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Academic Self-Efficacy, Language Mindsets, and Multidimensional Resilience Among International Students Learning Arabic

Munassir Alhamami [1*] **and Hasan Faya Alalmay** [2]

[1] English Department, College of Languages and Translation, King Khalid University, Abha, Saudi Arabia; mhamame@kku.edu.sa
[2] Department of Arabic Language and Literature, College of Arts and Humanities, King Khalid University, Abha, Saudi Arabia; hfalalmaee@kku.edu.sa
* Correspondence: mhamame@kku.edu.sa

ABSTRACT

International students in intensive host-language programs manage academic demands while adapting to a new linguistic and social environment. This study examined concurrent associations among academic self-efficacy (ASE), growth language mindsets (GLM), fixed language mindsets (FLM), and ego, metacognitive, and social resilience among international scholarship students learning Arabic in Saudi Arabia. It also tested ASE as a statistical moderator of the mindset-resilience associations. A bilingual cross-sectional survey was completed by 202 students; response-pattern screening yielded an analytic sample of 175. The theory-guided model was estimated with generalized structured component analysis in SmartPLS 4 using 10,000 bootstrap samples. ASE and GLM were positively associated with all three resilience dimensions. The hypothesized negative FLM relationships were not supported. Several interaction terms were statistically significant, but their directions did not support the proposed buffering or amplification patterns once the survey's 1-to-6 response direction was considered. Measurement evidence was generally strong, although GLM and the three resilience dimensions showed substantial empirical overlap. The findings identify ASE and growth-oriented language beliefs as important concurrent correlates of resilience during intensive host-language preparation. They also show that the joint pattern of efficacy and mindset beliefs is more complex than a simple amplification account. Longitudinal research is needed to establish temporal order and test these relationships across international student populations and host-language programs.

Keywords: academic self-efficacy; international students; language mindsets; L2 Arabic; resilience; study abroad; survey

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INTRODUCTION

In this study, international students are learners who crossed national borders for education and held temporary student status in the host country. For students who enter a host-language preparation program before degree study, language learning is part of academic mobility rather than a separate classroom activity. The language is needed for coursework, institutional participation, and everyday interaction. Research on international students consistently shows that adjustment is shaped by both individual resources and the support available in the host environment. A recent meta-analysis, for example, found a positive association between social support and academic adjustment across international-student samples (Sari et al., 2026). These concerns are especially relevant when students must develop the host language while adapting to unfamiliar academic routines and social expectations.

Saudi Arabia provides a distinctive setting for this question. International enrollment has expanded through national scholarship and mobility programs, and recent research has begun to document the opportunities and challenges experienced by students who study in Saudi universities. Alhamami (2025) reported that international admissions increased from 8,632 in 2021 to 15,529 in 2023 and showed that students' experiences include academic, linguistic, and social opportunities alongside adjustment challenges. Scholarship research has drawn attention to access, equity, and the developmental aims attached to international study in Saudi Arabia (Albylwi, 2026). Earlier work also documents social and cultural adaptation challenges in Saudi higher education (Alasmari, 2023). For students who complete intensive Arabic before entering degree programs, successful adaptation therefore involves both mobility-related adjustment and sustained language learning.

Resilience is relevant to this transition because difficulty is expected rather than exceptional. In language education, resilience concerns adaptive responses to setbacks, including maintaining emotional balance, revising learning strategies, and using social support. Guo and Li (2022) proposed three related dimensions: ego resilience, metacognitive resilience, and social resilience. These dimensions are useful in an international-student setting because coping may take different forms. A student may remain emotionally steady but struggle to change an ineffective study plan, or may regulate study well but hesitate to seek help in a new social environment.

Two belief systems may be related to these forms of resilience. Language mindsets concern whether language-learning capacities are viewed as developable or largely fixed. Growth language mindsets (GLM) emphasize the possibility of improvement, whereas fixed language mindsets (FLM) place greater weight on stable ability, aptitude, or age-related limits (Lou & Noels, 2017). Academic self-efficacy (ASE) concerns confidence in managing current academic demands (Bandura, 1997). The two constructs are related but not interchangeable. A learner can believe that Arabic ability can improve over time while still feeling unable to complete a difficult assignment, or can feel capable in current classes while holding fixed beliefs about aptitude.

The present study examines these beliefs together among international scholarship students in an intensive Arabic program. The specific gap is not simply that Arabic is less represented in learner-psychology research. International-student studies in Saudi Arabia have rarely examined how beliefs about language malleability and confidence in current academic capability relate to distinct emotional, strategic, and social forms of resilience during host-language preparation. The study therefore tests direct associations and statistical interactions in one theory-guided model. Because all variables were measured at one point in time, the arrows in the model represent concurrent statistical relations rather than temporal or causal processes.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

International Students, Host-Language Learning, and Resilience

International student mobility is often discussed through admission, academic adjustment, belonging, and well-being. Host-language preparation adds another layer because the language being learned is also a resource for entering the institution and the surrounding community. Hajar and Abdul Manan (2025) show across Asian study-abroad settings that language learning and intercultural engagement are closely tied to how international students participate, construct identities, and imagine future pathways. In Saudi Arabia, Alhamami's (2025) mixed-methods study across five public universities documented diverse motivations for study as well as practical opportunities and challenges. These studies place Arabic learning within a wider mobility process rather than treating it only as a language-course outcome.

