

# Dimensional Analysis of Academic Motivation Scale in Indian Secondary School Students

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## Abstract

*The Academic Motivation Scale, High School Version (AMS- HS 28) for high school students prepared by Vallerand and et.al (1992) has seven dimensions. The present study tried to find the relative significance of these dimensions. 75 urban students (38 boys and 37 girls) from VIIIth and IXth classes of a secondary school in Sriram Nagar, Hyderabad, India were the samples. During data analysis, mean and standard deviation of all the dimensions were found under descriptive statistics. F-test provided the proof of significance of the study for the level of significance 0.05. Multiple comparisons, as part of the dimensional analysis, with respect to each others' significance, were carried out using Bonferroni test, using SPSS Ver.20. Significant differences were found among the dimensions of academic motivation construct in secondary school students when studied with respect to their relative importance.*

## Keywords

Academic Motivation, AMS-HS 28, Dimensions of Academic Motivation, Dimensional Analysis, Secondary School Students,

## I. Introduction

The role of motivation on learning was mentioned through a detailed literature review by Deci and Ryan way back in 1985 [1]. A scale to measure motivation in education setting was developed by them along with their colleagues, based on the self determination theory for high school students in 1992 [2].

According to these researchers, human behaviour is either intrinsically, extrinsically motivated or amotivated [3]. They defined intrinsic motivation as “*doing an activity for itself, and for the pleasure and satisfaction derived from participation*”. Extrinsic motivation is “*a collection of wide variety of behaviours which exist not for their own sake but rather as means to an end*” [4]. Amotivation is faced by individuals when “*there are no contingencies between outcomes and their own actions*” [1].

Intrinsic motivation was found to be further divided into three independent entities, namely, intrinsic motivation to know, intrinsic motivation towards accomplishment and intrinsic motivation to experience stimulation [5]. Extrinsic motivation also has three components namely, external regulation, introjections and identification [1],[3]. In this way, the construct academic motivation has seven dimensions in total.

Research done in neuroscience found that the region of the brain associated with motivation is the Prefrontal Cortex [6]. This region shows increased activity when compared to other sections of the brain in adolescents, as they begin to mature [7-12].

The present study tried to learn in details, the presence of all the seven dimensions of academic motivation in Indian secondary school students who are in their adolescents and about their relative importance, if any.

**Academic Motivation:** It is defined as “a student’s desire, as reflected in approach, persistence, and level of interest, regarding academic subjects when the student’s competence is judged against a standard of performance or excellence” (DiPerna & Elliott, 1999; McClelland, 1961; Wigfield & Eccles, 2002).

## II. Statement of the Problem

Dimensional Analysis of Academic Motivation Scale in Indian Secondary School Students.

## III. Research Objective

To study the dimensions of academic motivation construct

with respect to their relative significance in secondary school students.

## IV. Research Hypothesis

H<sub>0</sub>: There are no significant differences among the dimensions of academic motivation construct with respect to their relative importance, in secondary school students.

## V. Population and Sample of the Study

The secondary school students of Greater Hyderabad Municipal Corporation limits were the population of the study. Students of VIII<sup>th</sup> and IX<sup>th</sup> classes, from Vidyaniketan High School, Sriram Nagar Area, Hyderabad were the samples of the study.

## VI. Sampling Method

Simple random sampling technique was used to select the sample of 75 urban students of Vidyaniketan High School.

## VII. Tool used in the Study

Academic Motivation is measured using the 28 item Academic Motivation Scale – High School Version [2].

The scales’ temporal stability measured through, **the mean test-retest correlation**, is **0.79** when university students were taken as sample for one month period. The internal consistency of this scale is **mean Cronbach alpha  $\alpha$  = 0.81**. It has factorial validity and discriminant validity [2].

There are 28 items in this tool for measuring the seven dimensions of academic motivation though four items for each dimension.

The students respond on a 7 point Likert scale, where 1 = Does not correspond at all to 7 = corresponds exactly, and 4 = corresponds moderately. All the scores from all the subscales are added at last and the higher the mean (range from 1 to 7), the greater the dimension of academic motivation it indicates in the subject.

The first dimension - “intrinsic motivation – to know” is measured by the items 2,9,16 and 23. The second dimension- “intrinsic motivation – towards accomplishment” is measured by the items 6, 13, 20 and 27. The third dimension – “intrinsic motivation – to experience stimulation” is measured by the items 4, 11, 18 and 25. Items 3, 10, 17 and 24 measure the fourth dimension “extrinsic motivation –identified”. Items 7, 14, 21 and 28 measure the fifth dimension “extrinsic motivation – introjected”. Items 1, 8, 15 and 22 measure the sixth dimension “extrinsic motivation – external

regulation”.

