

## DEVELOPING A SCALE TO MEASURE UNDERGRADUATES' ANTIFRUSTRATION ABILITY

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Antifrustration ability is an individual's ability to fight against setbacks. In this study, we developed a 15-item antifrustration ability scale for undergraduates, for use as a measurement tool in related research. Exploratory factor analysis revealed that the 3 factors of ability to endure, to mediate, and to grow with frustration explained 53.77% of the variance in antifrustration ability. Internal consistency coefficients for the 3 factors ranged from .76 to .80, and split-half coefficients ranged from .76 to .78. As an instrument with high reliability and validity, the newly developed Antifrustration Ability Scale can be applied directly to measure undergraduates' ability to endure, mediate, and grow with frustration.

*Keywords:* undergraduates, antifrustration ability, scale development, frustration, frustration tolerance.

Antifrustration ability is an individual's ability to fight against setbacks, and may be derived from frustration tolerance. In 1938, Rosenzweig (cited in Harrington, 2011) defined frustration as an obstacle preventing goal satisfaction, and frustration tolerance as the ability to withstand frustration without distorting reality, then developed a projective test that he named the Rosenzweig Picture-Frustration Study. Other researchers (e.g., Clifford, Chou, Mao, Lan, & Kuo, 1990) have put forward their own views on the subject of tolerance and

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frustration. From 1934 to 1974, several papers and books were written in which the Rosenzweig Picture-Frustration Study (Rosenzweig & Rosenzweig, 1976) was used and discussed, but there have been few studies conducted recently on antifrustration ability as a theme or a system (Filippello, Harrington, Buzzai, Sorrenti, & Costa, 2014; Harrington, 2011; Stanković & Vukosavljević-Gvozden, 2011).

Wiebe (1991) described frustration tolerance as the tendency to persist when confronted with failure or difficulty, whereas J. P. Feng (1991) referred to this concept as an individual's ability to endure and find comfort in the face of setbacks, by adapting to, resisting, and dealing with frustration. X. D. Zhang and Che (2005) further stated that "frustration tolerance is whether one can bear setbacks and pressure when encountering frustrating circumstances" (p. 162), allowing one to overcome difficulties and avoid psychological unbalance. Frustration tolerance comprises frustration endurance, which refers to the ability to withstand setbacks and pressure and maintain a normal psychological and behavioral status, and frustration mediation, which refers to an individual's direct adjustment and transformation in the face of frustration, and the ability to actively improve the situation and find release from frustration.

In the process of designing the current study, we recognized that antifrustration ability means growing with setbacks. Whether the frustration occurs in academic work, interpersonal communication, or job hunting, being able to endure, mediate, and grow with frustration means that the individual has high antifrustration ability. Therefore, on the basis of the above research, we defined *antifrustration ability* as an individual's ability to fight setbacks, including frustration endurance, frustration mediation, and growth in frustration. *Frustration endurance* refers to withstanding setbacks to maintain normal psychological functioning and behavior, *frustration mediation* refers to the ability to release oneself effectively from a state of frustration and return one's emotions to normal as soon as possible by finding comfort, and *growth in frustration* refers to drawing lessons from setbacks and achieving psychological growth. Because antifrustration ability is derived from frustration endurance, it is based on one's ability to endure and mediate frustration, grow with frustration, and take the initiative to fight against setbacks.

Recently, scholars have affirmed the significance of antifrustration ability. For instance, Ou, Huang, and Zhang (2013) showed that undergraduates' antifrustration ability protects against and reduces the incidence of suicide. Further, a significant negative correlation has been observed between psychological antifrustration ability and frustration (X. D. Zhang, Jiao, & Xiao, 2013). Significant correlations exist between middle school students' gratitude and their subjective well-being, social support, and antifrustration ability (Luo & Zhou,

2015), and also among junior high school students' optimistic attributional style, antifrustration ability, and self-esteem (Z. Liu, Liu, & Li, 2016). Further, X. D. Zhang and Tang (2016) reported that there is a significant correlation between undergraduates' attitudes toward occupation choice and their antisetback ability, such that the latter could be a predictor of the former.