This mobility perspective matters for resilience. International students may need to manage separation from established support networks, unfamiliar assessment practices, changing social roles, and communication demands at the same time. Recent evidence in the Journal of International Students links resilience with psychological adaptation and shows that social resources remain important when students face academic and cultural strain (Mahmood et al., 2026). The meta-analysis by Sari et al. (2026) likewise found a moderate positive association between social support and academic adjustment. Resilience in this context should therefore not be reduced to personal toughness. It includes how students regulate themselves and how effectively they can use relationships and institutional resources while adapting. Li et al. (2025) found that cultural background moderated the enjoyment–willingness-to-communicate relationship among international students learning Chinese in the host environment. This supports examining learner psychology within international mobility contexts.

Multidimensional Resilience in Language Learning

Language-learning resilience refers to adaptive functioning when progress is difficult, feedback is discouraging, or learning demands remain high. Guo and Li (2022) developed a foreign language learning resilience framework that separated ego, metacognitive, and social aspects. Ego resilience centers on emotional steadiness, persistence, curiosity, and recovery after setbacks. Metacognitive resilience concerns monitoring progress, changing strategies, using feedback, and revising goals. Social resilience concerns seeking and providing help, collaborating with others, and maintaining supportive learning relationships. The distinctions are theoretically useful because a learner can show strength in one area without showing the same response in another.

At the same time, these dimensions should not be treated as unrelated traits. Emotional regulation can make strategy change easier, effective strategy use can protect confidence, and supportive relationships can provide information needed for both emotional and metacognitive adjustment. High correlations among the dimensions are therefore plausible, especially in an intensive program where students face the same language tasks, teachers, assessments, and peer network. The present study retains the three dimensions because their item content represents different coping functions, but it evaluates their empirical separation rather than assuming that the source structure transfers unchanged to a multilingual Arabic-learning sample. This distinction between theoretical content and observed separation is important when established scales are adapted to a new language and population.

Language Mindsets and Resilience

Language mindsets describe beliefs about whether capacities for learning another language can change. Lou and Noels (2016, 2017) showed that these beliefs are relevant to how learners interpret difficulty and respond to failure. This reasoning also reflects the broader distinction between growth and fixed mindsets described by Dweck and Yeager (2019). Growth-oriented beliefs make improvement through effort, strategy, and experience seem possible. Fixed beliefs give more weight to stable intelligence,

aptitude, or age-related limits. Fixed and growth beliefs are modeled separately because learners can hold mixed views across these domains rather than occupying one simple bipolar continuum.

Evidence across second language research generally associates growth mindsets with more adaptive outcomes, but the pattern is not uniform. The language-mindset research agenda emphasizes that these beliefs are context-sensitive rather than universal in their consequences (Lou & Noels, 2019). A multilevel meta-analysis found meaningful associations between language mindsets and learning outcomes while also showing variation by construct and study context (Elahi Shirvan et al., 2024). Other work connects growth beliefs with autonomous motivation, engagement, and self-regulated learning (Jiang et al., 2024; Teng et al., 2024). These findings provide a rationale for expecting GLM to relate positively to resilience. A learner who sees ability as developable may be more willing to persist after mistakes, revise a weak strategy, and use feedback because current difficulty does not define a permanent limit.

The expected relation for FLM is less straightforward. Fixed beliefs can make setbacks more diagnostic of ability and may encourage avoidance when effort is interpreted as unlikely to change an underlying limit. This reasoning supports negative hypotheses for resilience. However, growth and fixed beliefs do not always operate as exact mirror images, and their unique associations can change when other motivational variables are modeled at the same time. The present study therefore keeps the directional hypotheses derived from mindset theory but treats unsupported or sign-reversed coefficients as substantive findings rather than forcing a symmetric growth-versus-fixed interpretation.

Academic Self-Efficacy and Conditional Mindset Associations

ASE comes from social cognitive theory and concerns judgments of current capability for academic action (Bandura, 1997). It differs from a mindset belief. A growth mindset answers whether ability can develop; ASE answers whether the learner believes that a particular academic demand can be managed now. This distinction matters in an intensive language program. A student may value effort and believe in improvement but still have weak confidence after repeated difficulty. Conversely, a student may feel capable of current coursework while holding fixed beliefs about age or innate aptitude.

Recent language-learning research supports positive associations between self-efficacy and adaptive academic functioning. Cong et al. (2024) linked academic self-efficacy with engagement in EFL learning, while Huang and Liu (2026) reported a close relationship between self-efficacy and academic resilience. Research also connects growth mindset, self-efficacy, and self-regulation in L2 performance (Derakhshan & Fathi, 2024). These findings support direct positive hypotheses between ASE and ego, metacognitive, and social resilience because confidence may accompany steadier responses to difficulty, greater willingness to adjust strategies, and more active use of learning resources.

The interaction hypotheses address a more specific question: whether the statistical relation between language mindsets and resilience differs across levels of ASE. Prior studies have often placed self-efficacy beside mindset or modeled it as an intervening process, but direct evidence for ASE as a moderator of mindset-resilience relations remains limited (Kim, 2024). The original model therefore treats moderation as a theory-guided possibility rather than an established pattern. Stronger ASE could weaken a negative FLM-resilience relation by providing an alternative source of capability information. It could also strengthen a positive GLM-resilience relation if confidence helps learners act on growth-oriented beliefs. These expectations are tested separately for emotional, strategic, and social resilience. Because the data are cross-sectional, any interaction is interpreted as a conditional concurrent association, not evidence that one belief changes the causal effect of another.

