognitive reasoning, offering richer insights into their

subjective interpretations of the statements. Care was taken to ensure that verbalization did not disrupt the sorting process. The participants were reminded that they could pause speaking at any time to focus on their decisions. This method proved especially valuable in identifying subtle factors influencing statement placement that might not emerge in post-sorting interviews. This method also aligns with process-tracing techniques used in qualitative research and yielded richer interpretive insights than post-sorting interviews alone.

Figure 1
The Final Q-Sort Grid Used in the Study

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

Step 4. Conducting Statistical Analysis

Data from the Q-sorts were analyzed using Ken-Q Analysis Desktop Edition (KADE). Centroid factor extraction was applied, followed by varimax rotation to improve clarity in the factor structure. Varimax was chosen for its ability to produce orthogonal factors that maximize variance and facilitate the identification of distinct, interpretable viewpoints. This choice is supported by Morea and Ghanbar (2024), who highlight the usefulness of varimax in applied linguistics research where clear differentiation between perspectives is important.

To determine the number of factors to retain, multiple criteria were considered. First, only factors with eigenvalues greater than 1.0 were retained. Second, the scree plot generated by KADE was inspected to identify the point of inflection, indicating a meaningful drop in explained variance. Third, theoretical interpretability was used to ensure that each factor represented a distinct and coherent pattern of viewpoint. Based on these combined criteria, a three-factor solution was adopted. Alternative solutions, such as a four-factor model, were explored, but it was ultimately discarded because the fourth factor showed weak eigenvalues, few significantly loading Q-sorts, and lacked interpretive coherence.

Each Q-sort was then evaluated for its loading pattern. A Q-sort was considered to load significantly on a factor if its loading exceeded ±0.40 ($p <$

.01) and did not load significantly on any other factor. Q-sorts that showed significant cross-loadings on multiple factors were considered confounded and excluded from the construction of factor arrays.

Factor arrays—representing the ideal-typical Q-sort for each factor—were calculated using the weighted average of the exemplar Q-sorts (i.e., those that loaded significantly and uniquely on one factor). Interpretation of each factor array focused on distinguishing statements (those ranked significantly higher or lower compared to other factors) and consensus statements (those similarly ranked across all factors). The interpretation process was further informed by the verbal data collected through think-aloud protocols, which offered real-time insight into the participants' reasoning and enriched the understanding of the patterns captured statistically.

Step 5. Interpreting the Results

The outcomes from the factor analysis, demographic descriptions, and think-aloud data were integrated to draw meaningful conclusions. Following Watts and Stenner (2012), a narrative approach was used to present the interpretation of the factors. In this way, the pertained items within each factor were grouped and organized to develop a unified account of the perceptions represented by the factors.

The most robust findings emerged from Brown centroid factor extraction, which produced a three-factor solution (Brown & Pirtle, 2008 2008), while other factors were excluded due to low eigenvalues or insufficient significant loading. Preliminary observations indicated that the three factors explained 40% of the total variance, which was considered a strong solution (>35%) (see Watts & Stenner, 2012). Also, automatic flagging at a significance level of $p < .05$ demonstrated that 77.5% of the Q-sorts (31 out of 40) significantly loaded, in any case, on one factor.

Then, the transcripts of think-aloud data were manually reviewed by the present researchers to identify recurring themes that represented the learners' perspectives on their Q-sorts. These themes were then connected to the three factors to give more contextualized explanations and profiles of the viewpoints. The integration of factor arrays with think-aloud thematic findings enabled a rich, contextually grounded interpretation of learner perspectives.

4. Results and Discussion

4.1. Results

Following Watts and Stenner's (2012) recommendations, the statements which were most representative of each factor were identified based on two criteria: their different rankings across factors and their relative prominence within the same factor. To enhance the factor descriptions, illustrative examples from think-aloud data offer deeper insight into

participants' perspectives and reasoning. The three factors were categorized and labeled as follows: (F1) *grit-strengthening negative emotions*, highlighting the role of challenging emotions in fostering resilience; (F2) *grit-building positive emotions*, emphasizing the contribution of uplifting emotions to grit development; and (F3) *grit's buffering role toward negative emotions*, demonstrating grit's capacity to mitigate the adverse effects of negative emotions.