The seventh dimension, “amotivation”, is measured by the items 5, 12, 19 and 26 [13].

### VIII. Data Collection

Permission through proper channel was sought by the researcher to administer the test of academic motivation on VIII<sup>th</sup> and IX<sup>th</sup> classes students of Vidyaniketan High School, belonging to the age group 14 to 16 years. The permission was granted by the Principal of the school.

The 28 items Academic Motivation Scale – High School Version (AMS - HS, Vallerand, R.J., et.al., 1992), was administered on the students for the measurement of all the seven dimensions of academic motivation construct in them.

### IX. Results

Table.1 : Descriptive Statistics of the Dimensions

Dimension	N	Mean	Standard Deviation
<b>Intrinsic motivation – to know</b>	75	6.3633	0.6669
<b>Intrinsic motivation – towards accomplishment</b>	75	5.68	0.8656
<b>Intrinsic motivation – to experience stimulation</b>	75	5.6033	0.60835
<b>Extrinsic motivation –identified</b>	75	6.54	0.62201
<b>Extrinsic motivation – introjected</b>	75	6.2733	0.83945
<b>Extrinsic motivation – external regulation</b>	75	6.6833	0.48514
<b>Amotivation</b>	75	4.8267	1.02253

**Interpretation:** The dimension “Extrinsic Motivation – external regulation” has the highest mean and the dimension “Amotivation” has the lowest mean.

Table.2 : Hypothesis Testing

F	df	Sig.	Partial Eta Squared	Result
57.826	6	0.000	0.401	$H_0$ : <b>Rejected</b>

**Interpretation:** F – test was conducted to evaluate the null hypothesis that there is no difference in the scores of the seven specific dimensions of the construct academic motivation in secondary school students (N=75), using SPSS ver.20. The result of the F-test indicated a significant difference in the dimensions,  $F = 57.826$ ,  $p < 0.05$ ,  $df = 6$  and the partial eta squared = 0.401. Thus, under these significant evidences, null hypothesis is rejected. There is significant difference amongst the dimensions of academic motivation in secondary school students.

Table3 : Pair-wise Comparisons

AM Dimension (I)	AM Dimensions (J)	Mean Difference (I-J)	Sig**
1	2	0.683*	0.000
	3	0.76*	0.000
	4	-0.177	1.000
	5	0.090	1.000
	6	-0.320	0.194
	7	1.537*	0.000
2	1	-0.683*	0.000
	3	0.077	1.000
	4	-0.860*	0.000
	5	-0.593*	0.000
	6	-1.003*	0.000
	7	0.853*	0.000
3	1	-0.760*	0.000
	2	-0.077	1.000
	4	-0.937*	0.000
	5	-0.670*	0.000
	6	-1.080*	0.000
	7	0.777*	0.000
4	1	0.177	1.000
	2	0.860*	0.000
	3	0.937*	0.000
	5	0.267	0.628
	6	-0.143	1.000
	7	1.713*	0.000
5	1	-0.090	1.000
	2	0.593*	0.000
	3	0.670*	0.000
	4	-0.267	0.628
	6	-0.410*	0.018
	7	1.447*	0.000
6	1	0.320	0.194
	2	1.003*	0.000
	3	1.080*	0.000
	4	0.143	1.000
	5	0.410*	0.018
	7	1.857*	0.000
7	1	-1.537*	0.000
	2	-0.853*	0.000
	3	0.777*	0.000
	4	-1.713*	0.000
	5	-1.447*	0.000
	6	-1.857*	0.000

The mean difference is significant at the level of 0.05

Adjustments for multiple comparisons: Bonferroni.

**Interpretation:** For  $p < 0.05$ , the first and fourth dimensions are significantly different to the second, third and seventh dimensions independently. The second and third dimensions are significantly different to all other dimensions except to each other. The fifth dimension is significantly different to second, third, sixth and

seventh dimensions. The sixth dimension is significantly different to second, third, fifth and seventh dimensions. The seventh dimension is significantly different to rest of all the dimensions.

### X. Limitations

The study was confined to Hyderabad city limits and for urban sample only. Further studies can be carried out on larger samples and in sub-urban and rural areas as well.