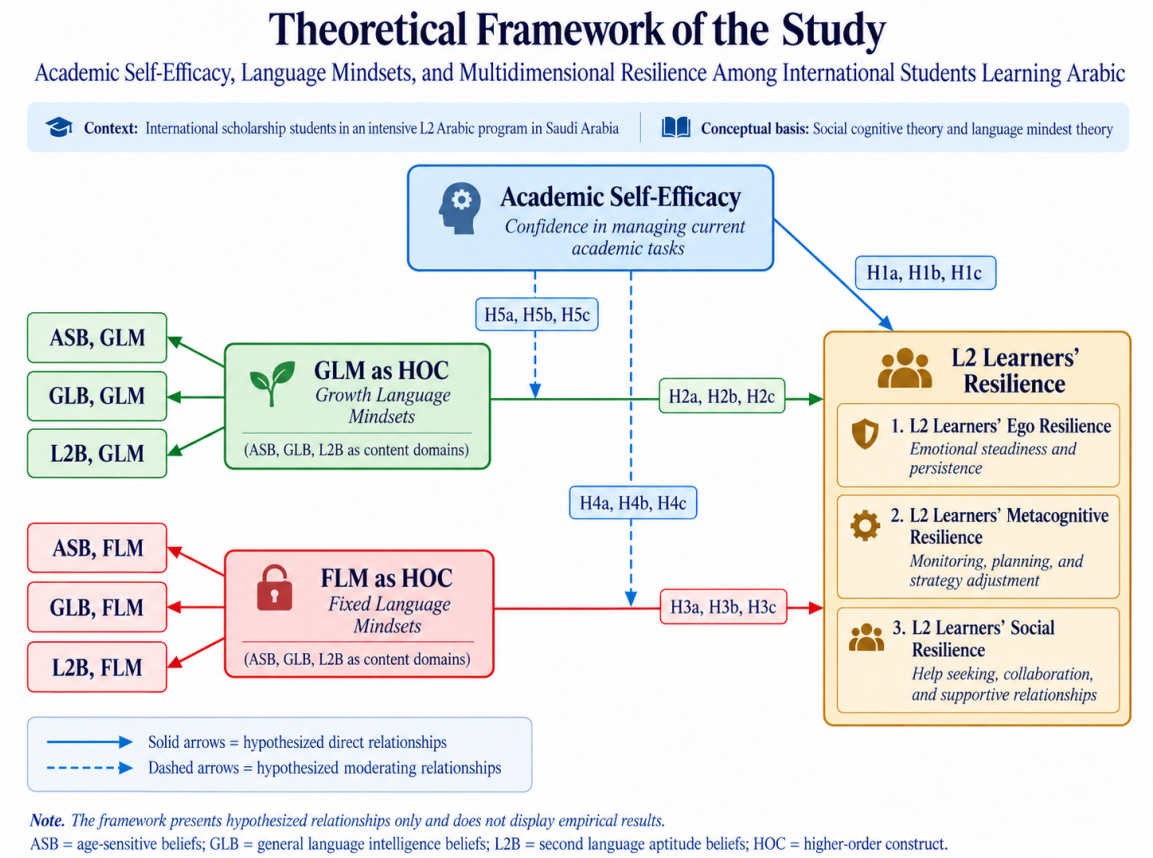
Conceptual Model

The model integrates social cognitive theory with language mindset research. ASE, GLM, and FLM are related to each of the three resilience dimensions, and ASE is included in two product terms with GLM and FLM. Figure 1 preserves the three content domains of the Language Mindsets Inventory to show what the broad fixed and growth components cover. In the GSCA estimation, however, the nine fixed items load

directly on FLM and the nine growth items load directly on GLM. The model therefore tests six direct mindset associations, three direct ASE associations, and six statistical interaction terms while keeping the three resilience outcomes visible.

Figure 1

Conceptual framework linking academic self-efficacy, language mindsets, and three resilience dimensions.



Note. ASE = academic self-efficacy; GLM = growth language mindset; FLM = fixed language mindset; GLB = general language intelligence beliefs; L2B = second language aptitude beliefs; ASB = age-sensitive beliefs; HOC = higher-order construct. HOC is illustrative here: it groups the three content domains under each broad mindset. The estimated model used nine items directly for FLM and nine for GLM, as shown in Figure 2.

RESEARCH QUESTIONS AND HYPOTHESES

RQ1. To what extent is ASE positively related to ego resilience, metacognitive resilience, and social resilience in L2 Arabic learning? (H1a, H1b, H1c)
RQ2. To what extent are GLM positively related to ego resilience, metacognitive resilience, and social resilience in L2 Arabic learning? (H2a, H2b, H2c)
RQ3. To what extent are FLM negatively related to ego resilience, metacognitive resilience, and social resilience in L2 Arabic learning? (H3a, H3b, H3c)
RQ4. Does ASE moderate the relationships between FLM and the three resilience dimensions, such that the negative associations become weaker at higher levels of ASE? (H4a, H4b, H4c)
RQ5. Does ASE moderate the relationships between GLM and the three resilience dimensions, such that the positive associations become stronger at higher levels of ASE? (H5a, H5b, H5c)

Direct Associations

Based on social cognitive theory and the literature reviewed above, stronger ASE is expected to be positively related to each form of resilience.

H1a. ASE will be positively related to ego resilience.

H1b. ASE will be positively related to metacognitive resilience.

H1c. ASE will be positively related to social resilience.

