

# A Literature Review of The Academic Motivation Scale (Ams) and Its Reliability and Validity

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**Abstract:** This literature review examined the Academic Motivation Scale, a tool used to measure student motivation in an academic setting. The review analyzes the various studies that have used the scale, discusses its reliability and validity, and how it is scored. Overall, the review suggests that the Academic Motivation Scale is a useful tool for measuring student motivation, but more research is needed to further validate its use in different educational Settings.

**Keywords:** Academic Motivation Scale, Reliability, Validity.

## 1. Introduction

Students' motivation for academic courses is defined by their approach, tenacity, and level of interest [1]. Furthermore, it is associated with self-efficacy, goal setting, and the creation of accomplishment expectations [2].

The study of educational psychology has traditionally given a great deal of attention to the concept of academic motivation. Many researchers have tried to study academic motivation. So, instruments were developed to measure academic motivation. This paper attempts to bring you a review of the academic motivation scale college version of the research. Including its origin, content, calculation method, and reliability and validity. It focuses on the application of AMS in various literatures, as well as their reliability and validity.

## 2. Background

The original of Academic Motivation Scale (AMS) was created in Canada by Vallerand et al [3]. One of the tools most frequently used to gauge students' levels of desire for studying is the Academic Motivation Scale (AMS). Its original title, Echelle de Motivation en Education (EME), was offered in French. The principles of self-determination (STD) serve as the foundation for the EME [4] [5]. According to SDT, one has a feeling of choice in beginning and managing one's activities or behavior [6], making it a crucial idea in the academic setting when making decisions about the selection of activities for student success. Therefore, there are three types of motivation: intrinsic, extrinsic, and amotivated [4].

## 3. Contents of the Instrument

Three forms of intrinsic motivation, three types of extrinsic motivation, and amotivation were all assessed by the scale, which included 28 items and was split into seven subscales [7].

The intrinsic motivations are as follows: intrinsic motivation to know, intrinsic motivation to accomplishments, and intrinsic motivation to experience stimulation; The extrinsic motivations are: identified, introjected regulation, and external regulation [8].

In order to develop AMS, you must initially convert EME

from French into English. A committee has conducted an in-depth analysis of the two tentative English versions that the AMS ultimately produced. The findings from the exploratory factor analysis (EME) are replicated in the sample of college students using confirmatory factor analysis, which substantiates the seven-component structure. It is found that AMS has a sufficient level of internal consistency (mean alpha value= .81), which is very similar to that obtained by EME. And temporal stability over a one-month period (mean test-retest correlation .79). The retest correlation is quite high and similar to EME [8].

## 4. The Applicable Population of The Instrument

Students in the ninth grade, tenth grade, eleventh grade, and twelfth grade, as well as students in post-secondary education, can use this scale [8]. And there is a college version called academic motivation scale college version (AMS-C28) [5].

## 5. Method of Scoring

The instrument has a total of 28 questions, use the 7-point Likert scale, the minimum score for each question is 1 point and the maximum score is 7 points (1= Does not correspond at all to 7= Corresponds exactly). The 28 items can be grouped into 7 dimensions. The attribution of each question is as follows [5]:

2, 9, 16, 23 belong to Intrinsic motivation - to know;

6, 13, 20, 27 are Intrinsic motivation - toward accomplishment;

4, 11, 18, 25 belong to Intrinsic motivation - to experience stimulation;

3, 10, 17, 24 are Extrinsic motivation - identified;

7, 14, 21, 28 are Extrinsic motivation - introjected;

1, 8, 15, 22 belong to Extrinsic motivation - external regulation;

5, 12, 19, 26 belong to Amotivation.

The AMS instrument overall score termed a Self Determination Index (SDI).

A formula for calculating fractions:

$2 \times (\text{know} + \text{acc} + \text{stim}) / 3 + \text{id} - ((\text{intro} + \text{reg}) / 2 + 2\text{amo})$ .