Table 1 presents the z-scores calculated for each statement based on the average of individual Q-sorts that significantly loaded on a single factor. Becasue these Q-sorts did not all contribute to defining the factor equally, a weighted average method was employed to ensure the accuracy (Brown, 1978). These z-scores provide a means to compare how each of the statements was perceived across the different factors. As an example, the z-scores for Statement 2 are 0.38 regarding Factor 1, 1.94 regarding Factor 2, and 1.01 regarding Factor 3. This result indicates that the participants aligned with Factor 2 strongly believed that positive emotions, enjoyment in this case, play a crucial role in fostering their perseverance in L2 learning. In contrast, this perspective was less prominent among the participants associated with Factors 1 and 3.

Table 1

Z-Scores for Each Statement

No.	Statement	F1	F2	F3
1	Having hope in my L2 learning abilities helps me persevere through challenges.	.4	2.01	.75
2	Enjoying the L2 learning process fuels my passion and determination.	.38	1.94	1.01
3	Feeling proud of my L2 accomplishments helps me go on and bounce back from setbacks.	.09	1.33	.54
4	Boredom with my L2 classes sometimes pushes me to seek more challenging materials.	1.7	-.73	.12
5	My passion for L2 success allows me to overcome anxiety and focus on my L2 goals.	1.9	.07	2.2
6	When I focus on my long-term goals, I can handle setbacks without feeling hopeless.	.33	.65	1.02
7	When I feel hopeful about my L2 learning, I am more motivated to persevere.	.54	.62	.29
8	Experiencing joy in my L2 progress powers my passion and determination.	.44	.55	.2
9	The hope of achieving fluency in L2 keeps me motivated and focused on my L2 learning goals.	.09	1.23	1.1
10	By maintaining a consistent practice, I feel less anxious and can handle challenges in my L2 learning process.	.86	-.2	1.76
11	Despite feeling anxious about L2 challenges, I can push through and keep going.	.84	.59	.23

12	Even when I feel ashamed of my L2 mistakes, I use it as motivation to improve.	.96	-.78	-.3
13	Feeling bored with L2 learning can sometimes make it difficult to maintain my grit.	.11	-.14	.03
14	When I experience hopelessness, it can be hard to stay motivated and persistent.	.23	.37	-.05
15	Feeling angry at myself for not achieving my L2 goals sometimes drives me to work harder.	1.6	-.21	-.33
16	When I feel disappointed about my L2 skill development, I will be motivated to look for extra resources for practice.	1.87	-.49	.-32
17	Feeling hopeful about my progress motivates me to continue studying despite setbacks.	.22	.44	.09
18	Feeling proud of my L2 accomplishments strengthens my determination to succeed in L2 learning.	-.21	2.08	.02
19	Enjoying the process of L2 learning makes it easier to stay engaged and motivated.	.33	.91	-.41
20	Feeling anxious about my L2 progress motivates me to put in more effort.	1.98	.24	-.32
21	The effort I put into L2 learning helps me view mistakes without shame, as opportunities for growth.	.05	-.54	2.7
22	Feeling ashamed of my performance in L2 classes drives me to spend more time practicing.	2.03	-.39	.09
23	My passion for L2 success enables me to use positive emotions as a source of motivation and resilience.	.82	.16	-.32
24	My commitment to improving my L2 skills allows me to overcome negative emotions like boredom that arise during practice.	-.23	-.34	2.18
25	Having a sense of hope about improving my speaking skills in L2 motivates me to keep pushing through difficulties.	-.49	1.49	.08
26	My passion and perseverance towards L2 learning help me to maintain hope and optimism, even when I face difficulties in L2 learning.	.11	.21	-.03
27	Feeling ashamed of my L2 mistakes motivates me to work harder to avoid repeating them.	1.8	-.38	.71
28	When I find L2 learning enjoyable, I am more motivated to put in the effort required to succeed.	-.75	2.03	.04
29	The more I enjoy L2 learning, the more likely I am to develop and sustain perseverance.	.23	.75	-.38
30	My perseverance toward L2 learning helps me overcome initial challenges and find enjoyment in L2 learning.	.29	.42	-.72
31	My anxiety about using my L2 skills often pushes me to practice with greater focus and intensity.	1.9	.29	.24
32	My perseverance helps me enjoy learning a foreign language, even when I face challenges.	.18	.29	-.38
33	Feeling proud of my L2 skills motivates me to persevere through challenges.	-.4	2.14	.03
34	My pride strengthens my perseverance, helping me overcome setbacks and stay positive.	-.23	.86	.33
35	Feeling proud of writing correct sentences in English reinforces my determination to succeed in L2 learning.	-.45	1.98	.3
36	When I realize I can push through difficult situations, I feel proud of myself and continue with renewed eagerness.	.25	-.23	.5

