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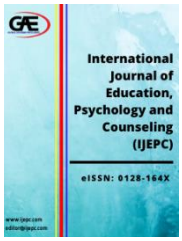

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VALIDATION OF THE CHINESE ACADEMIC SELF-EFFICACY SCALE FOR GRADUATE STUDENTS

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Abstract:

Recent research has explored the academic self-efficacy of students in higher education and its impact on learning engagement. In graduate learning environments, academic self-efficacy is a key motivator influencing students' motives, educational achievement, and self-directed study ability. However, the Chinese adaption of the Academic Self-Efficacy Scale for Graduate Students (ASES-G) has not been systematically validated, which limits the development of related research to some extent. Therefore, the primary aim of this study is to adapt the Academic Self-Efficacy Scale (ASES) into a Chinese context and to assess its validity and reliability for graduate students in China. In this study, the original ASES was first culturally adapted and translated, and then experts were invited to assess its content validity. A two-step method was implemented to evaluate validity and reliability based on this. Exploratory factor analysis and reliability analysis were conducted to evaluate the construct validity and internal consistency of the scale; thereafter, the split-half reliability was calculated to validate the scale's stability further. This study employed IBM SPSS Statistics for statistical analysis, revealing a Cronbach's alpha of 0.886, indicating high reliability. The findings in this study suggest that the Chinese ASES-G demonstrates good validity and reliability among Chinese graduate students, making it a valuable tool for evaluating academic self-efficacy in forthcoming higher education research.

Keywords:

Academic Self-Efficacy, Chinese Version, Graduate Students

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Introduction

With the global spread of higher education and the intensification of academic competition, academic challenges at the graduate level are becoming increasingly significant. In China, graduate students not only face high academic demands but also need to find a balance between research, employment, and personal development. In this process, academic self-efficacy (ASE) plays a crucial role in an individual's belief in their ability to accomplish academic tasks (Bandura, 1997). It has been shown that higher ASE promotes motivation, enhances academic engagement, and improves learning outcomes (Dogan, 2015; Meng & Zhang, 2023). However, there is still some controversy about the cross-cultural applicability of ASE measurement tools, especially in Chinese graduate students, and the validity and reliability of their measures have not been systematically validated. Accordingly, this study sought to conduct an in-depth examination of the applicability of the Academic Self-Efficacy Scale for Graduate Students (ASES-G) to ensure its scientific validity and cultural appropriateness.

The theoretical basis for ASE is derived from Social Cognitive Theory (SCT), with an emphasis on the influence of an individual's beliefs on behaviour and achievement (Bandura, 1986). In higher education, ASE typically involves mastery of academic tasks, time management, and problem-solving skills (Zajacova et al., 2005). Lately, with the expansion of graduate education, the psychological adjustment, academic stress, and career planning of graduate students have received increasing attention (Kleine et al., 2023; Shafaei & Razak, 2016).

However, current measurement tools for ASE are mainly constructed based on Western educational environments, and there remains uncertainty about their applicability to Chinese graduate students. Meanwhile, China's graduate education system has its own distinct characteristics, such as an emphasis on mentorship, research training, and thesis publication requirements, which may affect students' belief in their academic abilities (Xiao et al., 2022; Zhang et al., 2020). Moreover, cultural background also affects an individual's self-efficacy, such as collectivist cultures that place more emphasis on social recognition and group support, which differs from Western cultures that emphasise individual achievement (Ahn et al., 2016; Klassen, 2004; Parra & Geriguis-Mina, 2021). Therefore, there may be some limitations in directly adopting existing ASE measurement tools in the Chinese context.

The aim of this research was to evaluate the psychometric properties of the Chinese ASES-G for its relevance to a cohort of Chinese graduate students. It is expected to provide a feasible and reliable instrument to measure the ASE of Chinese graduate students in subsequent studies, and to provide data support for higher education policymakers, thus promoting graduate students' academic development and mental health.

Literature Review

Academic Self-Efficacy (ASE)

Bandura originally used the term "self-efficacy" in SCT to describe the beliefs an individual has about accomplishing a task (Bandura, 1977). This belief affects an individual's emotional experience, cognitive processes, behavioural responses, and self-drive when confronted with a problem (Bandura, 1997). According to Bandura (1997), verbal persuasion, alternative experiences, direct experience, and emotional and physiological states are the principal sources of self-efficacy. Research indicates that self-efficacy beliefs influence an individual's cognitive processes, emotional experiences, self-motivation, and behavioural performance and can be

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enhanced by successful experiences on tasks, observations of others, positive feedback, or physiological cues (Zulkosky, 2009).