Interpretation of formula:

know= intrinsic motivation to know;

acc= intrinsic motivation to accomplishments;  
stim= intrinsic motivation to experience stimulation;  
iden= identification;  
intro= introjected regulation;  
reg= external regulation;  
amo= amotivation.

The range on the SDI is from -18 to +18. The higher the score, the more intrinsic the participant is considered to be (ACADEMIC MOTIVATION SCALE (AMS-C 28) » Scales, n.d.).

## 6. Application of the Instrument in The Literature

As a measuring tool, AMS has high value and reliability in measuring college students' academic motivation. Many researchers use it to study college students' academic motivation and study the correlation or regression relationship between college students' academic motivation and other variables.

## 7. Reliability and Validity of AMS

We reviewed 5 literatures that explored some aspects of the construct validity of the original version of the scale's scores.

### 7.1. Vallerand et al. (1989)

Vallerand has released the first article on the construct validity of replies to the Academic Motivation Scale (AMS). The authors conducted three studies using the French-Canadian version of the AMS. The study population of this version is Junior and college students [6].

In study I, the factor validity of the AMS measurement model was validated by an Exploratory Factor Analysis (EFA) conducted on 358 participants.

In study II, the factor validity of the AMS measurement model was validated by the findings of a Confirmatory Factor Analysis (CFA) conducted on 746 participants (GFI and AGFI > 0.90). On reliability, supported: Cronbach alpha > .70 except for identified regulation =.62. On convergent and divergent validity: Simplex pattern, contrary to predictions, the correlation between Internal Motivation (IM) to achieve and stimulation was stronger with introjected regulation than with identified regulation. On Convergent and divergent validity: External criterion, partially supported: contrary to expectations, introjected regulation correlated positively with interest in school activities ( $r = .30$ ).

In study IV, it only reports reliabilities, Supported: Cronbach alpha > .70 and test-retest reliabilities > .70.

### 7.2. Vallerand et al. (1992)

In a second study, Vallerand et al. examined the construct validity of responses given on the English version of the AMS [6] in a sample of 802 university students [5]. On, Factor validity of the 7 factors' scores, partially supported via CFA: GFI=.89, AGFI=.87, NFI=.89. But fit indices increased when 26 correlated residuals were included: NFI, AGFI, and GFI were .93, .91, and .94, respectively [3].

### 7.3. Vallerand et al. (1993)

In a third experiment, Vallerand et al. examined the construct validity of responses given by 217 junior college students on the English version of the AMS [9]. Once more, the results did not clearly support the convergent and

divergent validity of the AMS scale scores. Some types of intrinsic motivation (to accomplish and to experience stimulation) linked more positively with introjected regulation than with recognized regulation, contrary to the expected simplex pattern. The correlations between intrinsic motivation types were relatively strong ( $r = .58$  to  $.62$ ). Moreover, contrary to predictions, some adaptation criteria were favorably linked with introduced regulation (intrinsic interest, task orientation, concentration, and positive emotions). Collectively, these three pioneering studies suggest that the factor, convergent, and divergent validity of AMS replies could be increased.

### 7.4. Cokley et al. (2001)

Cokley et al. administered the English version of the measure to 263 college students [10]. CFAs largely supported the AMS measurement model's factor structure. Despite the low NFI (.83), the SRMR (.08), RMSEA (.07), and CFI (.90) were sufficient. The majority of divergent and convergent associations between AMS scores and academic self-concept followed the SDT continuum. At  $p < .001$ , only a few incentive types were connected with Grade Point Average (GPA) and major GPA.

### 7.5. Fairchild et al. (2005)

Fairchild et al. examined the English version of the AMS among 1,406 college students [11]. The CFA fit indices supported the AMS measurement model's factor structure. However, the simplex correlation pattern was not fully supported by the AMS scale scores: the correlations between the three forms of IM and introduced regulation were stronger than those with identified regulation. In addition, correlations between forms of intrinsic drive ranged from 0.71 to 0.87. Contrary to predictions, there was a positive correlation between introjected regulation and an external criterion: mastery approach goals.

