The Sinicization and Reliability and Validity Testing of the Academic Guidance Evaluation Scale

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ABSTRACT:Objective: To translate the Academic Advising Evaluation Scale into Chinese and test its reliability and validity,so as to provide a suitable tool for evaluating the quality of academic advising in colleges and universities in China. Methods: After obtaining authorization from the original author, the original scale was translated into Chinese using the Brislin translation model, resulting in the Chinese version of the Academic Advising Evaluation Scale. A survey was conducted on 481 university students via the Questionnaire Star platform to measure the reliability and validity of the scale.Results: The Chinese version of the Academic Advising Evaluation Scale consists of 3 dimensions and 9 items. The overall Cronbach's α coefficient of the scale is 0.779, and the test-retest reliability is 0.814. Factor analysis extracted 3 common factors, with a cumulative variance contribution rate of 73.291%.Conclusion: The Chinese version of the Academic Advising Evaluation Scale has good reliability and validity and can be used as a tool for evaluating the quality of academic advising.
KEYWORDS: Scale translation;Higher Education; Quality Evaluation; Validity; Quality

I. INTRODUCTION

Academic advising refers to the process of helping students achieve success in their academic and career pursuits through professional counselling and support,the definition was proposed by Burns Crookston and Terry O'Banion in 1972 [1].The academic guidance model was first classified by American scholar Wesley R Habley [2], and later divided by Crookston into input guidance and developmental guidance [3].The "Glossary of Chinese Higher Education Evaluation" Edited by the Higher Education Evaluation Center of the Ministry of Education of China mainly divides the content of academic guidance into learning ideas and concepts, learning goals and content, learning methods and means, learning psychology and morality, etc[4].With the increasing diversity of Chinese university students and the development of higher education from popularization to popularization, the academic and learning problems faced by university students have become increasingly complex. Chinese universities have begun to attach importance to academic guidance work, considering it as an effective measure to ensure the quality of talent cultivation. However, with the gradual development of academic guidance work in China, many shortcomings have gradually emerged [5], especially the lack of evaluation systems and tools for academic guidance work, which will directly hinder the continuous improvement of teaching quality.At present, China lacks measurement tools to evaluate the quality of academic guidance work. International scholars have been conducting academic guidance work relatively early and pay more attention to the standardization of evaluation indicators. Among them, the academic guidance evaluation scale developed by American scholars Springer Mark Christopher and Tyran Craig K. [6] evaluates the performance and effectiveness of academic guidance work from three aspects: information resources, reliability, and rationality. The scale has good reliability and validity and has been widely promoted and applied. This study sinicized the English version of the Academic Guidance Evaluation Scale and conducted reliability and validity tests, providing a scientific

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assessment tool for the quality of academic guidance work in China.

II. OBJECT AND METHOD
2.1 Object
Inclusion criteria: Full time college students who are informed and agree to this survey. The sample size is calculated based on the cross-cultural adaptation guidelines [7], which should be at least 10 times the number of entries. Considering the possibility of invalid questionnaires, the sample size is expanded by 20%. Therefore, the minimum sample size for this study is 113 people. Using convenience sampling method, a total of 500 questionnaires were distributed in this study, and 481 valid questionnaires were collected, with an effective response rate of 96%. Among the surveyed subjects, there were 213 males (44.3%) and 268 females (55.7%); Grade: 83 freshmen (17.3%), 206 sophomores (42.8%), 145 juniors (30.1%), and 47 seniors (9.8%)

2.2 Method
Based on surveys and research by multiple scholars, Springer Mark Christopher et al. developed the Academic Guidance Evaluation Scale in 2022. This scale has a total of 9 items and three dimensions: dimension 1 (items 1-3) is satisfaction with providing information resources for academic guidance, dimension 2 (items 4-6) is satisfaction with the reliability of academic guidance, and dimension 3 (items 7-9) is satisfaction with the rationality of academic guidance. The scale uses a Likert 7-point rating system for each item, ranging from "strongly disagree" at 1 point to "strongly agree" at 7 points. The total score of the scale is the sum of the scores of each item. The higher the score, the higher the quality of academic guidance and satisfaction with it.
After obtaining the consent of the original author team through email, the Brislin method [8] was used to translate the scale into Chinese. Firstly, two academic supervisors with good English proficiency will translate the scale into Chinese, and after discussion organized by the researchers, the two Chinese versions of the translation will be merged; Next, invite two graduate students from English majors who are not familiar with the source scale to translate the Chinese version of the scale back into English. After organizing discussions, the researchers will merge the translated scale. Finally, a research group consisting of the four translators mentioned above discussed and revised the Chinese version of the

Academic Guidance Evaluation Scale for this study.