In the field of education, the concept of self-efficacy has been concretised as ASE, which is an individual's belief that they are able to successfully complete a specific academic task to an expected standard (Schunk, 1991), and it is highly correlated with students' motivation, learning strategies, and achievement (Abdolrezapour et al., 2023; Honicke & Broadbent, 2016; Zimmerman, 2000). First, students' motivation to learn is significantly affected by their ASE. Students who possess elevated levels of ASE often possess a heightened confidence in their capacity to effectively accomplish academic assignments and therefore show higher intrinsic motivation and cognitive involvement in the learning process (Bouffard-Bouchard, 1990; Hidajat et al., 2023; Wu et al., 2020). Specifically, these students are more inclined to set challenging goals and maintain a positive attitude and sustained effort during the learning process (Schunk, 1990; You, 2018). Conversely, students with low ASE may avoid challenging tasks due to fear of failure, which in turn affects their educational achievements (Han et al., 2017). In other words, ASE not only determines students' willingness to take the initiative to learn but also affects their persistence in challenges.

In addition, ASE is closely interrelated with students' strategies for learning. Research reveals that higher ASE students are more inclined to utilise deep learning strategies, including information integration, critical thinking, and self-adjustment of the studying process (Li et al., 2018; Zimmerman, 1989). They are able to plan and manage their time effectively during the learning process, actively seek help, and adopt adjustment strategies to solve problems when they encounter difficulties (Liu et al., 2023). Instead, students with lower self-efficacy may have inappropriate learning strategies together with negative emotions, which in turn lead to difficulties in learning (Li et al., 2023). Additionally, students' academic success is significantly impacted by their level of ASE. Empirical research has demonstrated that students with high ASE usually achieve improved academic results (Al-Abyadh & Abdel Azeem, 2022; Basith et al., 2020). This is not only because they put more effort into the learning process, but also because of their enhanced resilience and adaptability in responding to academic challenges (Cassidy, 2015; Riswantyo & Lidiawati, 2021).

Measurement Tools for ASE

ASE has attracted significant concern in recent years across all educational tiers due to its pivotal role in the learning process. A significant amount of the studies has been invested in validating the Academic Self-Efficacy Scale (ASES) to ensure its applicability in different groups and cultural contexts. For example, Jinks and Morgan (1999) specifically designed a set of scales to measure children's ASE in different subject areas; and Dullas (2018) developed and validated a set of ASES for secondary school students using a mixed research approach. In addition, Owen and Froman (1988) developed an ASES with 33 items for a group of college students and passed the preliminary reliability test, which established the scale as an important position in the study of college students' groups and became a reference tool for many related studies. There are also discipline-specific ASES such as mathematics (Clemente et al., 2024; Zakariya, 2022), science (Han et al., 2024; Webb-Williams, 2018), and language, among others (Sun et al., 2021; Zhou et al., 2023).

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However, existing ASES tools and theoretical frameworks are mainly derived from Western studies, with less consideration of the cultural context's impact on its development. Recently, with the emphasis on the cultivation of high-level professionals, scholars have begun to pay attention to the ASE of graduate student groups, gradually expanding the scope of the application of ASE research (Cheng et al., 2019; Safarzaie et al., 2017; Tiyuri et al., 2018). Nevertheless, relevant studies have mainly focused on English-speaking countries or undergraduate groups, and ASES for graduate students, especially those with a Chinese background, is still relatively lacking. Existing studies are still deficient in the applicability and reliability testing of measurement tools, especially the ASES for Chinese graduate students have still not been systematically validated. In addition, most of the existing measurement tools have a large number of items, which may increase the participants' burden of filling in the answers and are not conducive to their generalisation and application in large-scale studies or educational assessments. Therefore, constructing a set of concise and valid ASES-G that applies to Chinese graduate students is important to fill the research gaps, improve the accuracy of measurement, and promote research in related fields.

Methodology

The ASES-G for this study was selected from Duncan and McKeachie's (2005) Motivated Strategies for Learning Questionnaire (MSLQ), and the researcher adapted the content to the cultural context to suit graduate students' academic learning in the Chinese context. In addition, three language experts were invited to use the back-translation method to obtain the Chinese version of the scale. Subsequently, three educational experts assessed the content validity of the ASES-G. Finally, we conducted an exploratory factor analysis (EFA) of the Chinese ASES-G and validated its reliability through a pilot and formal study to ensure its applicability to Chinese graduate students.