#	Statement			
37	The shame of forgetting vocabulary during conversations motivates me to improve recall.	2.28	-.42	.1
38	My perseverance helps me cope with anxiety and focus on my L2 learning goals.	-.13	.03	2.13
39	My perseverance helps ease my anxiety and keeps me positive about L2 learning.	.6	-.22	1.82
40	My perseverance for L2 learning helps me overcome anxious feelings and stay engaged.	.16	-.25	1.83

The three factors are reported and explicated below, along with those tables demonstrating statement clusters for pattern interpretation. The related statement numbers and Q-sort rankings are also provided, which grants to identify important items for each factor and illustrate the perception polarization in a data-driven method.

Factor 1 accounted for about 21% of the total variance, with 15 learners loading significantly on this factor. This factor was labeled *grit-strengthening negative emotions* as it highlighted the role of adverse emotional experiences in cultivating grit. The participants' reports suggested that these challenging emotions contributed to their persistence and determination, driving them to overcome obstacles in their L2 learning journey.

Table 2 provides a detailed summary, listing the statements with the highest rankings for this factor (statements 15, 16, 20, and 22) and those with the lowest rankings (statements 37, 4, 27, and 31). These rankings offer insight into the specific emotional experiences perceived by the participants as either enhancing or hindering their perseverance and learning outcomes.

Table 2
Top and Bottom Ranking Statements of Factor 1

Item #	Statement	Ranking
Top 4		
15	Feeling angry at myself for not achieving my L2 goals sometimes drives me to work harder.	+5
16	When I feel disappointed about my L2 skill development, I will be motivated to look for extra resources for practice.	+5
20	Feeling anxious about my L2 progress motivates me to put in more effort.	+4
22	Feeling ashamed of my performance in L2 classes drives me to spend more time practicing.	+3
Bottom 4		
37*	The shame of forgetting vocabulary during conversations motivates me to improve recall.	-3
4*	Boredom with my L2 classes sometimes pushes me to seek more challenging materials.	-3
27*	Feeling ashamed of my L2 mistakes motivates me to work harder to avoid repeating them.	-4
31*	My anxiety about using my L2 skills often pushes me to practice with greater focus and intensity.	-5

Items 4, 27, 31, and 37 are inverted items—typically associated with productive grit responses—but their low rankings suggest that the learners, regarding Factor 1, did not resonate with these specific emotional triggers (e.g., boredom or socially-based anxiety); instead, they prioritized more internalized negative emotions like anger and disappointment as sources of motivation.

An example from the think-aloud data highlights the motivating influence of shame on students' grit during the L2 learning process. One student (female, 22 years old), affiliated with Factor 1 described how the fear of public embarrassment in L2 tasks encouraged her to engage more deeply in L2 skill development to avoid such situations. These insights emphasize the paradoxical role of negative emotions in enhancing resilience and commitment in L2 contexts. She elucidated that

> I rank this statement high because it's really true for me. I sometimes feel embarrassed when I make mistakes in L2 classes. But this embarrassment pushes me forward to work harder outside the class. I don't want to feel that way again, so I will stay focused on my L2 goals and continue practicing.