2.3 Pre-investigation
For the convenience of selecting 30 college students from local universities to complete the Chinese version of the evaluation scale for academic guidance. The following operations were carried out: with the informed consent of the surveyed college students, a detailed explanation of the survey purpose was provided, and active communication was carried out with them during the filling process. The feedback information provided by the college students when filling out the scale was collected and recorded. In order to evaluate the respondents' understanding and acceptance of the scale, check whether each item of the scale is expressed clearly, and confirm whether there are any difficult to understand words and sentences in the scale. In the pre-experiment, the average filling time of the respondents met the requirements, with a pass rate of 100%, indicating that the scale does not need to be modified and can be used for formal investigations.

2.4 Statistical methods
SPSS 25.0 and AMOS 28.0 are adopted to analyse the data. Critical ratio method and correlation coefficient method is used in project analysis; Exploratory factor analysis and confirmatory factor analysis are usedin structural validity testing[9]; The reliability of the scale is tested using Cronbach's alpha coefficient and test-retest reliability; The content validity index is used to evaluatethe content validity of the scale. The inspection level $\alpha=0.05$.

III. RESULTS
3.1 Project Analysis
The various items of the academic guidance evaluation scale are analysed using the critical ratio method and correlation coefficient method. The critical ratio method is a method of evaluating project discrimination by comparing the differences between high and low groups.All participants are ranked in descending order of total score, with the highest 27% being the high group and the lowest 27% being the low group.The independent sample t-test is used to calculate the critical ratio of each item, and the larger the critical ratio, the more pronounced the discrimination.
The correlation coefficient method is a method of evaluating the effectiveness of a project by calculating the correlation coefficient between the project and the total score. Calculate the Pearson correlation coefficient between the score

of each item and the total score of the scale. The higher the correlation coefficient, the stronger the correlation between the item and the total score of the scale, indicating that the item contributes significantly to the scale and has high internal consistency.

In this study, the results of the independent sample t-test showed that there was a statistically significant difference in the scores of each item between the high and low groups, with a critical value ratio of 7.535-11.277 (mean P<0.05), indicating sufficient discriminability and being preserved. The Pearson correlation coefficient method was used to show that the correlation coefficients between each item and the total score of the scale were between 0528 and 0.679 (mean P<0.001), and each item had good representativeness [10], all items were retained.

3.2 Validity analysis
3.2.1 construct validity

Exploratory factor analysis:The results of exploratory factor analysis showed that KMO=0.749, Bartlett's sphericity test χ^2=658.728, and P<0.001, indicating that exploratory factor analysis can be used.Factors with more than oneeigenvalue were extracted using principal

component analysis and maximum variance orthogonal rotation, resulting in a total of three common factors: satisfaction with providing information resources for academic guidance, satisfaction with the reliability of academic guidance, and satisfaction with the rationality of academic guidance. These factors were consistent with the source scale, and the cumulative variance contribution rate was 73.291%.In the component matrix after maximum variance orthogonal rotation, the loading range of each item in the dimension they belong to is 0.808~0.890, all higher than 0.4, indicating that each item in the scale has good validity, as shown in Table 1 and Fig.1.

Confirmatory factor analysis: The structure and dimensions of the scale were constructed by AMOS 28.0, with each dimension set as latent variables and the 9 items of the academic guidance evaluation scale as observation variables. The preset model of the scale was constructed, as shown in Fig. 2.The fitting indicators of the factor model of the Academic Guidance Evaluation Scale all meet the research standards and do not require correction. It can be considered that this model has sufficient adaptability, as shown in Table 2.