Participants

According to Field (2009) and Tabachnick and Fidell (2013) recommendations, participants should reach 5-10 times the number of items. Therefore, a simple random sampling method was used to select the sample for this study, with 50 (Mage = 23.10; SD = .707) and 100 (Mage = 23.25; SD = 1.452) Chinese liberal arts graduate students enrolled in coursework from three public institutions in China, respectively. Due to subject characteristics and the natural distribution of gender ratios, the proportion of females in both samples was higher than that of males, 96% and 93%, respectively, which is consistent with the trend of a higher proportion of females in liberal arts majors.

Instrument

The Chinese ASES-G was selected from the self-efficacy for learning and performance part in the MSLQ, and the original scale has been validated in a number of countries with satisfactory validity and reliability (Bong & Hocevar, 2002; Yokoyama, 2021; Yui & Hassan, 2015). In this study, the Chinese ASES-G contains eight items measured using a five-point Likert scale, with values ranging from 1 (strongly disagree) to 5 (strongly agree).

Cultural Adaptation and Translation

Since the original ASES was developed in a Western cultural context, direct use of the scale may result in a decrease in the applicability of some of the items in the Chinese graduate student population. Therefore, this study first adapted the content of the scale to the cultural context (cultural adaptation). By refining the terminology to align the scale items with the academic

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context of Chinese graduate students, context-specific terms such as "graduate study" were added and adapted to match the learning patterns of Chinese graduate students. For example, "I believe I will receive an excellent grade in my graduate studies". Thereafter, to ensure the translation quality and content accuracy of the scale, the back-translation method (Brislin & Freimanis, 2001) was used to sinicise the scale.

Three language experts were invited to participate in the back-translation of the scale, as shown in Table 1, all of whom have a bilingual background in Chinese and English and have extensive teaching and research experience. First, the adapted scale was translated from English to Chinese by a native Chinese expert A who is proficient in English. The translation process ensured that the scale was accurate and consistent with the original text, while at the same time adjusting the expressions to be more in line with the Chinese language usage. Next, another native English-speaking expert B, who was proficient in Chinese and had not seen the original adapted scale, back-translated the translated Chinese version back into English. This process aimed to test whether the translation maintained the conceptual consistency of the original scale and avoided semantic bias due to cultural differences. Finally, a third expert C, who was proficient in both Chinese and English, compared and analysed the original scale, the forward-translated version, and the back-translated version item-by-item and pointed out possible semantic biases or imprecise expressions. After several rounds of discussions and revisions, the official scale that best suited the Chinese graduate student population was finalised.

Table 1: List of Language Experts

Expert	Education Background	Specializations	Years of Service
A	Master of Arts	English Language	8 Years
B	Master of Arts	English Language	10 Years
C	Master of Arts	English Language	10 Years

Content Validity of the ASES-G

Content validity is an essential part of the process of scale adaptation or new scale development. In this study, three experts from the fields of language education, Chinese linguistics, and educational psychology assessed the content validity of the ASES-G (see Table 2).

Table 2: Profiles for the Content Validation of the ASES-G

No.	Educational Background	Specializations	Teaching Experiences
1	Doctor of Philosophy	Language Education	Over 30 Years
2	Doctor of Philosophy	Chinese Linguistics	Over 10 Years
3	Doctor of Philosophy	Educational Psychology	Over 10 Years

The terminology related to content validity in this study is referenced from Lynn (1986) and Polit and Beck (2006). In Table 3, the Item-level Content Validity Index (I-CVI) represents the content validity index of individual items, while Universal Agreement (UA) represents whether the experts' ratings of an item are in agreement. Scale-level Content Validity Index/Average (S-CVI/Ave) is the average of all I-CVIs, and Scale-level Content Validity Index/Universal Agreement (S-CVI/UA) reflects the proportion of items rated the same by all experts. In addition, Proportion relevance reflects the proportion of all items rated as "relevant" by a single expert. For the specific assessment, a dichotomous scoring method (1 = relevant, 0 = irrelevant) was used. The eight items involved in this study received ratings of 1 from all experts, for example, the I-CVI, S-CVI/Ave, and S-CVI/UA scores of 1. This indicates unanimous expert

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consensus on the scale items' relevance and their alignment with the original scale's psychometric properties, demonstrating high content validity.