The mindset literature also supports positive associations between GLM and the three resilience dimensions.

H2a. GLM will be positively related to ego resilience.

H2b. GLM will be positively related to metacognitive resilience.

H2c. GLM will be positively related to social resilience.

For FLM, the directional hypotheses follow the expectation that fixed ability beliefs are associated with weaker adaptive responses to difficulty.

H3a. FLM will be negatively related to ego resilience.

H3b. FLM will be negatively related to metacognitive resilience.

H3c. FLM will be negatively related to social resilience.

Moderating Role of Academic Self-Efficacy

ASE is also tested as a statistical moderator. The hypotheses propose that stronger ASE weakens the negative FLM-resilience associations and strengthens the positive GLM-resilience associations.

H4a. ASE will moderate the relationship between FLM and ego resilience, such that the negative association becomes weaker at higher levels of ASE.

H4b. ASE will moderate the relationship between FLM and metacognitive resilience in the same direction.

H4c. ASE will moderate the relationship between FLM and social resilience in the same direction.

H5a. ASE will moderate the relationship between GLM and ego resilience, such that the positive association becomes stronger at higher levels of ASE.

H5b. ASE will moderate the relationship between GLM and metacognitive resilience in the same direction.

H5c. ASE will moderate the relationship between GLM and social resilience in the same direction.

METHOD

Design and Setting

A cross-sectional correlational survey was used to examine the model during one instructional period. It also allowed the four program levels to be surveyed within the same stage of the semester. The design does not establish temporal precedence or causal effects, so directional arrows in the model represent theory-based statistical specifications only (Kline, 2023).

The study took place in a two-year intensive Arabic diploma at a public university in southern Saudi Arabia. The program has four sequential levels, with one level normally completed each semester. New students complete written and oral placement procedures, and progression requires completion of coursework and end-of-level assessment. Most students are international scholarship recipients preparing for later university study.

Participants and Recruitment

The accessible population contained 240 enrolled students, and all were invited. A total of 202 submitted the questionnaire, an initial response rate of 84.2%. After screening, 175 cases remained. The sample included 20 students at Level 1 (11.4%), 40 at Level 2 (22.9%), 64 at Level 3 (36.6%), and 51 at Level 4 (29.1%). Students represented more than 30 countries; the largest groups were Ivorian (18.3%), Nigerian (13.1%), Indonesian (6.3%), Russian (5.1%), and Beninese (4.6%). Most planned to continue to a bachelor's degree (81.1%), and the most common intended fields were Islamic Studies (64.0%) and Arabic Language Studies (13.7%). The recruitment strategy was therefore convenience-based and purposive, with an attempted census of the eligible cohort.

No a priori power analysis was conducted. The sample comprised the screened eligible responses. Precision is reported through bootstrap confidence intervals; future studies can use GSCA-specific simulation to plan samples for direct and interaction associations.

Questionnaire Preparation and Administration

Item wording was adjusted to refer directly to Arabic learning while preserving the source meaning and response format. The first researcher prepared parallel Arabic and English wording. Three MA students in applied linguistics reviewed clarity, conceptual correspondence, cultural fit, and the bilingual wording. A second applied linguist then reviewed the complete questionnaire for content coverage and contextual suitability. Five current Arabic learners piloted the online form for clarity, navigation, and completion demands.

The questionnaire was administered through Google Forms with Arabic and English displayed together for every instruction and item. Participants could consult either language or both, so no separate language-choice variable was recorded. The common six-point scale ran from 1 = strongly agree or strongly yes to 6 = strongly disagree or strongly no; lower raw scores therefore indicated stronger agreement with each statement. Fixed and growth mindset items were modeled as separate constructs rather than reverse-scored into one bipolar mindset score. The resilience items were analyzed using the coding in the SmartPLS dataset, and their interpretation was based on item content together with the measurement results reported below.

The questionnaire was administered online through a link or QR code. The first page presented the study information and consent conditions before students continued. Participation was voluntary, no names or student numbers were requested, and nonparticipation had no academic consequences.

Measures

Academic Self-Efficacy

ASE was measured with four items adapted from the academic efficacy dimension of the student burnout instrument developed by Alhamami and Alrabai (2026). The wording was changed only to refer directly to Arabic classes and learning tasks. The items address overcoming learning challenges, contributing effectively in class, perceived learning accomplishment, and successful completion of required tasks. In the present model, they form a brief measure of perceived academic capability in intensive L2 Arabic study.

Language Mindsets

Language mindsets were measured with the 18-item Language Mindsets Inventory developed by Lou and Noels (2017). The source instrument represents three belief domains: general language intelligence, second language aptitude, and age sensitivity. Each domain contains three fixed and three growth statements. For structural estimation, the nine fixed items formed the broad FLM component and the nine growth items formed the broad GLM component.

Language Learning Resilience

The resilience measure drew on the 24-item development pool reported by Guo and Li (2022), with eight proposed items for each of ego, metacognitive, and social resilience. The source validation later removed five cross-loading items and retained 19 items in a Chinese EFL sample. Instead, the 24-item development pool was adapted to Arabic and reevaluated in this multinational sample.

Data Screening

All questionnaire items were required, so the submitted records contained no item-level missing values. Screening focused on invariant responding across the two long blocks central to the model (Meade & Craig, 2012). Fifteen records had a zero range across all 18 mindset items and were removed. Twelve additional records had a zero range across all 24 resilience items. The final analytic sample was 175. The four-item ASE measure was not used as a separate exclusion screen.

