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# Exploratory Factor Analysis on Academic Adjustment in the Context of China Educational Institutions

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## Abstract

Academic adjustment has long been a crucial problem in both the West and the East, but there hasn't been much research done in the context of China educational institutions. For this reason, this study developed and validated an instrument of academic adjustment construct using Exploratory Factor Analysis, limited to college students in China. As a result, it looked at academic lifestyle, academic achievement, and academic motivation as the three main dimensions to measure academic adjustment and presented an academic adjustment instrument. The study used a cross-sectional research design and quantitative data was collected from 192 college students in one college in Shijiazhuang, China, using a structured survey. The instrument for this study was refined to eight items, giving two dimensions: Learned Life (6 items) and Academic Inspiration (2 items), based on the results of reliability testing. Researchers determined the present academic adjustment instrument's internal dependability value, or Cronbach Alpha value, in this regard. This paper provided a detailed explanation of how to perform an exploratory factor analysis for the academic adjustment construct. Researchers interested in academic adjustment studies may find value in the study's practical conclusions.

**Keywords:** Exploratory factor analysis, academic adjustment, China educational institutions.

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## I. INTRODUCTION

University students in the 20-year-old age range who have left home and long-standing family dynamics to act as independent adults for the first time have encountered a range of transition challenges, including adjusting to life, environment, work academics, interpersonal communication, and psychological stress, according to Morton, Mergler, and Boman (2014). College students generally experience greater challenges with academic motivation and lifestyle since they are adjusting to autonomous living and learning for the first time, as well as the lack of rigorous control management. They faced their first academic achievement difficulty because, regrettably, they were unprepared for the rigorous academic demands of college. This led to a striking disparity between their academic effort and first-year grades (Harper & Newman, 2016). Due to the close association between academic performance, adjustment, and dropout rates, low academic performance and adjustment, as well as rising dropout rates in response to problems in college, are not new phenomena in educational institutions worldwide

(Alipio, 2020). However, most studies on academic adjustment among international students have been carried out in Western contexts thus far; nonetheless, studies undertaken in non-Western contexts are growing, especially those that focus on international students at most universities. (Andrade, 2006; Xiong & Zhou, 2018; Tian, Lu, Liu, & Li, 2018; Wolf & Phung, 2019). In the existing study, the academic adjustments of overseas students in China have been widely examined, while domestic students' academic adjustment is rarely a concern.

On the other hand, Zhu et al.'s survey from 2021 in China revealed that 72% of undergraduate students and 70% of students in higher vocational education reported having adjustment problems; the most common types of adjustment problems were related to learning and life. According to Feng (2020), studies conducted in China over the previous 40 years have revealed that the main issues that students had adjusting to their new surroundings were: a failure to adjust to the new setting, an inability to adjust to the teaching styles of college professors, numerous issues with the college learning process, and the new interpersonal relationships. Given that

China students have little access 1:4000 to institutional resources (Li & Yang, 2020), academic adjustment research is greatly desired in China.

## II. LITERATURE REVIEW

The concept of academic adjustment for college students has traditionally been founded on theoretical assumptions about students' perseverance during their time in college. Many stage models have been presented in the literature on transition, and it is evident that "adjustment" typically follows a predictable learning curve (e.g., a U-curve or a W-curve). Nonetheless, certain study findings refuted the 'U-curve' theory of adjustment (Zhao, 2021). Since the self-determination hypothesis (Ryan & Deci, 2000) is predicated on the idea that individuals actively want to integrate new information into their sense of self, it is appropriate for this study's better academic adjustment. Bandura's Reciprocal Determinism Theory (1986) is another relevant theory that suggests that an individual's conduct is influenced by and influences external circumstances as well as individual characteristics. Stated differently, a person's ideas and feelings are influenced by their surroundings, which in turn affects their behaviour, which has an impact on the environment. Both cognitive processes and environmental factors, such as peer support, have an impact on a person's behaviour.