Another point in the think-aloud data was anxiety as a dual-edged emotion. Some participants explained that anxiety caused by fear of failure intensified their preparation efforts. Rather than paralyzing them, this sense or emotion motivated greater focus. For instance, one (female, 20 years old) noted, "I get a little nervous when I make mistakes in English, which makes me practice harder next time."

Factor 2 accounted for about 18% of the total variance and was significantly associated with 16 participants. This factor was designated as *grit-building positive emotions*, emphasizing the role of uplifting emotions—such as hope, pride, and enjoyment—in bolstering persistence and determination among the learners. These emotions were identified as key drivers that encouraged the participants to remain committed to their L2 learning goals, even in challenging situations. A detailed summary of the statements ranked highest (statements 1, 18, 2, and 28) and lowest (statements 33, 35, 25, and 9) for this factor is presented in Table 3.

Table 3

Top and Bottom Ranking Statements of Factor 2

Item#	Statement	Ranking
Top 4		
1	Having hope in my L2 learning abilities helps me persevere through challenges.	+5
18	Feeling proud of my L2 accomplishments strengthens my determination to succeed in L2 learning.	+4
2	Enjoying the L2 learning process fuels my passion and determination.	+4
28	When I find L2 learning enjoyable, I am more motivated to put in the effort required to succeed.	+3
Bottom 4		
33*	Feeling proud of my L2 skills motivates me to persevere through challenges.	-3
35*	Feeling proud of writing correct sentences in English reinforces my determination to succeed in L2 learning.	-3
25*	Having a sense of hope about improving my speaking skills in L2 motivates me to keep pushing through difficulties.	-4
9*	The hope of achieving fluency in L2 keeps me motivated and focused on my L2 learning goals.	-5

All four bottom-ranked items (25, 33, 35, 9) are inverted in this factor. While they are generally considered positive, their low rankings suggest that the learners in Factor 2 preferred more general, emotionally engaging sources of motivation (e.g., enjoyment, overall hope) rather than specific, outcome-focused pride or speaking-related progress as motivators.

An example from the think-aloud data highlights the motivating role of hope in fostering participants' grit during the L2 learning process. A student (male, 23 years old), linked to Factor 2, described how envisioning future success in mastering L2 fluency inspired him to persevere, even when progress was slow. The sense of hope served as a psychological anchor, enabling them to keep concentration on their prolong goals despite interim setbacks. These reflections underscore how positive emotions like hope not only alleviate the strain of learning but also enhance resilience and drive in L2 contexts. This student asserted that

> I like this statement since hope keeps me motivated to keep going. Believing that I can improve and reach my goals drives me to push forward, even when things get difficult. The idea of eventually becoming fluent really encourages me to keep working on my L2 skills.

Another example from the think-aloud data illustrates the motivating role of pride in enhancing the participants' grit during their L2 learning journey. One student (female, 23 years old) connected to Factor 2 shared how feeling proud of small milestones, such as mastering new speaking skills, pushed her

to keep striving despite the challenges. The sense of pride in their progress acted as a psychological boost, helping them stay committed to their long-term language goals. The student commented that

> I feel proud when I see how much progress I've made in learning the language. Even small achievements, like mastering a few words or understanding a difficult grammar rule, motivate me to keep going. That sense of pride reminds me that I'm capable and pushes me to overcome challenges.

Factor 3 accounted for 12% of the total variance, with nine participants showing significant association. This factor was labeled *Grit's buffering role toward negative emotions* because learners in this group identified grit as a resource that enabled them to cope with the negative emotions arising from difficult or monotonous tasks in L2 classes. While these tasks often evoked frustration or disengagement, the participants highlighted grit as crucial in maintaining their focus and commitment to their learning objectives. Table 4 summarizes the highest-ranking statements (statements 5, 10, 38, and 6) and the lowest-ranking ones (statements 21, 24, 39, and 40) connected to this factor.