Table 3: Expert Content Validity Evaluation of the ASES-G

Relevance Ratings on the Item Scale by Three Experts						
	Expert1	Expert2	Expert3	Experts in Agreement	I- CVI	UA
Item						
ASE1	1	1	1	3	1	1
ASE2	1	1	1	3	1	1
ASE3	1	1	1	3	1	1
ASE4	1	1	1	3	1	1
ASE5	1	1	1	3	1	1
ASE6	1	1	1	3	1	1
ASE7	1	1	1	3	1	1
ASE8	1	1	1	3	1	1
				S-CVI/Ave	1	
Proportion Relevance	1	1	1	S-CVI/UA		1

Results

EFA for the ASES-G

In this study, the original ASES is a one-dimensional construct, but after it was adapted and sinicised, it needed to be verified for its applicability and validity in the Chinese graduate student population. Therefore, EFA was used to test the construct validity of the scale and to ensure that its dimensional structure remained solid in the new research context (Samuels, 2017). EFA also helps to assess the contribution of the items and determine the presence of potential sub-factors, thus enhancing the measurement quality and reliability of the scale. Table 4 shows the results of the study with a sample size of 50 participants.

Table 4: KMO, Bartlett's Test, Communalities, and Component Matrix

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.874
Bartlett's Test of Sphericity (Approx. Chi-Square)	214.748
df	28
Sig.	.000

	Communalities		Component Matrix
	Initial	Extraction	Component 1
ASE1	1.000	.655	.810
ASE2	1.000	.564	.751
ASE3	1.000	.647	.804
ASE4	1.000	.605	.778
ASE5	1.000	.566	.752
ASE6	1.000	.532	.729
ASE7	1.000	.547	.740
ASE8	1.000	.733	.856

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From Table 4, the results of the Kaiser-Meyer-Olkin (KMO) and Bartlett sphericity test showed that the KMO was higher than the recommended minimum standard of 0.70, indicating that the data were suitable for factor analysis (Field, 2009). Furthermore, Bartlett's test of sphericity was χ^2 (28) = 214.748, $p < 0.001$, with a significance level of less than 0.05, indicating that there was sufficient correlation between the variables to be suitable for factor extraction. Regarding the common factor variance, the common factor variance of all items in ASES-G was between 0.532 and 0.733, indicating that the explanatory power of each item of the scale for the factor was high, which was in line with the requirements of factor analysis.

Thereafter, principal component analysis (PCA) was applied for factor extraction and combined with a scree plot for dimensionality judgement. From Table 5, the results of the PCA showed that the eigenvalue of the first factor was 4.850, explaining 60.623% of the total variance, which was much higher than the recommended criterion of 40% (Hair et al., 2010), while the eigenvalue of the second factor was only 0.808, which did not meet the criterion of the eigenvalue of >1 by Kaiser (1960).

Table 5: Total Variance Explained of the ASES-G

	Initial Eigenvalues			**Extraction Sums of Squared Loadings**		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.850	60.623	60.623	4.850	60.623	60.623
2	.808	10.097	70.720			
3	.564	7.051	77.771			
4	.532	6.650	84.421			
5	.417	5.214	89.635			
6	.363	4.531	94.166			
7	.299	3.735	97.901			
8	.168	2.099	100.000			

Figure 1 shows that the eigenvalues after the first factor decreased rapidly and leveled off, indicating that the adapted Chinese ASES-G is still a one-dimensional structure.

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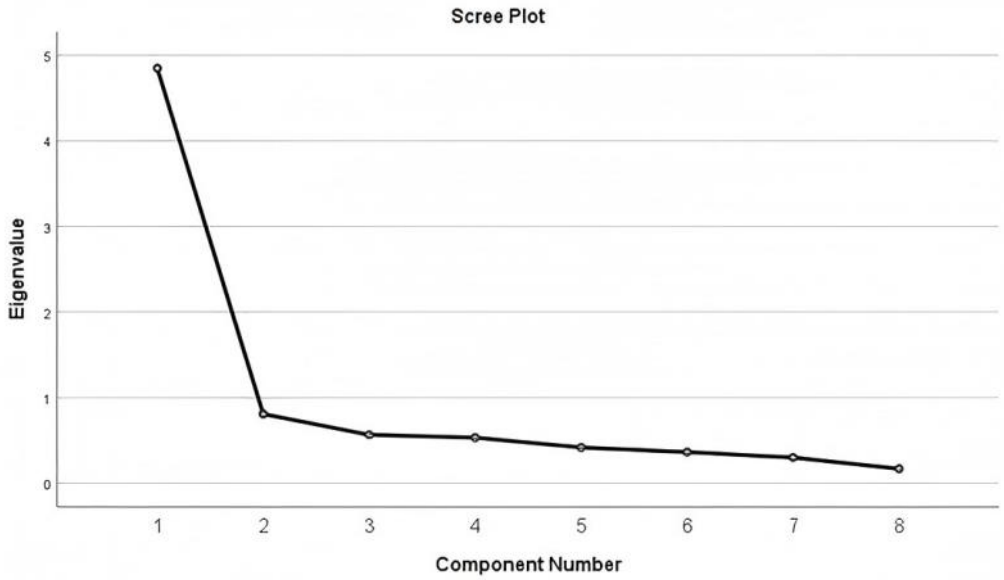

Figure 1: The Scree Plot for the ASES-G

Combining the results of the KMO test, Bartlett's test of sphericity, scree plot, and variance explained, this study verified the applicability of the adapted ASES-G in the Chinese graduate student population and supported its one-factor structure.