The word "adjustment" is frequently used in psychology research to describe efforts to balance conflicting impulses that emerge in novel circumstances (Schachner, Noack, Van de Vijver, & Eckstein, 2016). However, Anderson, Guan, and Koc (2016) concur that the three biggest obstacles students experience when they enrol in higher education are academic motivation, academic accomplishment, and academic lifestyle. It is similar to the way that students evaluate their educational results, interact with the academic setting, and develop their academic potential (Iglesia & Solano, 2019). Anderson et al. (2016) state that every subscale is suitable for the learning environment that tertiary students may experience. They continued by expanding on the idea that an academic lifestyle denotes the position and purpose of a student within the educational setting, while academic accomplishment represents the advancement and scholastic triumph of a student in the academic institution. Academic motivation is the will of a student to seek and finish an assignment while they are enrolled in classes. The different endorsement levels that are pertinent to the respondent are assessed on each subscale.

## Academic Lifestyle

A person's compatibility with their temporary role as a student is defined as their academic lifestyle. Getting results that are intellectually stimulating is the primary objective of the academic lifestyle. A person's capacity to adjust to the values, norms, behaviours, and features of a certain university setting where students can live in harmony with their surroundings is referred to as their university experience (Topuzov, Shamne, Malykhin, Aristova, & Opaliuk, 2020). Karaman, Nelson, and Cavazos Vela (2018) posit that the transition to higher education is experienced differently by each student based on a variety of factors, including their academic background, characteristics, and place of upbringing and/or residence for the majority of their lives. Stated differently, upholding superior standards in overseeing extracurricular pursuits and experiencing ease and contentment in one's individual life, especially in terms of family life, constitutes an academic lifestyle (Bautista, Relajo, Pilao, Tubon, & Andal, 2018).

### A. Academic Achievement

Academic achievement is defined as being satisfied with one's academic performance. Academic achievement is always a prerequisite for supporting higher education institutions, and it is vital for certification criteria both internally and externally (Mohsen, 2017; Van der Zanden, Denessen, Cillessen, & Meijer, 2018). The effectiveness and uniformity of an educational program often serve as a foundation for higher education institutions. According to Van der Zanden et al. (2018) research, there was a primary correlation between academic environments and students' socioemotional well-being and academic achievement. The evaluation of pupils' prior academic performance is the most significant indicator of their future success, claims Oluwafemi (2020). In a similar vein, Sarbazvatan Amini, Aminisani, Shamshirgaran and Ghaffarifar (2018) agreed that obtaining post-secondary education is required to evaluate the efficacy of information transfer. The personality and surroundings of the learner are essential for academic performance. Pupils who assume accountability for their education are more likely to see an increase in their grades and increase their skills and understanding.

### B. Academic Motivation

The desire of students to pursue and finish their educational journey is the concept of academic motivation. Puklek Levpušček and Podlesek (2019) have defined academic motivation as pushing students to think about their long-term goals, evaluate their study excellence strategies, and pursue career advancement. It also helps to produce positive outcomes like perseverance in the face of

learning, clarity in choosing a course of study and career goals, thorough study techniques, and high learning standards. However, according to Khan, Sadia, Hayat, and Tahir's (2019) survey, 30% of undergraduate students said they were rarely inspired to attend lectures, while 59% said they only found lectures to be dull half the time. They concluded that pupils are probably going to be unhappy, lack enthusiasm for the course, want to leave the course early and stop learning. First-year students may exhibit symptoms of poor motivation, such as diminished learning capacity, exhaustion, hopelessness, anxiety, or vice versa, absenteeism, curricular infractions, and a waning desire to learn, according to Topuzov et al. (2020).

### III. RESEARCH METHODOLOGY

To create a valid and trustworthy measure for the academic adjustment construct, specifically within the framework of China educational institutions, this

study adopted a cross-sectional research approach. Students in the third semester at the Shijiazhuang Information Engineering Vocational College (SJZIEI) in Shijiazhuang, China, were the study's target group. Ramachandiran and Dhanapal (2018) state that a large number of first-year college students relocate away from home for the first time. Senior undergraduates, in contrast, continue to struggle academically and must make difficult career decisions. Given that students in their third semester had been accustomed to the college settings after one semester, this study might be able to capture variances in the outcomes of students moving to a higher institution. There are 5195 students enrolled in Shijiazhuang Information Engineering Vocational College, representing nine departments. As a pilot study, 200 students from a comparable institution's third semester were chosen at random, and 192 students replied. The data is analyzed using Exploratory Factor Analysis to establish the rotated component analysis that has been used for the significance of the item in the model.