### XI. Conclusions

The study found the difference in the mean value of the dimensions of academic motivation construct to be significant. In this context, the mean of the dimension **external motivation – external regulation** is highest and is the most important dimension than the rest. Such behavior is regulated through external means like rewards and constraints. For example, a student regulated by this dimension of academic motivation would say “I study the night before the exams because my parents force me to” [2].

This result is in lines with the first and second laws of learning given by Thorndike, called the law of readiness and law of effect. While motivation prepares a child for learning, it is sustained, and proper learning happens, when the efforts are amply recognized either through rewards or through coercions.

The next important dimension of academic motivation is **external motivation – identified**. Here the behavior is valued and judged important by the student because this external motivation component is internalized by him or her by personally identifying with it. For example, the learner driven by this dimension of academic motivation will say “I will study tonight for tomorrow’s exam because it is an important activity according to me” [2].

The dimensions which follow next in importance are “Intrinsic motivation – to know”, “extrinsic motivation – introjected”, “intrinsic motivation – towards accomplishment” and “intrinsic motivation – to experience stimulation”. The dimension **amotivation** has the least mean value and is desirably the least significant dimension.

### References

- [1] Deci, E.L. and Ryan, R.M., “Intrinsic Motivation and Self Determination in Human Behavior”, New York, Plenum Press, 1985.
- [2] Vallerand, R.J., Pelletier, L.G., Blais, M.R., Briere, N.M., Senecal, C., Vallieres, E.F., “The Academic Motivation Scale: a measure of intrinsic, extrinsic and amotivation in education”, *Educ Psychol Meas*, Vol. 52, pp. 1003-1017, 1992.
- [3] Deci, E.L. and Ryan, R.M., “A motivational approach to self: Integration in Personality”, in R. Dienstbier (Ed.), *Nebraska Symposium on Motivation*, Vol. 38., Perspectives on Motivation, pp. (237-288), Lincoln, NE: University of Nebraska Press, 1991.
- [4] Deci, E.L., “Intrinsic Motivation”, New York: Plenum Press, 1975.
- [5] Vallerand, R.J., Blais, M.R., Briere, N.M., and Pelletier, L.G., “Construction et Validation de l’Echelle de Motivation de Education (EME)”, [Construction and the validation of the Echelle de Education (EME)], *Canadian Journal of Behavioural Sciences*, 21, 323–349, 1989.
- [6] Warden, M.R., et al., “A prefrontal cortex-brainstem neuronal projection that controls response to behavioural challenge”, *Nature*, 492, 428-432, doi: 10.1038/nature11617, 2012.

- [7] Rubia, K., Overmeyer, S., Taylor, E., Brammer, M., Williams, S.C., Simmons, A., Andrew, C., Bullmore, E.T., (2000), “Functional frontalisation with age: mapping neurodevelopmental trajectories with fMRI”, *Neurosci Biobehav Rev.*, 24(1):13-9, Jan. 2000.
- [8] Rubia, K., Smith, B., Woolley, J., Nosarti, C., Heyman, I., Taylor, E., Brammer, M., (2006), “Progressive increase of frontostriatal brain activation from childhood to adulthood during event-related tasks of cognitive control”, *Hum Brain Mapp.*, 27(12):973-93, Dec. 2006.
- [9] Tamm, L., Menon, V., Reiss, A.L. (2002), “Maturation of brain function associated with response inhibition”, *Journal of the American Academy of Child and Adolescent Psychiatry*, 41:1231–1238, 2002.
- [10] Brown, T.T., Lugar, H.M., Coalson, R.S., Miezin, F.M., Petersen, S.E., Schlaggar, B.L., (2005), “Developmental changes in human cerebral functional organization for word generation”, *Cereb Cortex*, 15(3):275–290, 2005.
- [11] Durston, S., Davidson, M.C., Tottenham, N., Galvan, A., Spicer, J., Fossella, J.A., et al., (2006), “A shift from diffuse to focal cortical activity with development”, *Dev Sci.*; 9(1):1–8, 2006.
- [12] Monk, C.S., McClure, E.B., Nelson, E.E., Zarahn, E., Bilder, R.M., Leibenluft, E., et al. (2003), “Adolescent immaturity in attention-related brain engagement to emotional facial expressions”, *Neuroimage*, 20(1):420–428, 2003.
- [13] Simek, D. & Grum, D.K., “The role of different aspects of academic motivation and competitiveness in explaining selfhandicapping”, *Horizons of Psychology*, Vol. 19, No. 1, pp. 25-41, 2010.

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