Table 4
Top and Bottom Ranking Statements of Factor 3

Item #	Statement	Ranking
Top 4		
5	My passion for L2 success allows me to overcome anxiety and focus on my L2 goals.	+5
10	By maintaining a consistent practice, I feel less anxious and can handle challenges in my L2 learning process.	+4
38	My perseverance helps me to cope with anxiety and focus on my L2 learning goals.	+4
6	When I focus on my long-term goals, I can handle setbacks without feeling hopeless.	+3
Bottom 4		
21*	The effort I put into L2 learning helps me view mistakes without shame, as opportunities for growth.	-3
24*	My commitment to improving my L2 skills allows me to overcome negative emotions like boredom that arise during practice.	-3
39*	My perseverance helps ease my anxiety and keeps me positive about L2 learning.	-4
40*	My perseverance for L2 learning helps me to overcome anxious feelings and stay engaged.	-5

All four bottom-ranked items are inverted in this context. Despite their positive framing, the participants in Factor 3 gave these statements low rankings, possibly because they did not perceive grit as immediately alleviating

emotional strain; rather they perceived it as a steady, background resource for coping—implying a more effortful and gradual process.

An example from the think-aloud data highlights the role of grit in helping the participants manage anxiety during L2 learning, consistent with the theme of Factor 3. A participant (female, 21 years old), described how feelings of anxiety, particularly during high-pressure classroom situations, could be overwhelming. However, she emphasized that perseverance helped her maintain focus on her goals. She believed that speaking in the classroom would lead to fluency in L2, as long as she remained persistent and never gave up. She explained that

> When I feel anxious, especially when I'm asked to speak or perform in front of others in the class, it's hard not to freeze up. But instead of letting that fear control me, I try to remind myself why I'm doing this—to get better and eventually communicate fluently. It's my determination that keeps me from giving up.

Another example from the think-aloud data highlights grit's pivotal role in managing hopelessness, a recurring challenge reported by the participants (female, 23 years old), linked to Factor 3. She believed that by persevering through moments of frustration, particularly when struggling with speaking in L2, she could overcome feelings of hopelessness. She noted that

> Hopelessness creeps in when I think that I'm not making progress, particularly when I struggle to speak fluently in L2. But perseverance helps me push through those moments of frustration. I just tell myself to keep practicing speaking, even when it feels difficult because giving up won't get me any closer to my goal.

Moreover, it is noteworthy to mention that it was the experience of negative emotions—like anxiety or disappointment—that triggered greater effort and strengthened grit in Factor 1. While learners in Factor 3, viewed L2 grit as a characteristic to manage or neutralize their negative emotions. For them, L2 grit served as a stabilizing force that helped them stay emotionally balanced and maintain long-term commitment.

Interestingly, emotions such as anxiety and shame appeared across multiple factors, suggesting their dynamic roles. For instance, anxiety was ranked positively in Factor 1, but negatively in Factor 3. This divergence highlights how emotions may either enhance or inhibit grit, depending on learners' cognitive appraisals and regulatory capacities. In Factor 1, anxiety functioned as a motivator due to the learners' focus on self-improvement. In contrast, in Factor 3, anxiety was seen as emotionally taxing, requiring grit to buffer its effects. Similarly, shame functioned as a productive force in Factor 1, but it was disturbing in Factor 3, reinforcing the idea that the same emotion may trigger different mindsets depending on the learners' interpretive frameworks.

Figure 2 illustrates a conceptual map of the three identified factors and the interplay between grit and positive/negative emotions. It visualizes how grit can interact with these emotions and can be enhanced by, co-developed with, or act as a buffer for AEs.