Table1 Factor load of each item after rotation

| Items	Factor1	Facotr2	Factor3
1. The school can timely provide students with information related to sharing and consulting questions	0.808		
2.The schools can provide comprehensive resources to support consultations	0.890		
3. The school can provide detailed information related to the curriculum.	0.869		
4. The school is able to complete the academic guidance promised to students on time		0.821	
5. The school is able to promptly and correctly handle student feedback issues after guidance is completed		0.847	
6.The school'sacademic guidance staff are able to respond promptly to student service requests.		0.844	
7. The school has convenient academic guidance time for students.			0.829
8.The school's academic guidance teachers and staffalways care about the interests of students.			0.815
9. The school's academic guidance teachers and staff fully understand the needs of students.			0.846
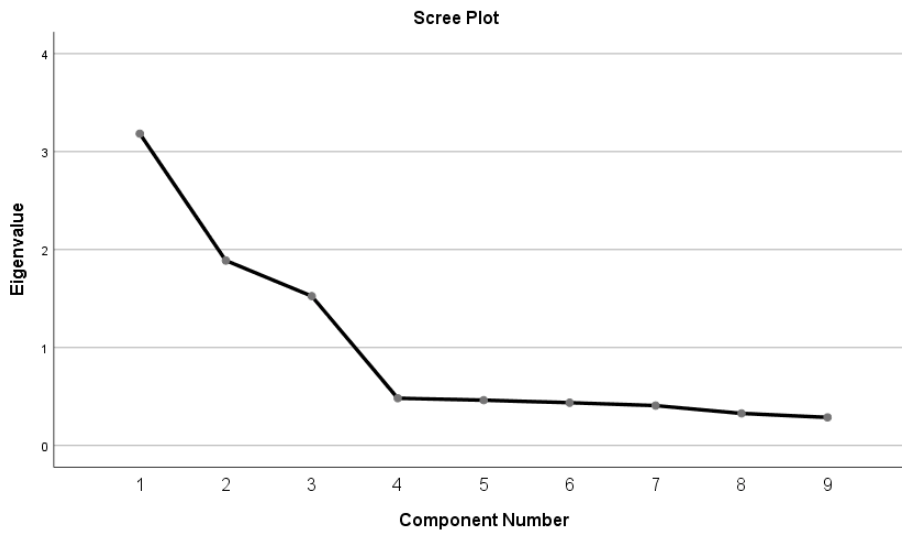
Fig. 1 ScreePlot

Table 2 Confirmatory factor model fit

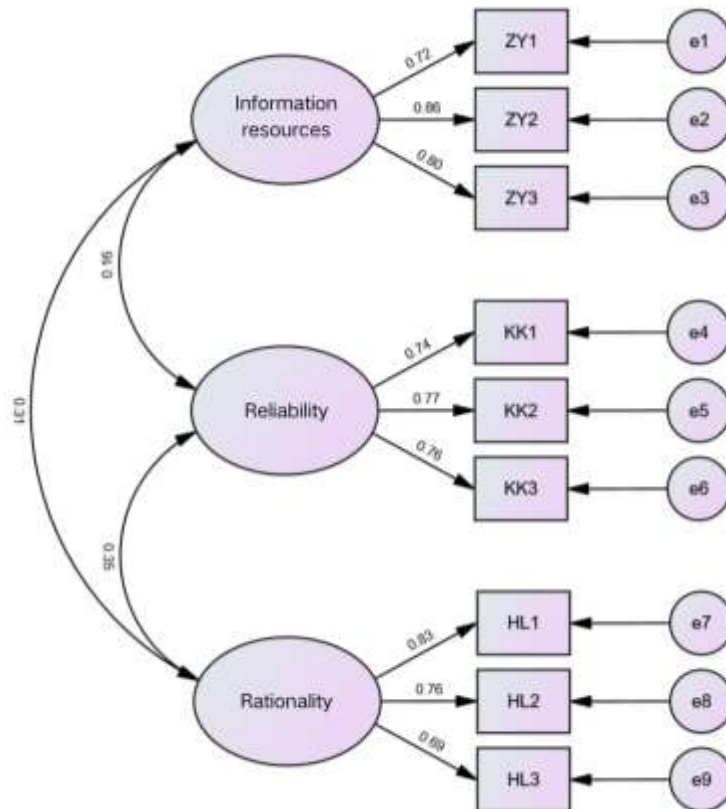| Items	χ^2/df	GFI	AGFI	NFI	CFI	IFI	TLI	RMSEA
Standard value	＜5	＞0.9	＞0.9	＞0.9	＞0.9	＞0.9	＞0.9	＜0.10
Verification results	1.062	0.974	0.951	0.962	0.998	0.998	0.996	0.018