Reliability for the ASES-G

Reliability refers to the ability of a measurement instrument to generate stable and consistent results over time, across different contexts, or when used by various evaluators (Hair et al, 2010). Cronbach's alpha is a prevalent measure for evaluating scale reliability, primarily utilized to quantify the internal consistency and dependability of assessment tools. The method determines whether a scale can maintain a stable measurement effect across situations by calculating the correlation between the items (Cronbach, 1951). Generally, Cronbach's alpha values of 0.70 or higher suggest that the scale demonstrates strong internal consistency, with values approaching 1 indicating an even greater degree of reliability (Nunnally, 1978). Therefore, Cronbach's alpha, as an important indicator of reliability, is widely used in education, psychology, and social sciences.

To ensure the reliability of the Chinese ASES-G, a pilot test was conducted with 50 graduate students. The results are shown in Table 6. Corrected Item-Total Correlation (CITC) is a measure of the degree of correlation between individual items and the total score of the scale, and the CITCs of the Chinese ASES-G in this study were all higher than 0.60, implying the consistency of each item with the overall measurement instrument (Field, 2009). In addition, the total Cronbach's coefficient of the ASES-G was 0.905, and the deletion of any of the items would result in it being lower than 0.905. Hence, each item was retained, indicating that the Chinese ASES-G had good internal consistency.

Table 6: Reliability of the ASES-G (N = 50)

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
ASE1	26.50	16.296	.734	.890

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ASE2	26.94	16.343	.671	.897
ASE3	26.40	16.694	.734	.890
ASE4	26.84	16.668	.700	.893
ASE5	26.66	17.045	.674	.895
ASE6	26.38	17.261	.644	.898
ASE7	26.52	17.030	.650	.897
ASE8	26.56	16.700	.796	.886
Total Cronbach's Alpha				
0.905				

After that, a second round of data collection was conducted by 100 graduate students to further validate the reliability of the ASES-G using split-half reliability analysis. Split-half reliability is also a way of reflecting the internal consistency of a scale and is usually calculated through the Spearman-Brown prediction formula or the Guttman split-half reliability coefficient. If the scale has good internal consistency, then the measurements of each part should be highly correlated even if it is divided into two halves.

Table 7: Reliability of the ASES-G (N = 100)

Reliability Statistics			
Cronbach's Alpha	Part 1	Value	.886
		N of Items	4[a]
	Part 2	Value	.903
		N of Items	4[b]
	Total N of Items		8
Correlation between Forms			.915
Spearman-Brown Coefficient	Equal Length		.956
	Unequal Length		.956
Guttman Split-Half Coefficient			.955

Notes: a. the items are: ASE1, ASE2, ASE3, ASE4; b. the items are: ASE5, ASE6, ASE7, ASE8.

Table 7 shows that the scale has a Spearman-Brown pretest reliability coefficient of 0.956 and a Guttman split-half reliability coefficient of 0.955, both of which are greater than 0.90 (Nunnally, 1978), which indicates that the reliability of the instrument is high. In addition, the Cronbach's alpha of the two parts of the ASES-G was 0.886 and 0.903 respectively, and the correlation between the two parts was 0.915, which further supported the reliability of the scale. Overall, the ASES-G is suitable for subsequent studies.

Discussion

The present study aimed to test the validity and reliability of ASES-G for Chinese graduate students using expert assessment, EFA, and reliability testing. First, the scale was minutely culturally contextualised to match the academic background of Chinese graduate students. On this basis, the study adopted the back-translation method by inviting three language experts to translate the ASES to ensure that the concepts of the original scale were consistent with the Chinese version. Three experts in the field of education were thereafter invited to assess the content validity of the scale. After that, this study employed a two-stage validation process. Firstly, a pilot test with 50 graduate students assessed internal consistency and item quality. The results indicated good reliability, with an overall Cronbach's α of 0.905. Meanwhile, the

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EFA revealed a KMO value of 0.85 and a statistically significant Bartlett's test of sphericity ($p < 0.001$), making it suited for factor analysis. The final factor structure indicated that the scale was unidimensional, supporting its structural validity.