We believe that antifrustration ability is an important topic in education and psychology. Generally, theory elaborations and experience summaries have been more prevalent than systematic empirical research (T. Feng, 2009; Mo & Liu, 2013; Xia, 2009; Yang, 2013). In practice, undergraduate students worldwide experience difficulty in dealing with frustration appropriately, suggesting that the state of undergraduates' antifrustration ability demands serious consideration (Q. Zhang, 2009). A key factor that has restrained in-depth investigation of the antifrustration ability of undergraduates is that there is no existing measure with high reliability and validity. Instead, researchers employ related scales that do not directly assess antifrustration, such as the Symptom Checklist-90 (Derogatis, 1994) and coping styles questionnaires (Jia, 2010). However, using existing scales that are not designed to assess undergraduates' antifrustration ability makes it difficult for researchers to measure the construct accurately.

Other researchers have used self-made questionnaire surveys (e.g., S. Liu, 2007; L. X. Zhang, 2008), but this is also problematic because the reliability and validity of these newly developed scales demand further examination. Further, neither the Rosenzweig Picture-Frustration Study (Rosenzweig & Rosenzweig, 1976) nor Clifford's (1988) School Failure Tolerance Scale specifically measure undergraduates' antifrustration ability, directly affecting the scales' validity and reliability. We believe that the key to improving reliability and validity is providing a strong operational definition of antifrustration ability based on theoretical considerations, and developing related measurement tools.

Therefore, in the current study our aim was to develop a scale to measure undergraduates' antifrustration ability. We based the scale items on a review of the literature and constructed dimensions of undergraduates' ability to resist frustration by conducting a survey, interviewing students and teachers, and consulting with psychology professors to develop the item pool. Next, in strict accordance with the procedures and requirements of psychological measurement, we used forecasting and statistical analysis of the content of the survey, which was administered to a large sample, to test the reliability and validity of the Antifrustration Ability Scale. We hypothesized that antifrustration ability would be able to be divided into three dimensions: frustration endurance, frustration mediation, and growth with frustration, which would correspond roughly to the ability to withstand, deal with, and grow from setbacks. We developed each dimension from the orientations of cognition, emotion, and action.

## Method

### Participants and Procedure

At each stage, participants were tested collectively and questionnaires were completed and returned on the spot. We obtained informed consent from the students before they completed the questionnaire and assured them that participation was voluntary.

**Formation of the initial questionnaire.** First, according to our definition and review of the literature on antifrustration ability, we developed an open-ended questionnaire that was completed by 720 students, from freshman to senior level, at Shanghai University. We composed 50 items each for the three dimensions of frustration endurance, frustration mediation, and growth with frustration, and items contained a setback statement and keywords, such as “I can...” for positively worded items and “I can’t...” for negatively worded items. Using the results of this test, we constructed a 72-item scale to measure antifrustration ability. Items were rated on a 4-point Likert scale, with response options ranging from 1 (*strongly disagree*) to 4 (*strongly agree*).

**Preliminary survey.** We distributed 600 surveys to undergraduates at Shanghai University and Shanghai Finance and Economics University, and received 576 valid forms (rate of return = 96%). We calculated critical ratios and item–total correlations, deleting items with nonsignificant critical ratios values and item–total correlations under .30. We performed exploratory factor analysis on the remaining items, and then those for which loadings on all factors was less than .30 and for which loadings on two or more factors was greater than .35. We consulted psychology professors at other universities and identified 18 items for inclusion in the scale, then designed two lie-detection items as a reference to eliminate invalid responses. Thus, we derived a revised scale comprising 20 items.

**Formal survey.** We used random sampling to recruit 2,900 students from 14 colleges and universities: Beijing Normal University, Beijing Media University, Lanzhou Transportation University, Southwest University, Xihua Normal University, Chengdu Technology University, Yibin College, Wuhan University, Zhejiang Normal University, Suzhou University, Shanghai University, Shanghai Finance and Economics University, Shanghai Cambridge Institute, and Lixin Accounting Institute. Of these, 2,724 participants provided valid data (rate of return = 94%), comprising 1,209 men (44.4%) and 1,515 women (55.6%). There were 1,267 freshmen (46.5%,  $M_{\text{age}} = 18.4$  years,  $SD = 1.5$ ), 851 sophomores (31.2%,  $M_{\text{age}} = 19.6$  years,  $SD = 1.7$ ), 448 juniors (16.4%,  $M_{\text{age}} = 20.5$  years,  $SD = 1.4$ ), 105 seniors (3.9%,  $M_{\text{age}} = 21.7$  years,  $SD = 1.6$ ), and 53 first-year graduates (1.9%,  $M_{\text{age}} = 22.8$  years,  $SD = 2.6$ ).