**Table 1 The results of exploratory factor analysis loading for academic adjustment.**

Item	Description	1	2
<b>Factor 1: Learned Life</b>			
11	I am satisfied with my ability to learn at university.	.889	
9	I am satisfied with the level of my academic performance to date.	.870	
10	I am satisfied with the level of my academic performance to date.	.870	
8	I sometimes worry I do not have the academic skills needed to enjoy being a student.	.825	
6	I am enjoying the lifestyle of being a university student.	.786	
7	I sometimes feel as though my education is not worth time away from my work or my family.	.614	
<b>Factor 2: Academic Inspiration</b>			
12	I expect to complete my degree in the usual allocated time frame successfully.		.909
13	The reason I am studying is to lead to a better lifestyle.		.844
<b>Eigenvalues</b>		5.028	1.208
In Explained Variance Percentage		55.8	13.4
Kaiser-Meyer-Olkin = .850			
Bartlett's Test of Sphericity Approx. Chi-Square = 1180.792, df = 28, Sig. = .000			
Percentage of Total Variance = 69.3%			
Cronbach's Alpha		.911	.805
The Cronbach's Alpha value for the 8 items is .904.			

### IV. RESULT AND DISCUSSION

The nine items in the academic adjustment variable were subjected to an exploratory factor analysis employing Kaiser Normalization and the Varimax rotation approach. The criteria for item loadings of .4 or higher and eigenvalues larger than or equal to one were considered. Two components emerged as a result of the exploratory factor analysis, as indicated in Table 1. The two factors that were found to be important in this investigation have eigenvalues of at least 1.2.

Two factors have emerged, according to Table 1's data, and they account for 69.3% of the variance. The results show that the inter-item correlations (all items  $r > .05$ ), the Kaiser-Meyer-Olkin test (.850), and the Bartlett's Test of Sphericity ( $X^2=1180.792$ ,  $df=28$ ,  $p < .05$ ) are all significant. Consequently, it is confirmed that there are no consequences of multicollinearity or singularity. These results also validate the suitability of the sample for conducting factor analysis.

Six components make up the first factor, known as

the "Learned Life" construct, which accounts for 55.8% of the variation in that construct (depicted in Table 1). Factor loadings for the six items are .889, .870, .826, .825, .786, and .614, in that order. The two elements (items 12 and 13) in the second factor, "Academic Inspiration," have factor loadings of .909 and .844, respectively.

Furthermore, the first component, "Learned Life," and the second factor, "Academic Inspiration," had Cronbach's Alpha reliability values of .911 and .805, respectively. Item 14 was eliminated during the exploratory factor analysis. The Academic Adjustment variable's dependability has increased to .904 with the removal of Item 14.

## V. CONCLUSION



The present study advances the measurement of the academic adjustment concept, especially in the setting of China educational institutions. The current study's EFA results led to the creation of a structure that extracts two dimensions from the academic adjustment structure: Learned life and Academic Inspiration. Furthermore, the Academic Adjustment variable's dependability has increased as a result of Item 14's removal. This indicates that Cronbach's Alpha value for the new academic adjustment construct is high. This indicates that the items that were not put aside are relevant to this investigation. The new academic adjustment instrument is internally consistent and stable across samples thanks to the present study's stringent scale development and validation methods.