Figure 2

A Conceptual Model of Grit and Achievement Emotions Across Factors
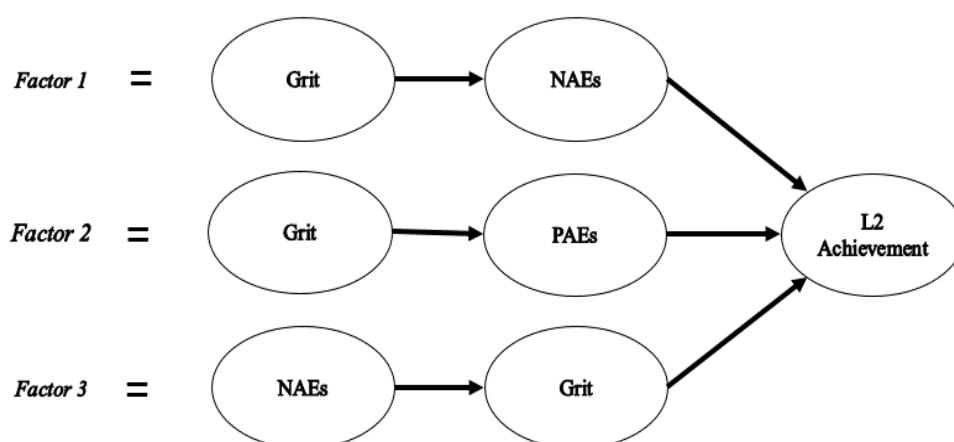
Note. NAEs = negative achievement emotions; PAEs = positive achievement emotions

4.2. Discussion

The dynamic interplay between grit and AEs in L2 learning was investigated using Q-methodology. Three distinct perspectives were identified through factor arrays and by using think-aloud data, shedding light on how grit and emotions interact to influence L2 learning achievement. The identified factors suggest three prototypical viewpoints or themes: (a) *Grit-strengthening negative emotions*, (b) *Grit-building positive emotions*, and (c) *Grit's buffering role toward negative emotions*. They underscore the dual impact of emotions and grit in motivating L2 learners and mitigating challenges.

4.2.1. Grit-Strengthening Negative Emotions

The first factor, *grit-strengthening negative emotions,* highlights a compelling variable and an underexplored phenomenon: negative emotions. Based on the results, negative emotions such as shame and anxiety, which are typically considered detrimental (Dewaele, 2016; MacIntyre & Gregersen, 2012), can potentially influence L2 learners' grit and, consequently, their L2 learning success. The participants reported that these challenging emotions acted as powerful stimulator, prompting them to persist in the face of adversity. For instance, the discomfort associated with feelings of shame, stress, and anxiety was described as a motivating force that pushed them to intensify their

efforts, stay focused on their progress, and actively strive for improvement in their L2 skills.

These findings align with Pekrun's (2006) CVT, which posits that emotions such as shame or anxiety can be activating if language learners perceive high control over tasks and assign high value to the outcome. In Factor 1, the L2 learners seemed to appraise these negative emotions as cues for effort investment rather than as threats, thereby reinforcing grit. From the perspective of Duckworth et al. (2007), this issue illustrates how sustained passion and effort may be fueled by concerns and emotional discomfort, provided that the L2 learner remains committed to his/her long-term goals.

Research suggests that negative emotions can sometimes enhance grit when paired with perseverance. Swain (2013) found that emotions like anxiety or frustration might motivate L2 learners to adopt a more determined approach to overcoming challenges. Aray et al. (2022) have also argued that emotions like anger were linked to increased grit. However, such emotions are context-dependent: when regulated effectively, they can build up learners' perseverance; when overwhelming, they may inhibit their progress in L2 learning. This issue indicates that the impact of negative emotions on persistence depends on how they are interpreted and managed by individuals. In L2 learning, where emotional experiences are intense, harnessing negative emotions constructively is crucial for success. Negative emotions like frustration or fear may initially be obstacles to L2 learning, but when regulated effectively, they can sometimes drive resilience. Learners who channel these emotions may develop stronger perseverance and a more focused approach to their L2 goals. Understanding how negative emotions influence grit can help learners use them to their advantage, enhancing both emotional engagement and L2 achievement. This dual role highlights the importance of L2 learners' appraisals and emotion regulation strategies in transforming obstacles into drivers of L2 grit.