After we had analyzed the data using the same criteria we used in the preliminary survey and consulted with the psychology professors from other

universities who assisted with forming the final scale items, we deleted three items. Lie detection was not maintained in the formal survey because of the small number of items and the inclusion of reverse-scored items. Thus, the 15-item Antifrustration Ability Scale was formed after the item and factor analyses were conducted.

### Data Analysis

The factor structure of the scale was examined using exploratory factor analysis, which was conducted using SPSS version 20.0 with the maximum likelihood method. The internal consistency reliability of the scale was examined by calculating Cronbach's alpha.

## Results

### Item Analysis

The item analysis results showed that the item–total correlations ranged from .44 to .56 and Cronbach's alpha was .87. Any further item deletion decreased the Cronbach's alpha value, suggesting that the items were appropriate for inclusion in the formal scale.

### Factor Analysis

We analyzed the 15 items of the Antifrustration Ability Scale for undergraduates using principal components analysis and varimax rotation. First, we assessed the suitability of the test data for factor analysis using Kaiser–Meyer–Olkin (KMO) and Bartlett's sphericity tests. In general, a KMO value above .90 for the sample size is considered excellent (Tabachnick & Fidell, 2012). In this study, KMO was .91 and Bartlett's test value was 11948.91 ( $p < .001$ ). These outcomes show that the sample satisfied the necessary factor analysis requirements. The scree plot graph showed a noticeable change in the slope, indicating that the data were suitable for factor analysis. Next, we determined the number of factors for extraction. Eigenvalues  $> 1$  and the scree plot were used for determining the number of factors. The total variance explained by the three factors was 53.77%. All items loaded above .60 and none of the secondary loadings exceeded .30.

Each factor was given a name according to the implication of the items it contained. The items in the first factor reflected a manifestation of the ability to grow with frustration and the factor was named *growth with frustration*. Examples of items are "The setbacks strengthen my spirits" and "I become more mature after suffering setbacks." The second factor consisted of items that reflect the ability to find comfort in setbacks and was labeled *frustration mediation*. Sample items are "I will return to normal as soon as possible after those unexpected defeats" and "When facing a setback, I can overcome it in a short time." The third factor reflected the ability to withstand setbacks and pressure

and was labeled *frustration endurance*. This factor included inverse items such as “I find it easy to give up a goal over setbacks” and “When confronting a setback, I always choose to escape from reality.”

### Reliability Analysis

We used two indicators to verify the reliability of the scale for measuring students' antifrustration ability: internal consistency coefficients (Cronbach's  $\alpha \geq .70$ ; Litwin, 1995) and Spearman–Brown split-half coefficients. The internal consistency reliability for the subscales ranged from .76 to .80, and split-half coefficients from .76 to .78. These results indicate that the measure has good reliability.

### Validity Analysis

For content validity analysis, the scale items were derived from the literature and an open survey was conducted with 720 students. Additionally, we sought advice from experts and conducted individual interviews with teachers and students with regard to item content. A preliminary survey was then conducted, with 576 valid responses received. Peer experts reviewed the items many times. In short, the Antifrustration Ability Scale was shown to have strong content validity.

We then used factor analysis to assess the scale's construct validity. In this study, we used eigenvalues  $> 1$  and a scree plot as the factor analysis standard, and extracted three factors that explained 53.77% of the variance in antifrustration ability. Thus, the scale had good construct validity. These results supported our hypothesis that antifrustration ability can be divided into three dimensions: frustration endurance, frustration mediation, and growth with frustration.

## Discussion

In this research, we found that antifrustration ability encompasses three factors: frustration endurance, frustration mediation, and growth with frustration. It is generally believed that antifrustration ability includes frustration endurance and frustration mediation (J. P. Feng, 1991; X. D. Zhang & Che, 2005), which relate to an individual being able to tolerate and deal with setbacks. We also reasoned that antifrustration ability would further involve growing with setbacks; thus, we considered that growth with frustration would also be an important factor in antifrustration ability, and incorporated it in the scale we developed in this study. In addition, items for the frustration endurance factor were designed so that some were phrased positively and others negatively, which can be effective in preventing students from making random choices and can assist the researcher in identifying responses from participants who did not read the items carefully.

In sum, the three factors we included in the Antifrustration Ability Scale for undergraduates were found to be consistent with the concept of antifrustration ability and were determined to be appropriate for inclusion. The scale itself was shown to have high reliability and validity, and we believe it is an effective tool to measure antifrustration ability among undergraduates. Future researchers could further confirm the validity of the scale by using a larger sample drawn from different institutions, and including primary and middle school students as respondents.

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