## REFERENCES

- [1] Alipio, M. (2020). Academic Adjustment and Performance among Filipino Freshmen College Students in the Health Sciences: Does Senior High School Strand Matter? *Education and Management* <https://doi.org/10.35542/osf.io/xq4pk>
- [2] Anderson, J. R., Guan, Y., & Koc, Y. (2016). The academic adjustment scale: Measuring the adjustment of permanent resident or sojourner students. *International Journal of Intercultural Relations*, 54, 68-76.
- [3] Andrade, M. S. (2006). International students in English-speaking universities: Adjustment factors. *Journal of Research in International Education*, 5(2), 131-154.
- [4] Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- [5] Bautista, L., Relojo, D., Pilao, S. J., Tubon, G., & Andal, M. (2018). The link between lifestyle and self-regulated development as components of academic performance: basis for a psychoeducational intervention. *Journal of Educational Sciences & Psychology*, 8(19), 68-78.
- [6] Feng, Y., Whiteman, S. D., Xu, S., Li, L., Jin, S., & French, D. C. (2019). Chinese adolescents' relationships with mothers, fathers, and siblings: Associations with youth's internalising and externalising problems. *Journal of Relationships Research*, 10. e15
- [7] Harper, S. R., & Newman, C. B. (2016). Surprise, sensemaking, and success in the first college year: Black undergraduate men's academic adjustment experiences. *Teachers College Record*, 118(6), 1-30.
- [8] Iglesia, G. D. L. & Solano, A. C. (2019). Academic achievement of college students: the role of the positive personality model. *Problem of Education in the 21st Century*, 77(5), 572-583.
- [9] Karaman, M. A., Nelson, K. M., & Cavazos Vela, J. (2018). The mediation effects of achievement motivation and locus of control between undergraduate students' academic stress and life satisfaction. *British Journal of Guidance & Counselling*, 46(4), 375-384.
- [10] Khan, S., Sadia, R., Hayat, S. Z., & Tahir, S. (2019). Relationship between Academic Boredom, Learning Climate and Academic Motivation Among University Students. *Pakistan Journal of Psychological Research*, 34(3), 621-638.
- [11] Li, Y. & Yang Z.B. (2020), Characteristics of Mental Health Education in Chinese Universities. *Chin High Educ*, 8, 18-20.
- [12] Mohsen, A. S. (2017). The impact of self-esteem, academic self-efficacy and perceived stress on academic performance: A cross-sectional study of Saudi psychology students. *European Journal of Educational Sciences*, 4(3), 51-63.
- [13] Morton, S., Mergler, A., & Boman, P. (2014). Managing the transition: The role of optimism and self-efficacy for first-year Australian university students. *Journal of Psychologists and Counsellors in Schools*, 24(1), 90-108.

- [14] Oluwafemi, A. (2020). Alcohol consumption as an anticipator of academic performance among undergraduate students (a case study of Ondo State University of Science and Technology Okitipupa, Ondo State Nigeria). *IFE Psychologia: An International Journal*, 28(1), 159-165.
- [15] Puklek Levpušček, M., & Podlesek, A. (2019). Links between academic motivation, psychological need satisfaction in education, and university students' satisfaction with their study. *Psihologijske teme*, 28(3), 567-587.
- [16] Ramachandiran, M., & Dhanapal, S. (2018). Academic Stress Among University Students: A Quantitative Study of Generation Y and Z's Perception. *Pertanika Journal of Social Sciences & Humanities*, 26(3), 2115-2128.
- [17] Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68.
- [18] Sarbazvatan, H., Amini, A., Aminisani, N., Shamshirgaran, S., & Ghaffarifar, S. (2018). Learning style and academic achievement among students at Tabriz University of Medical Sciences, Iran. *Research and Development in Medical Education*, 7(2), 77-81.
- [19] Schachner, M. K., Noack, P., Van de Vijver, F. J., & Eckstein, K. (2016). Cultural diversity climate and psychological adjustment at school—Equality and inclusion versus cultural pluralism. *Child Development*, 87(4), 1175-1191.
- [20] Tian, B., Lu, Z., Liu, Y., & Li, X. (2018). High-velocity motion compensation of IFDS data in ISAR imaging based on adaptive parameter adjustment of matched filter and entropy minimization. *IEEE Access*, 6, 34272-34278.
- [21] Topuzov, O., Shamne, A., Malykhin, O., Aristova, N., & Opaliuk, T. (2020). Adaptation peculiarities of the first-year students to university life: study on stress resistance. *Romanian Journal for Multidimensional Education*, 12(2), 48- 59. doi.org/10.18662/rrem/12.2/265.
- [22] Van der Zanden, P. J., Denessen, E., Cillessen, A. H., & Meijer, P. C. (2018). Domains and predictors of first-year student success: A systematic review. *Educational Research Review*, 23, 57-77.
- [23] Wolf, D. M., & Phung, L. (2019). Studying in the United States: Language learning challenges, strategies, and support services. *Journal of International Students*, 9(1), 211-224.
- [24] Xiong, Y., & Zhou, Y. (2018). Understanding East Asian Graduate Students' Socio-Cultural and Psychological Adjustment in a US Midwestern University. *Journal of International Students*, 8(2), 769-794.
- [25] Zhao, X. (2021). Understanding international postgraduate students' adjustment in a British university: motivations for study abroad and subsequent academic, sociocultural, and psychological experiences [Doctoral dissertation]. Newcastle University.
- [26] Zhu, H., Liu, F. L., Wu, D., Zhou, Y., & Li, J. H. (2021). Research on the current situation and Countermeasures of Freshmen's adaptability. *Modern Trade Industry*, 32, 77-78.

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