Data Analysis

SmartPLS 4 (Ringle et al., 2024) was used to estimate generalized structured component analysis (GSCA). GSCA represents constructs as weighted components and jointly estimates measurement and structural relations (Hwang & Takane, 2014). This approach matched the aim of examining associations among broad summaries of the adapted item sets. Common-factor analysis addresses a different measurement specification. Indicator performance, reliability, convergent validity, component correlations, collinearity, fit, and structural associations were evaluated within GSCA.

Measurement assessment used outer loadings, Cronbach's alpha, composite reliability, and average variance extracted (AVE). Construct distinctiveness was examined through cross-loadings and two-sided 95% percentile bootstrap intervals for component correlations. Correlations were interpreted with theory and item content, recognizing that distinctiveness is a matter of degree (Rönkkö & Cho, 2022). Intervals below 1.00 indicate nonidentical components but do not alone establish strong separation.

Inner variance inflation factors (VIFs) were inspected before the structural paths. Global GSCA fit was summarized with the standardized root mean square residual (SRMR), overall FIT, adjusted FIT (AFIT), measurement FIT (FITm), and structural FIT (FITs). These indices were interpreted together rather than using one cutoff as an automatic model-rejection rule. Structural significance was assessed with 10,000 bootstrap samples, two-tailed tests, a .05 alpha level, and percentile confidence intervals.

Two product terms, ASE × GLM and ASE × FLM, were included to test moderation. The response orientation requires care when interpreting these terms. The questionnaire used lower raw values for stronger agreement. For substantive interpretation, the ASE, mindset, and resilience component axes were re-expressed so that larger values represented stronger construct scores. Reversing all three axes in an interaction equation reverses the sign of the product-term coefficient. The SmartPLS significance tests were therefore retained exactly, while the direction of each interaction was interpreted on the consistently oriented construct metric. A positive coefficient on the original metric does not by itself mean that an association becomes stronger at conceptually higher ASE.

Additional checks compared direct-only and interaction regressions of the exported scores, added program-level indicators, and used an equal-weight overall resilience index. Simple slopes used explicit products of the final standardized scores, oriented toward stronger endorsement, at ASE ±1 SD. These regressions held score construction fixed; their 10,000-case-resample intervals do not include component-weight uncertainty. They provide focused checks of interpretation rather than new GSCA measurement estimates.

Anonymity, bilingual clarification, and neutral instructions were used to support response quality. The first unrotated component accounted for 51.5% of variance across the 46 indicators. This diagnostic was considered alongside substantive overlap and did not exclude common-source influence (Podsakoff et al., 2003).

RESULTS

Descriptive Results

Table 1 combines the descriptive and measurement statistics. On the original 1-to-6 response scale, lower means indicate stronger agreement with the item sets. GLM showed stronger agreement (M = 2.14) than FLM (M = 3.67). ASE and the three resilience component means were also below the scale midpoint of 3.50. These descriptive means are interpreted together with the item wording and the measurement evidence rather than as stand-alone evidence of construct strength.

Table 1

Descriptive and measurement statistics for the study constructs (N = 175)

Construct	M (SD)	Items; loading range	α / CR / AVE
Academic self-efficacy	2.56 (1.43)	4; .78–.87	.85 / .90 / .69
Fixed language mindset	3.67 (1.35)	9; .67–.77	.89 / .91 / .53
Growth language mindset	2.14 (1.36)	9; .85–.90	.96 / .97 / .77
Ego resilience	2.36 (1.19)	8; .63–.88	.89 / .91 / .57
Metacognitive resilience	2.13 (1.36)	8; .79–.93	.96 / .96 / .76
Social resilience	2.18 (1.37)	8; .80–.94	.96 / .97 / .79

Note. Items were scored from 1 = strongly agree to 6 = strongly disagree, so lower raw values indicate stronger agreement with the item statements. α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. Loadings and reliability values are rounded from the SmartPLS 4 GSCA output.

Measurement Quality

The few loadings below .70 were retained because they remained substantively relevant and each construct still met the reliability and AVE reference levels. Deleting them only to raise loadings would have narrowed the content represented by the adapted scales. Loading ranges appear in Table 1.

Across the six constructs, Cronbach's alpha ranged from .85 to .96, composite reliability from .90 to .97, and AVE from .53 to .79 (Table 1). These values support use of the component scores for the structural analysis, while the construct-overlap evidence below remains important for interpretation.

Discriminant Validity and Collinearity

Every substantive indicator loaded highest on its assigned component, and all 15 component-correlation bootstrap intervals remained below 1.00. GLM correlated .877 with ego resilience, 95% CI [.829, .919], .881 with metacognitive resilience, [.819, .931], and .878 with social resilience, [.818, .927]. Ego–metacognitive, ego–social, and metacognitive–social correlations were .929 [.903, .951], .919 [.885, .948], and .952 [.934, .967], respectively. The remaining correlations were ASE–FLM = −.223, ASE–GLM = .600, ASE–ego = .636, ASE–metacognitive = .651, ASE–social = .629, FLM–GLM = −.197, FLM–ego = −.065, FLM–metacognitive = −.149, and FLM–social = −.123. Together, these values provide the complete six-component correlation information. The three resilience dimensions represent related coping functions; their separate coefficients are interpreted within this shared resilience pattern.