Secondly, the study was formally measured on 100 graduate students to test the split-half reliability of the scale. The Spearman-Brown and Guttman coefficients were higher than 0.90, indicating high reliability. Hence, this research validated the applicability of the ASES-G in a Chinese graduate student population through expert assessment, a two-stage reliability test, and factor analysis. It was found that the ASES-G has good content validity, internal consistency, and construct validity, and can be used as an important tool for measuring ASE in future studies. However, relying on EFA analysis alone is not sufficient, so future studies may further employ validated factor analysis (CFA) to validate the relationships between potential variables and further improve the measurement stability and generalizability of the scale (Marsh et al., 2014).

Implication and Conclusion

In this study, the ASES-G was tested for validity and reliability to verify its applicability to Chinese graduate students. The ASES-G was obtained through expert translation, and its content validity was assessed by education experts. Following this, according to the EFA results, the items of the scale could explain more than 60% of the total variance, indicating that the ASES-G had good construct validity. In addition, the KMO value for the items exceeding 0.80, indicates good sampling adequacy. Meanwhile, the total Cronbach's α of the scale was higher than 0.80, proving that the measurement instrument had good reliability. Therefore, this study validated the internal consistency of the ASES-G, which can be used to assess the graduate students' level of ASE. Future studies could broaden the scope of this research, for example, by investigating graduate students from different disciplinary backgrounds to test the cross-situational applicability of the ASES-G across different learning groups. In addition, data for this study were only gathered at particular times using a cross-sectional research design. Therefore, future research could adopt a longitudinal design to examine how ASE changes over time and how it affects students' academic outcomes. The ASES-G is applicable not only for educational researchers examining the impact of ASE on learning behaviours and academic performance, but also by teaching administrators and curriculum designers in higher education institutions to optimise graduate curriculum, enhance students' ASE, and thereby improve the learning experience and academic performance.

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References

Abdolrezapour, P., Jahanbakhsh Ganjeh, S., & Ghanbari, N. (2023). Self-efficacy and resilience as predictors of students' academic motivation in online education. *PLOS ONE*, *18*(5), e0285984. https://doi.org/10.1371/journal.pone.0285984

Ahn, H. S., Usher, E. L., Butz, A., & Bong, M. (2016). Cultural differences in the understanding of modelling and feedback as sources of self-efficacy information. *British Journal of Educational Psychology*, *86*(1), 112–136. https://doi.org/10.1111/bjep.12093

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IJEPC
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Volume 10 Issue 57 (March 2025) PP. 1028-1041
DOI 10.35631/IJEPC.1057066

Al-Abyadh, M. H. A., & Abdel Azeem, H. A. H. (2022). Academic achievement: Influences of university students' self-management and perceived self-efficacy. *Journal of Intelligence, 10*(3), 55. https://doi.org/10.3390/jintelligence10030055

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.

Basith, A., Syahputra, A., & Ichwanto, M. A. (2020). Academic self-efficacy as predictor of academic achievement. *JPI (Jurnal Pendidikan Indonesia), 9*(1), 163–170. https://doi.org/10.23887/jpi-undiksha.v9i1.24403

Bong, M., & Hocevar, D. (2002). Measuring self-efficacy: Multitrait-multimethod comparison of scaling procedures. *Applied Measurement in Education, 15*(2), 143–171. https://doi.org/10.1207/S15324818AME1502_02

Bouffard-Bouchard, T. (1990). Influence of self-efficacy on performance in a cognitive task. *The Journal of Social Psychology, 130*(3), 353–363. https://doi.org/10.1080/00224545.1990.9924591

Brislin, R. W., & Freimanis, C. (2001). Back-translation. In Chan Sin-wai & David E. Pollard (Eds.), *An encyclopaedia of translation: Chinese-English, English-Chinese* (pp. 22-30). Hong Kong: Chinese University Press.

Cassidy, S. (2015). Resilience building in students: The role of academic self-efficacy. *Frontiers in Psychology, 6*, 1781. https://doi.org/10.3389/fpsyg.2015.01781

Cheng, Y.-H., Tsai, C.-C., & Liang, J.-C. (2019). Academic hardiness and academic self-efficacy in graduate studies. *Higher Education Research & Development, 38*(5), 907–921. https://doi.org/10.1080/07294360.2019.1612858

Clemente, J., Kilag, O., Ypon, A., Groenewald, E., Groenewald, C. A., & Ubay, R. (2024). Enhancing mathematics self-efficacy: Intervention strategies and effectiveness–A systematic review. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE), 1*(2), 274–280.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334.