4.2.2. Grit-Building Positive Emotions

The second factor, *grit-building positive emotions*, underscores how learners' experiences of emotions like hope, pride, and enjoyment can support learners' perseverance and long-term engagement in L2 learning. The participants associated these emotions with energy, clarity, and future-oriented thinking that helped them stay committed. For example, hope was seen as a forward-looking force that encouraged persistence even when progress was viewed as slow. It can be argued that hope, for instance, emerge as a key driver, helping L2 learners maintain motivation by envisioning success. It can shield against setbacks, help maintain goal progress (Nelissen, 2017), and boost persistence in academic settings (Madison, 2009). Likewise, fostering hope and trust in L2 learning environments is linked to greater academic grit and

success (Xu, 2022). Similarly, feelings of pride in their accomplishments and moments of enjoyment during the L2 learning process were described by their participants as energizing forces that sustained their efforts, making challenging tasks more manageable and meaningful. Pride is viewed to increase perseverance on effort-intensive tasks (Williams & DeSteno, 2008). Additionally, the co-development of foreign language enjoyment and L2 grit, as demonstrated by Elahi Shirvan et al. (2021), underscores the reciprocal relationship between emotional engagement and persistence in L2 learning. This perspective resonates strongly with Duckworth's (2007) emphasis on passion for meaningful goals. Emotional rewards like enjoyment and pride serve as intrinsic reinforcers of sustained effort. Also, according to CVT, these positive emotions arise from high control and high value appraisals and promote deep engagement. Following Duckworth's framework, they serve as intrinsic reinforcers that help L2 learners sustain long-term effort toward their valued goals. Overall, these findings align with prior research, such as Csizér et al. (2024), which underscores the pivotal role of positive emotions in enhancing L2 learners' grit during the language learning process. When positive emotions are frequent and internally valued, they appear to energize L2 learners, anchoring their perseverance in emotionally rewarding learning experiences. The above-mentioned positive emotions not only buffer L2 learners against the challenges of L2 learning but also create a supportive emotional environment that enhances their resilience in the L2 learning process. In the present study, the participants' reflections during the Q-sorting and think-aloud activities showed that experiences of enjoyment, pride, and hope were strongly linked to their sense of persistence and their ability to recover from setbacks. Those learners who reported feeling enjoyment described themselves as more capable of managing difficulties, highlighting the role of positive emotions in sustaining their resilience throughout the L2 learning process.

4.2.3. Grit's Buffering Role Toward Negative Emotions

The findings on Factor 3, *Grit's buffering role toward negative emotions,* reveal that grit sometimes functions as a psychological barrier against the adverse effects of negative emotions like shame, anxiety, and hopelessness. The participants reported that their perseverance helped them to mitigate the detrimental impacts of these negative emotions, allowing them to remain goal-oriented and engaged in their L2 learning. This point is in line with Duckworth's concept of grit as a stable trait that sustains long-term effort despite setbacks and emotional turmoil. This issue also aligns with research (e.g., Khajavy et al., 2021) which highlight grit as a stabilizing trait that supports L2 learners in persevering through emotional challenges. The mediating role of grit in minimizing the effects of negative emotions is

particularly evident in anxiety-related L2 research. According to Liu and Wang (2021), while anxiety can disrupt language performance, grit reduces this impact by fostering a consistent focus on long-term goals. Similarly, hopelessness can be counteracted by grit, as learners are encouraged to take adaptive coping mechanisms and view challenges as opportunities for growth. Hopelessness can hinder L2 learning by driving disengagement and other negative emotions (Dağgöl, 2018). However, the positive psychology-based interventions which focus on enhancing traits like perseverance, have been shown to counteract hopelessness and negative emotional effects, promoting resilience and improved L2 acquisition (Dewaele et al., 2019). It can be argued that the dual role of grit—buffering negative emotions while fostering determination—positions it as a crucial trait in the L2 learning process. By enabling learners to navigate emotional obstacles, passion and perseverance for L2 learning goals can enhance their ability to achieve greater outcomes and proficiency in L2 and sustain their motivation over time. In sum, Factor 3 illustrates grit's protective capacity; that is to say, even when emotions are demotivating, perseverance provides L2 learners with the resilience to stay engaged in the L2 learning journey.

The above findings also reinforce the need to examine the role of emotions across contexts. For instance, a look at the role of anxiety in Factor 1 and Factor 3 suggests that anxiety can enhance L2 grit in one context, but it may have another function in another context. This issue supports a more nuanced understanding of emotional valence, that is, emotions do not operate in fixed ways, but their functions vary by learner interpretation, context, and available coping resources.