Structural collinearity was low. VIF was 1.62 for ASE, 1.06 for FLM, 2.67 for GLM, 1.22 for ASE × FLM, and 2.19 for ASE × GLM in each resilience equation. These values do not indicate a structural multicollinearity problem. The high latent correlations among the resilience outcomes are a separate measurement issue and are therefore reported independently rather than being conflated with model term VIFs.

GSCA Model Fit

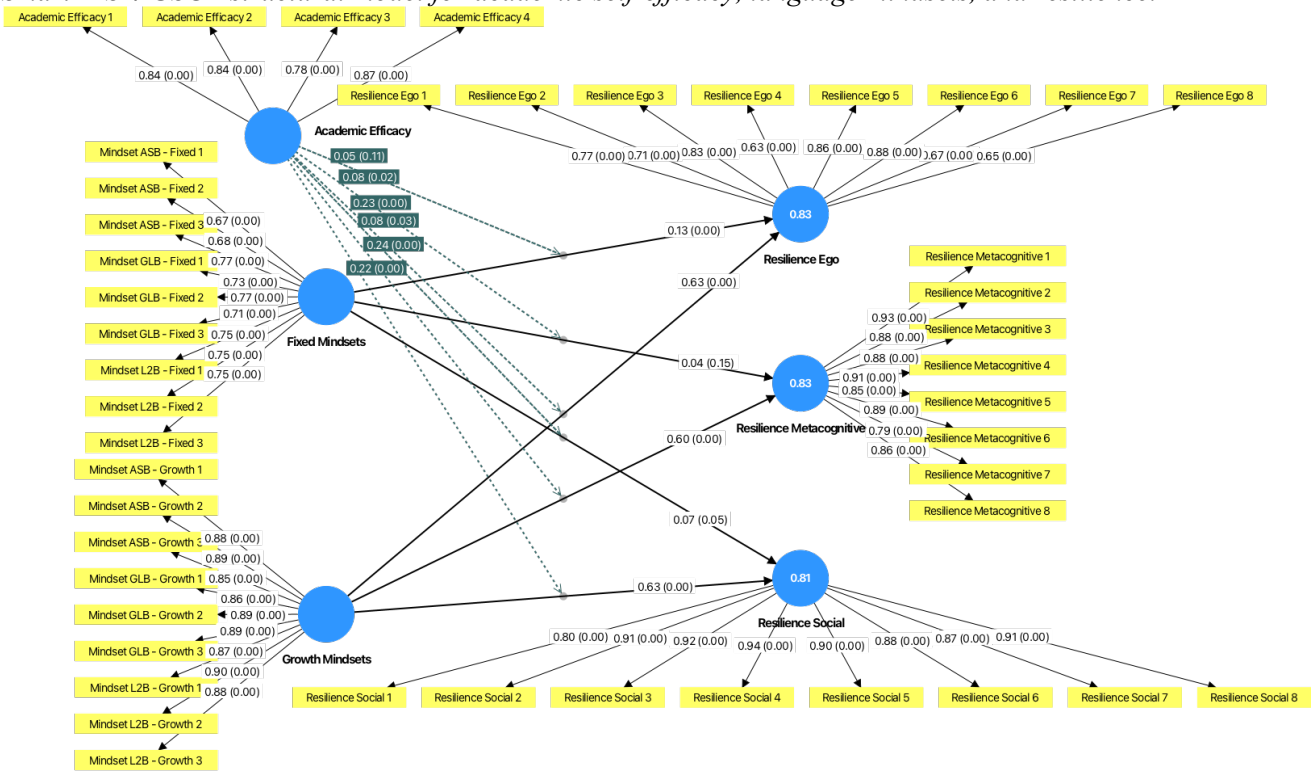
The estimated GSCA model had SRMR = .078, while the saturated-model SRMR was .070. FIT was .643, AFIT was .638, FITm was .699, and FITs was .309. The SRMR values are close to the .08 reference often used with GSCA, while FITm is stronger than FITs. The fit evidence is therefore interpreted as generally supportive but not as proof that the model is uniquely correct. It is considered together with reliability, construct overlap, collinearity, and the structural estimates (Hwang & Takane, 2014).

Structural Associations and Moderation

The model accounted for in-sample variance of .828 in ego resilience, .828 in metacognitive resilience, and .814 in social resilience. These values are considered alongside the component correlations and common-source measurement. Table 2 reports all 15 paths, bootstrap means and SDs, t statistics, p values, and confidence intervals.

Figure 2

SmartPLS 4 GSCA structural model for academic self-efficacy, language mindsets, and resilience.



Note. The original SmartPLS 4 output is retained unchanged. Table 2 reports the numerical results. The output follows the original response coding; reversing the substantive component axes leaves direct coefficients unchanged and reverses interaction signs.