Figure 2 Chinese version of the Academic Advising Evaluation Scale validation factor modeling diagram

3.2.2content validit

The item content validity index (I-CVI) of each item was 0.83~0.92, and the scale content validity index (S-CVI) was 0.94, which meets the standard, indicating that the content validity of the academic guidance evaluation scale is sufficiently reliable [11].

3.2.3Reliability Analysis

Reliability refers to the consistency and stability of the results obtained from a test or scale tool. The higher the reliability of the measurement tool, the higher the credibility of the results. The Cronbach's alpha coefficient measures the homogeneity or intrinsic correlation between items, and the higher the coefficient, the better the intrinsic consistency of the tool. When the Cronbach's alpha coefficient of a new scale is greater than 0.7, it is acceptable, and if it is greater than 0.80, it can be considered reliable [12].

The reliability analysis of the Chinese version of the academic guidance evaluation scale is sufficient, with a Cronbach's α coefficient of 0.779 for the total scale, and Cronbach's α coefficients of 0.832, 0.803, and 0.802 for the dimensions of information resources.Fifteen participants were randomly selected to fill out the questionnaire again, and the results showed that the test-retest reliability coefficients of the scale and its three dimensions were 0.814, 0.783, 0813, and 0.809.

IV. DISCUSSION

4.1Project Analysis

Statistical significance exists in the difference in scores between high and low groups in their respective items through critical ratio analysis($P < 0.05$).This indicates that each item can distinguish the evaluation of academic guidance by different research subjects.The correlation coefficient analysis results show that the correlation coefficients between each item are all less than 0.8, and the correlation coefficient r values between each item and the total score are all greater than 0.3, with statistical significance ($P<0.001$). This indicates that each item is independent of each other and has good representativeness. Therefore, there is no need to delete the items.

4.2Validity analysis of the scale

After expert evaluation, the I-CVI of each item in the Chinese version of the Academic Guidance Evaluation Scale is 0.83~0.92, and the S-CVI is 0.94, indicating reliable content validity.Exploratory factor analysis and

confirmatory factor analysis methods were adopted to test structural validity. In exploratory factor analysis, the cumulative variance contribution rate is 73.291%, which is 40% higher than the recommended value. Each common factor after rotation includes entries from various dimensions, which is consistent with the dimension division of the source scale.The factor load values of each item after rotation are higher than the recommended value of 0.40, indicating that each item has sufficient degree of explanation for its dimension.The fitting index of confirmatory factor analysis is shown in Table 2, and the numerical value indicates that the model has sufficient fitness.In conclusion, the exploratory factor analysis and confirmatory factor analysis show that the academic guidance evaluation scale has good content validity and structural validity, and can effectively evaluate academic guidance.

V. CONCLUSION

The Chinese version of the academic guidance evaluation scale includes three dimensions and a total of 9 items, which is consistent with the design of the original scale. It adopts the Likert 7-level scoring method without reverse scoring. The reliability and validity of the scale were tested among college students, and the results showed that the scale has reliable reliability and validity. The evaluation time of the scale is short and the coverage content is wide, which can provide an objective and effective evaluation tool for academic guidance evaluation in China. However, this study also has certain shortcomings. The survey targets only undergraduate students, and the sample type and size may be insufficient; Secondly, this study collected data by voluntarily filling out online questionnaires, and the evaluation had a certain degree of subjectivity. In summary, this article provides a language conversion approach for an academic guidance evaluation scale, and the obtained Chinese version of the academic guidance evaluation scale can be used to measure the quality of academic guidance, providing effective reference suggestions for Chinese universities to improve the quality of their academic guidance services, and helping to improve the relevant theoretical knowledge of university academic guidance services.

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