5. Conclusion and Implications

The power of Q-methodology lies in its capacity to address the complexity of students' experiences and show the diversity of their subjective opinions (Ire, 2014). This study examined the interplay of grit and AEs in L2 learning by using Q-methodology. The analysis in several systematic steps uncovered three factors, namely (1) *Grit-strengthening negative emotions*, (2) *Grit-building positive emotions*, and (3*) Grit's buffering role toward negative emotions,* demonstrating the complex relationship between emotional experiences and perseverance in achieving L2 goals.

The first factor revealed that negative emotions like shame, anxiety, and hopelessness, though traditionally viewed as impediments, can propel L2 learners toward greater resilience and sustained focus on their long-term goals when these emotions were constructively managed. The findings imply the paradoxical role of negative AEs, rather than solely hindering progress. AEs can serve as catalysts for developing grit and enhancing L2 learning process. Also, the second factor illuminated the constructive influence of positive AEs

such as hope, pride, and enjoyment in cultivating grit among L2 learners. Based on the findings, positive AEs can play a pivotal role in sustaining learners' effort and determination, while also fostering a more engaging and less stressful learning environment. The third factor underscored grit's pivotal role in mitigating the adverse effects of negative emotions on L2 learning. The participants reported that their perseverance enabled them to counteract feelings of anxiety, shame, and hopelessness, maintaining their focus on L2 (English) learning goals. This finding accentuates the role of grit as a stabilizing trait in helping L2 learners to persevere through emotional challenges.

The findings reinforce two key theoretical frameworks: Pekrun's (2006) CVT and Duckworth's (2007) grit framework. The findings illustrate how learners' appraisals of emotional experiences—whether as controllable and valuable (CVT) or as part of sustained long-term effort (grit)—shape their motivational responses. Negative emotions may activate perseverance when viewed as manageable challenges, while positive emotions reinforce passion and commitment.

The findings, in overall, have theoretical and pedagogical implications. Theoretically, they underscore the dual nature of emotions in L2 learning, acting both as obstacles and enablers. This issue highlights the transformative potential of grit in navigating emotional challenges, suggesting that perseverance can convert negative emotions into motivational fuel, thereby enhancing L2 achievement. Pedagogically, these insights advocate for instructional strategies that acknowledge and harness the motivational potential of emotions. It is recommended that

- L2 educators present emotion regulation techniques, such as mindfulness exercises, to help their students recognize and manage negative AEs (e.g., anxiety) during L2 tasks,
- L2 practitioners incorporate playful learning activities, like role-playing or language games in their L2 learning classes. These activities can create a low-stress environment, encouraging L2 students to practice new L2 skills without fear of judgment, and
- L2 practitioners foster a classroom culture of peer support through critical group discussions and collaborative learning projects. They help L2 students realize they are not alone in their learning struggles, providing mutual support and motivation.

Implementing these strategies can create a supportive learning environment that not only addresses the emotional challenges inherent in foreign language learning but also empowers students to transform negative emotions into drivers of persistence and success.

This study, while offering valuable insights, has several limitations. First, the exploratory nature of Q-methodology limits the generalizability of

findings. Future research could address this issue by employing large-scale mixed-methods designs to test and validate the factor patterns identified here across broader populations. Second, the participant sample was culturally and linguistically homogeneous (Persian-speaking L2 learners), which may restrict the applicability of the findings to diverse educational contexts. Subsequent studies should recruit L2 participants from varied cultural and linguistic backgrounds to examine whether similar emotional-grit interactions occur in different L2 environments. Third, the use of think-aloud protocols, while valuable for capturing cognitive-emotional insights, may be affected by participant reactivity or limited introspective access. To enhance validity, future studies could complement verbal data with real-time emotion-tracking methods such as facial recognition, physiological monitoring, or in-situ diary studies. Finally, the cross-sectional design provides only a snapshot of learners' emotional and motivational profiles. Longitudinal research is needed to trace how the interplay between L2 grit and AEs unfolds over time and influences L2 learners' persistence and outcomes throughout different stages of L2 learning.

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