Table 2

Path Coefficients, Bootstrap Means, Standard Deviations, t Values, p Values, and Confidence Intervals

Path	*O*	*M*	*SD*	*t*	*p*	95% CI
ASE → Ego	0.22	0.22	0.05	4.55	< .001	[.130, .322]
ASE → Metacognitive	0.23	0.23	0.05	4.31	< .001	[.134, .342]
ASE → Social	0.20	0.20	0.05	3.61	< .001	[.099, .313]
ASE × FLM → Ego	0.05	0.05	0.03	1.61	.107	[-.012, .118]
ASE × FLM → Metacognitive	0.08	0.07	0.03	2.26	.024	[.010, .141]
ASE × FLM → Social	0.08	0.08	0.04	2.23	.026	[.008, .153]
ASE × GLM → Ego	0.23	0.22	0.06	3.91	< .001	[.110, .338]
ASE × GLM → Metacognitive	0.24	0.24	0.06	3.79	< .001	[.117, .367]
ASE × GLM → Social	0.22	0.22	0.07	3.23	.001	[.087, .355]
FLM → Ego	0.13	0.13	0.03	3.74	< .001	[.061, .197]
FLM → Metacognitive	0.04	0.04	0.03	1.44	.149	[-.016, .102]
FLM → Social	0.07	0.07	0.03	1.98	.047	[.001, .134]
GLM → Ego	0.63	0.63	0.07	8.95	< .001	[.490, .761]
GLM → Metacognitive	0.60	0.60	0.08	7.06	< .001	[.433, .758]
GLM → Social	0.63	0.64	0.09	7.16	< .001	[.462, .805]

Note. O = original sample coefficient; M = bootstrap mean; SD = bootstrap standard deviation; t = |O/SD|. Results use 10,000 bootstrap samples, two-sided tests, and 95% percentile confidence intervals. Coefficients retain the original response coding. ASE = academic self-efficacy; FLM = fixed language mindset; GLM = growth language mindset. Statistical significance is distinguished from directional hypothesis support in the text.

ASE was positively associated with all three resilience outcomes, supporting H1a-H1c. GLM showed the largest direct coefficients in the model and was positively associated with ego, metacognitive, and social resilience, supporting H2a-H2c. The hypothesized negative FLM relationships were not observed. FLM was positively associated with ego resilience, was not significantly associated with metacognitive resilience, and showed a small positive coefficient for social resilience. H3a-H3c were therefore not supported. The zero-order correlations help qualify this pattern: FLM correlated -.07 with ego resilience, -.15 with metacognitive resilience, and -.12 with social resilience. The shift from weak negative bivariate relations to small positive controlled coefficients for ego and social resilience suggests a conditional or suppression pattern once ASE, GLM, and the interaction terms were considered together. The positive FLM coefficients should not be interpreted as evidence that fixed beliefs are beneficial.

The moderation tests also require directional qualification. ASE × FLM was not significant for ego resilience but was significant for metacognitive and social resilience. Because the baseline FLM-resilience relationships were not negative as hypothesized, and because reorienting the 1-to-6 scale reverses the product-term sign, these two significant interactions do not support the hypothesized buffering pattern.

H4a-H4c were not supported. ASE × GLM was significant for all three outcomes. On a metric where higher values mean stronger endorsement of ASE, GLM, and resilience, the positive raw SmartPLS product coefficients correspond to negative interaction coefficients. In substantive terms, the already strong positive GLM-resilience association became weaker, not stronger, as ASE endorsement increased. H5a-H5c were therefore not supported as directional amplification hypotheses.

Additional checks yielded direct-only R^2 values of .805, .801, and .791 for ego, metacognitive, and social resilience. Interactions added .023, .027, and .023. Adding program levels 2–4 (reference: Level 1) yielded R^2 = .831, .834, and .818, with unchanged main coefficient directions. For an equal-weight overall resilience index, ASE = .226, GLM = .618, and ASE × GLM = −.198 (R^2 = .850). In the fixed-score simple-slope check, GLM slopes at lower ASE (−1 SD) were .806, 95% CI [.714, .889], .793 [.687, .881], and .811 [.699, .908]; at higher ASE (+1 SD), they were .450 [.229, .654], .409 [.153, .649], and .460 [.189, .722]. This supports a weaker positive GLM association at higher ASE. FLM slopes were small and positive at lower ASE; their intervals included zero at higher ASE.

DISCUSSION

This study examined concurrent associations among ASE, language mindsets, and three forms of resilience among international scholarship students learning Arabic. ASE and GLM were positively related to all three resilience dimensions. The hypothesized negative FLM relations did not appear in the adjusted model, and the interaction terms did not support the proposed amplification or buffering directions. The pattern is therefore more complex than the original directional hypotheses assumed.

The ASE findings are consistent with social cognitive theory. Students who feel capable of managing academic demands may also report greater emotional steadiness, more flexible strategy use, and greater readiness to seek help (Bandura, 1997). Similar associations between self-efficacy, engagement, and resilience appear in language-learning research (Cong et al., 2024; Huang & Liu, 2026). For international students, this social element is important because adaptation also depends on peers, teachers, and institutional support (Mahmood et al., 2026).

GLM showed larger direct coefficients than ASE. Learners who more strongly endorsed the possibility of developing language intelligence, aptitude, and age-related capacity also reported stronger resilience across all three dimensions. This pattern accords with research linking growth mindsets with adaptive motivation, engagement, and self-regulation (Jiang et al., 2024; Teng et al., 2024). However, GLM correlated about .88 with each resilience component. The coefficients therefore indicate strong concurrent association, not evidence that growth beliefs independently produce resilience.

The FLM results did not follow the hypothesized direction. Its bivariate correlations with resilience were small and negative, but the ego and social coefficients became small and positive after ASE, GLM, and the interaction terms were considered. Such sign changes can occur when related model terms partition shared variance. The result should not be interpreted as evidence that fixed beliefs improve resilience. Rather, FLM showed little stable unique association once the broader belief system was represented, consistent with evidence that fixed and growth mindsets do not always behave as symmetrical opposites (Elahi Shirvan et al., 2024).