## 8. The Chinese Version of AMS

Some Chinese researchers have localized the academic motivation scale [12]. Then 116 subjects were invited to take the test. Two tests were given, two weeks apart. The statistical results show that the retest reliability of each subscale is between .58 and .77, and the internal consistency reliability is between .51 and .72. The structure analysis of the revised scale shows that there is a significant positive correlation among the three IM subscales. There is a positive correlation among the three EM scales. There is a significant negative correlation between amotivated scale and all IM scale. There is a negative correlation between the amotivated scale and the EM scale. Compared with the results of the Cokley study [12], the revised scale largely retains the original structure and has good structural validity, except for minor differences between the structure of the external motivations and the original scale.

## 9. Annual Scientific Production

Bibliometrix was used to analyze 1590 educational and psychological literatures using AMS instruments from 1992 to 2022, and the results are shown in Figure 1. The annual scientific production shows an increasing trend. The annual growth rate was 6.91 %. This shows that the AMS instrument is still widely used by researchers.

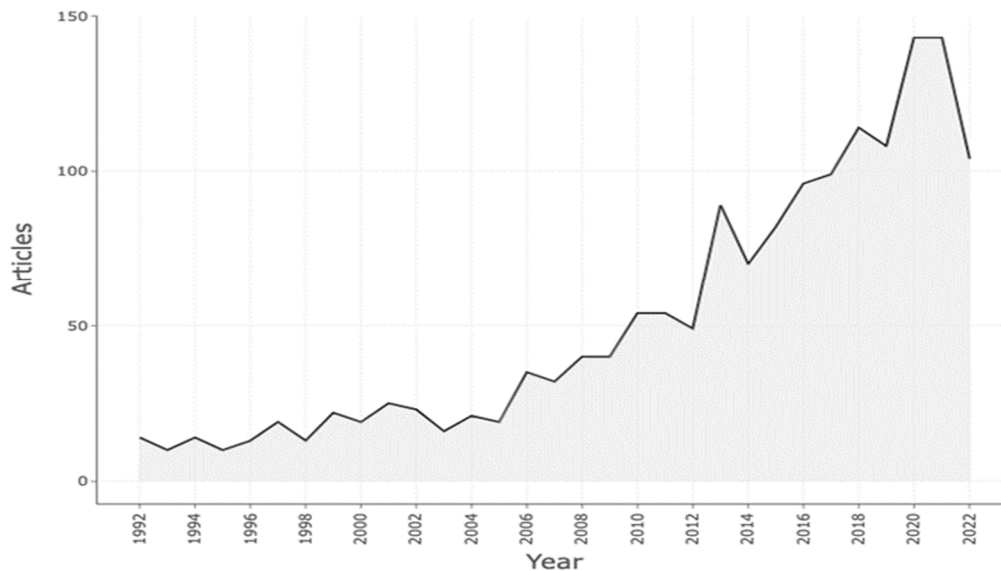


Figure 1. Annual Scientific Production

## 10. Conclusion

Various studies indicate favorable reliability scores for the AMS. Collectively, the above papers showed inconsistent evidence of construct validity for AMS. On the one hand, the majority of research supported the AMS measurement mode's factor structure. On the other hand, the convergent and divergent validity of the AMS scale scores were not fully supported by these researches. The simplex pattern, for instance, was only partially supported across investigations. In particular, IM linked more favorably with introduced regulation than with detected regulation in numerous investigations. In addition, in the majority of research, the introjection subscale was favorably connected with a variety of outcomes, when the SDT predicts that this connection should be closer to 0 or negative. In addition, the three categories of intrinsic motivation are highly connected in a number of studies.

The AMS instrument makes it possible to measure students' motivation. It provides convenience for scholars to study educational psychology. It is a highly reliable and widely used instrument.

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