Dogan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*(3), 553–561.

Dullas, A. R. (2018). The development of academic self-efficacy scale for Filipino junior high school students. *Frontiers in Education*. https://doi.org/10.3389/feduc.2018.00019

Duncan, T. G., & McKeachie, W. J. (2005). The making of the motivated strategies for learning questionnaire. *Educational Psychologist, 40*(2), 117–128. https://doi.org/10.1207/s15326985ep4002_6

Field, A. (2009). *Discovering statistics using SPSS: Introducing statistical method* (3rd ed.). London, England: Sage Publications.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson.

Hallahan, TA, Faff, RW, McKenzie, MD (2004). An empirical investigation of personal financial risk tolerance. *Financial Services Review-Greenwich, 13*(1), 57–78.

Han, C.-w., Farruggia, S. P., & Moss, T. P. (2017). Effects of academic mindsets on college students' achievement and retention. *Journal of College Student Development, 58*(8), 1119–1134. https://doi.org/10.1353/csd.2017.0089

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 1028-1041
DOI 10.35631/IJEPC.1057066

Han, X., Xu, Q., Xiao, J., & Liu, Z. (2024). Academic atmosphere and graduate students' innovation ability: the role of scientific research self-efficacy and scientific engagement. *European Journal of Psychology of Education*, *39*(2), 1027–1044. https://doi.org/10.1007/s10212-023-00737-x

Hidajat, H. G., Hanurawan, F., Chusniyah, T., Rahmawati, H., & Gani, S. A. (2023). The role of self-efficacy in improving student academic motivation. *KnE Social Sciences*, 175–187. https://doi.org/10.18502/kss.v8i19.14362

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. https://doi.org/10.1016/j.edurev.2015.11.002

Jinks, J., & Morgan, V. (1999). Children's perceived academic self-efficacy: An inventory scale. *The Clearing House*, *72*(4), 224–230. https://doi.org/10.1080/00098659909599398

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, *20*(1), 141–151.

Klassen, R. M. (2004). Optimism and realism: A review of self-efficacy from a cross-cultural perspective. *International Journal of Psychology*, *39*(3), 205–230. https://doi.org/10.1080/00207590344000330

Kleine, A.-K., Schmitt, A., & Keller, A. C. (2023). Career planning and self-efficacy as predictors of students' career-related worry: Direct and mediated pathways. *Journal of Career Development*, *50*(1), 185–199. https://doi.org/10.1177/08948453221078950

Li, J., Ye, H., Tang, Y., Zhou, Z., & Hu, X. (2018). What are the effects of self-regulation phases and strategies for Chinese students? A meta-analysis of two decades research of the association between self-regulation and academic performance. *Frontiers in Psychology*, *9*, 2434. https://doi.org/10.3389/fpsyg.2018.02434

Li, S., Lin, H., & Wang, L. (2023). The influence mechanism of self-efficacy on college Students' learning difficulties. *Destech Transactions On Social Science, Education And Human Science*, *4*(5), 97.

Liu, M., Cai, Y., Han, S., & Shao, P. (2023). Understanding middle school students' self-efficacy and performance in a technology-enriched problem-based learning program: A learning analytics approach. *Journal of Educational Technology Systems*, *51*(4), 513–543. https://doi.org/10.1177/0047239523117403

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*(6), 382–386.

Marsh, H. W., Morin, A. J., Parker, P. D., & Kaur, G. (2014). Exploratory structural equation modeling: An integration of the best features of exploratory and confirmatory factor analysis. *Annual Review of Clinical Psychology*, *10*(1), 85–110. https://doi.org/10.1146/annurev-clinpsy-032813-153700

Meng, Q., & Zhang, Q. (2023). The influence of academic self-efficacy on university students' academic performance: the mediating effect of academic engagement. *Sustainability*, *15*(7), 5767. https://doi.org/10.3390/su15075767

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill.

Owen, S. V., & Froman, R. D. (1988). Development of a college academic self-efficacy scale.

Parra, C., & Geriguis-Mina, N. (2021). Second-language learners from collectivistic societies own self-efficacy effects on performance and self-perception of career success.