The moderation findings also revise the original interpretation. The hypotheses expected ASE to strengthen the positive GLM-resilience relation. After the response direction is handled correctly, the significant product terms indicate the opposite statistical pattern: the GLM-resilience relation becomes weaker as ASE endorsement increases. One possible explanation is compensation. When students already feel capable of meeting academic demands, resilience may depend less on a separate belief that language ability can grow. When efficacy is weaker, growth beliefs may carry more of the adaptive association. This explanation remains provisional because the data do not establish temporal or causal direction. This pattern qualifies an amplification account by suggesting that capability and malleability beliefs may partly share

their association with resilience. Longitudinal studies can compare this explanation with nonlinear and common-source alternatives.

The significant ASE × FLM terms for metacognitive and social resilience also did not demonstrate the hypothesized buffering pattern. Buffering would require an underlying negative FLM-resilience relation that becomes less negative as ASE increases, but that pattern was not present in the adjusted model. Statistical significance alone therefore does not confirm the directional moderation hypothesis.

The resilience dimensions were closely related, with correlations of .92–.95, while their items represented emotional, strategic, and social coping. The overall resilience check retained the main directional pattern. Future research can compare these related dimensions with a general resilience specification across host-language programs.

Implications for International Student Support

For international-student support, the findings suggest attention to both capability beliefs and beliefs about language development. Instructors can provide attainable task progression, specific feedback, and visible evidence of improvement, which may give students opportunities to build task confidence. They can also frame errors as information for revising strategies rather than as evidence of a fixed limit. These practices are consistent with the observed associations, but the cross-sectional design did not test them as interventions.

Support should also extend beyond encouragement to persist. Metacognitive resilience can be supported through planning, feedback use, and reflection on study methods, while social resilience depends on clear routes for seeking help and forming supportive relationships. This broader view fits international-student evidence that adjustment is linked to social support and to the institutional conditions surrounding mobility (Sari et al., 2026). Saudi scholarship research similarly shows that access and opportunity operate within wider educational structures rather than through individual effort alone (Albylwi, 2026).

Future Research

Longitudinal studies could follow students from Arabic preparation into degree study. Repeated assessments could examine whether changes in ASE and GLM precede changes in resilience, or whether successful coping strengthens these beliefs. Combining questionnaires with attendance, course completion, and assessed Arabic performance would help connect perceived resilience with academic outcomes. Intervention studies could compare achievable learning tasks, growth-oriented feedback, and their combination. These studies could test whether responses differ according to students' initial ASE, while treating the proposed compensatory explanation as provisional.

Further measurement research could examine whether emotional, strategic, and social resilience provide distinct information beyond an overall resilience score. Cognitive interviews could explore how students understand the adapted items and which questionnaire language they consult. Interviews and learning diaries could also clarify the unexpected FLM findings. In particular, researchers could examine why some students report fixed beliefs while continuing to participate, adjust strategies, and seek help. This approach could reveal whether beliefs differ across tasks, such as pronunciation, reading, and writing.

Replication across institutions, gender groups, and educational backgrounds could examine the broader relevance of these findings. Future studies could consider teacher feedback, peer relationships, advising, and opportunities to use Arabic outside class. Comparing students in language preparation with those studying academic subjects through Arabic could clarify how belief–resilience relationships vary across stages of international study.

Conclusion

Among 175 international students learning Arabic intensively in Saudi Arabia, stronger ASE and GLM were concurrently associated with stronger ego, metacognitive, and social resilience. FLM did not show the hypothesized negative adjusted relations, and the moderation hypotheses were not supported in

their proposed directions. Instead, the significant ASE × GLM terms indicated that the positive GLM–resilience association was weaker at higher ASE. This pattern suggests a possible compensatory relationship in which growth beliefs are more closely associated with resilience when students report lower academic confidence. This interpretation remains provisional because the cross-sectional data cannot establish temporal order or causal relationships.

The study contributes evidence from a non-Anglophone host-language pathway, where language preparation forms part of international students' transition into higher education. Its theoretical contribution lies in questioning the expectation that stronger efficacy necessarily strengthens the association between growth beliefs and resilience. The findings suggest that current capability beliefs and beliefs about language development may have partly overlapping relationships with adaptive coping. However, substantial overlap among the resilience dimensions, and between GLM and resilience, requires caution. Emotional, strategic, and social coping remain meaningful distinctions in item content, but the present data provide limited evidence of their empirical separation.

For international student support, these findings suggest attention to both academic confidence and beliefs about improvement. Achievable tasks, specific feedback, and opportunities to recognize progress may provide useful directions for instructional support. Clear routes to teacher assistance and peer collaboration may also help programs address the social conditions surrounding learning. These practices require direct evaluation before their effectiveness can be established. Future research should examine whether the observed relationships persist over time, across institutions, and during the transition from language preparation to degree study. Independent measures of participation and achievement could further clarify how reported resilience relates to students' academic experiences and progress.

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Author Bios

MUNASSIR ALHAMAMI, PhD, is a Full Professor of Applied Linguistics at King Khalid University. His research concerns language learners' beliefs, language of instruction, and technology in language learning. Email: mhamame@kku.edu.sa
ORCID: https://orcid.org/0000-0003-4229-9947

HASAN FAYA ALALMAY, PhD, is an Associate Professor of Applied Linguistics at King Khalid University. His research concerns Arabic as a second language, Arabic discourse analysis, and conversation analysis. Email: hfalalmaee@kku.edu.sa
ORCID: https://orcid.org/0009-0005-9726-1948