Polit, D., & Beck, C. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, *29*(5), 489–497. https://doi.org/10.1002/nur.20147

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 1028-1041
DOI 10.35631/IJEPC.1057066

Riswantyo, A. T., & Lidiawati, K. R. (2021). The influence of self-efficacy on resilience in students Who work in thesis. *Widyakala Journal*, *1*, 35–39. https://doi.org/10.36262/widyakala.v8i1.374

Safarzaie, H., Nastiezaie, N., & Jenaabadi, H. (2017). The relationship of academic burnout and academic stress with academic self-efficacy among graduate students. *The New Educational Review*, *49*, 65–76. https://doi.org/10.15804/tner.2017.49.3.05

Samuels, P. (2017). Advice on exploratory factor analysis. https://doi.org/https://www.open-access.bcu.ac.uk/id/eprint/6076

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, *25*(1), 71–86. https://doi.org/10.1207/s15326985ep2501_6

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, *26*(3-4), 207–231.

Shafaei, A., & Razak, N. A. (2016). International postgraduate students' cross-cultural adaptation in Malaysia: Antecedents and outcomes. *Research in Higher Education*, *57*, 739–767. https://doi.org/10.1007/s11162-015-9404-9

Sun, T., Wang, C., Lambert, R. G., & Liu, L. (2021). Relationship between second language English writing self-efficacy and achievement: A meta-regression analysis. *Journal of Second Language Writing*, *53*, 100817. https://doi.org/10.1016/j.jslw.2021.100817

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston, MA: Pearson.

Tiyuri, A., Saberi, B., Miri, M., Shahrestanaki, E., Bayat, B. B., & Salehiniya, H. (2018). Research self-efficacy and its relationship with academic performance in postgraduate students of Tehran University of Medical Sciences in 2016. *Journal of Education and Health Promotion*, *7*(1), 11. https://doi.org/10.4103/jehp.jehp_43_17

Webb-Williams, J. (2018). Science self-efficacy in the primary classroom: Using mixed methods to investigate sources of self-efficacy. *Research in Science Education*, *48*(5), 939–961. https://doi.org/10.1007/s11165-016-9592-0

Wu, H., Li, S., Zheng, J., & Guo, J. (2020). Medical students' motivation and academic performance: the mediating roles of self-efficacy and learning engagement. *Medical Education Online*, *25*(1), 1742964. https://doi.org/10.1080/10872981.2020.1742964

Xiao, Y., Wu, X.-H., Huang, Y.-H., & Zhu, S.-Y. (2022). Cultivation of compound ability of postgraduates with medical professional degree: The importance of double tutor system. *Postgraduate Medical Journal*, *98*(1163), 655–657. https://doi.org/10.1136/postgradmedj-2021-139779

Yokoyama, S. (2021). The Relationship between interest in learning materials and learning motivation and self-efficacy in higher education blended foreign language learning settings. Conference Proceedings. Innovation in Language Learning 2021.

You, J. W. (2018). Testing the three-way interaction effect of academic stress, academic self-efficacy, and task value on persistence in learning among Korean college students. *Higher Education*, *76*(5), 921–935. https://doi.org/10.1007/s10734-018-0255-0

Yui, L., & Hassan, N. (2015). Self-efficacy, learning strategies, and academic achievement among Malaysian future educators. *Jurnal Pemikir Pendidikan*, *6*(31), 31–48.

Zajacova, A., Lynch, S. M., & Espenshade, T. J. (2005). Self-efficacy, stress, and academic success in college. *Research in Higher Education*, *46*, 677–706. https://doi.org/10.1007/s11162-004-4139-z

Zakariya, Y. F. (2022). Improving students' mathematics self-efficacy: A systematic review of intervention studies. *Frontiers in Psychology*, *13*, 986622. https://doi.org/10.3389/fpsyg.2022.986622

International Journal of Education, Psychology and Counseling
IJEPC
EISSN : 0128-164X
Volume 10 Issue 57 (March 2025) PP. 1028-1041
DOI 10.35631/IJEPC.1057066

Zhang, Q., Wang, J., Ji, R., & Huang, T. (2020). Improving postgraduate students' scientific literacy and self-efficacy using international collaborative research workshops: An exploratory case study in a Chinese university. *Journal of University Teaching and Learning Practice*, *17*(5), 1–18. https://doi.org/10.53761/1.17.5.14

Zhou, S., Chiu, M. M., Dong, Z., & Zhou, W. (2023). Foreign language anxiety and foreign language self-efficacy: A meta-analysis. *Current Psychology*, *42*(35), 31536-31550. https://doi.org/10.1007/s12144-022-04110-x

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, *81*(3), 329.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, *25*(1), 82–91. https://doi.org/10.1006/ceps.1999.1016

Zulkosky, K. (2009). Self-efficacy: A concept analysis. *Nursing Forum*, *44*(2), 93–102. https://doi.org/10.1111/j.1744-6198.2009.00132.x