

Construction of Academic Motivation Inventory

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Motivation has been a central theme of inquiry among psychologists due to its strong association with biological, cognitive and social regulation and the consequential effects upon human behaviour (Deci & Ryan, 2008). Motivation encourages desire, excitement and interests of the individual for life. It has an undeniable impact on the human life to satisfy needs and desires and be a successful and happy person. It supports people to carry out their imaginations and provides energy and desire for them. High motivation levels help individuals achieve their goals more easily and successfully. Motivation often determines whether and to what extent students actually learn a challenging task, especially if the cognitive and behavioral processes necessary for learning a challenging task are voluntary and under their control (Gupta & Chandra Shekhar, 2011). The contribution of motivation to success in the process of teaching-learning has been a subject for numerous studies for long years; and the conditions that elicit motivation, types of motivation and the ways to improve motivation have been examined in various fields (Hattie, 2009). Ozder and Motorcan (2011) think that motivation is a psychological concept that is of high importance in the field of education. Teachers frequently complain that their students are less motivated to learn. They put little effort into assignments at home and in the class. Students of different grades differ in their motivation. They seldom participate in class discussion. Their need to engage in academics dwindles. Efforts are to be made by teachers to increase students' participation in learning activities.

Motivation is necessary for students' progress and academic satisfaction. According to Guven (2013) "Motivation is a main component of education, and it takes an important role on achievement and benefit of the learning process for students. It influences learning. It affects effort and persistence invested in information processing and using self-regulated cognitive and metacognitive strategies. Motivation is associated with academic achievement and psychological adjustment (Ahmad and Bruinsma, 2006; Legault, Green & Pelletier, 2006). Başdaş (2007) stated that motivation mobilizes effort and endeavour. Motivation is a process that activates and maintains learning behaviour (Palmer, 2005). It is an effective factor that leads human organism to behave and determines insistence and energy of human's behaviours (Azizoğlu & Çetin, 2009; Yılmaz & Çavaş, 2007).

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Motivation is a psychological phenomenon that leads one to be moved. It leads one to do something and to achieve specific goals and aims (Ryan and Deci, 2000). Motivation implies an individual's production of behaviours oriented towards a certain objective in order to meet his/her needs and making of efforts to reach the objective (Ülgen, 1997). Motivation relates to an individual's reason for engaging in an activity, the degree to which an individual pursues the activity, and the persistence of the individual (Graham & Weiner, 1996). Barlia (1999) states that motivation is a vital educational variable promoting both new learning and performance of previously learned skills, strategies and behaviors. Motivation describes the forces acting or within an organism to initiate and direct behaviour. According to the self-determination theory of Deci and Ryan (1985) motivation can be expressed through a continuum of increasing self-determination with three fundamental positions reflecting the degree of autonomy on which behaviors are based: amotivation and extrinsic and intrinsic motivation. Amotivation is characterized by one's perception of lack of control over events, incompetence and absence of purpose. In extrinsic motivation the goal being chased constitutes the main driving force of behaviour. It is divided into four subtypes of progressive regulation: external, introjected, identified, and integrated. In external regulation behaviours are enforced by others and are carried out to avoid punishment or to obtain rewards. In introjected regulation, behaviors are executed in order to improve one's self-esteem or to avoid anxiety and guilt that may arise for not carrying them out. In identified regulation, the individual chooses the activities by extrinsic motives (e.g. society values enrolling in superior studies). In integrated regulation individual needs and values converge with those expected by the social context (e.g. studying broadens one's horizons). In intrinsic motivation the pleasure of executing behaviours by own choice prevails: activities become a goal themselves. Vallerand et al (1998) talks about three subtypes of intrinsic motivation referred to in the academic milieu: orientation towards knowledge (the task is carried out for the pleasure of learning), orientation towards achievement (satisfaction emerges when products are generated or when one's own limits are overcome), and orientation towards stimulating experiences (it involves activities developed to perceive comforting aesthetics, intellectual or sensorial sensations).

Ainley (2004) thinks that motivation provides energy, direction, the reasons for our behaviours and what we do and why. So, motivation can be defined as a factor which leads to starting a behaviour and determines the direction, force and insistence of it.

In 1992, Robert J. Vallerand developed the Academic Motivation Scale

(AMS). It was designed to measure intrinsic, extrinsic, and amotivation across many disciplines. Finney's (2004) version of the Achievement Goal Questionnaire is based on the original measure by Elliot and McGregor (1999). This instrument is designed to measure four processes of motivation: mastery approach, mastery-avoidance approach, performance approach, and performance-avoidance approach. The present paper describes an effort to construct a tool to measure academic motivation of students.

Item analysis

The author tried to write items for the Academic Motivation Inventory on the basis of his experiences as a student and teacher. A response format consisting of five point rating scale was prepared. The five responses were "strongly agree, agree, undecided, disagree and strongly disagree". The tool was administered on a sample of 160 students out of which 40 boys and 40 girls were studying in class IX and 40 boys and 40 girls were studying in class XI in two schools of Allahabad city. A score of 5, 4, 3, 2 and 1 were assigned for "strongly disagree, disagree, undecided, agree and strongly agree" respectively. Scores on all items were added together to find the total score. All answer-sheets were arranged in ascending order of total score. Then 27% of the cases were selected from either ends and t-ratios were calculated for each of the 52 items. t-ratios for item no. 1, 4, 5, 19, 39 and 52 were found significant at .05 level. This means that these items are not worth retaining in the final form of the Academic Motivation Inventory. Item – total correlations were also computed. They have been shown in table 2. For item no. 4, 5, 19 and 39, the values are not significant at .05 level. Chi-square values were also calculated for all items. They have been shown in table 3. All values of chi-squares are significant at .05 level. So, it was decided to reject six items which had non-significant values for item-total correlation or t-ratio. Thus the final form has 46 items in it.

Table 1
Means, standard deviations and t-ratios for various items of
the Academic Motivation Inventory

Item no. in try-out form	group	Mean	SD	t-ratio	Item no. in final form
1	1	4.4651	0.9844	0.7855	
	3	4.6047	0.6226		
2	1	4.1860	1.2584	2.7444	1
	3	4.7442	0.4415		

3	1	3.8372	1.1533	2.6096	2
	3	4.4651	1.0768		
4	1	4.1395	1.0819	0.9327	
	3	4.3488	0.9972		
5	1	4.0465	0.9748	1.1602	
	3	4.2791	0.8817		
6	1	3.7907	1.1864	3.4821	3
	3	4.5581	0.8253		
7	1	3.0233	1.3	6.2106	4
	3	4.5116	0.883		
8	1	3.0698	1.3165	3.4099	5
	3	3.9767	1.1441		
9	1	3.9767	1.2438	2.4772	6
	3	4.5349	0.7973		
10	1	3.7209	1.297	4.6664	7
	3	4.7442	0.6208		
11	1	3.3256	1.3402	3.5270	8
	3	4.2558	1.0931		
12	1	3.5116	1.334	4.8686	9
	3	4.6047	0.6226		
13	1	3.6279	1.1756	3.0997	10
	3	4.3721	1.0471		
14	1	4.0000	1.2344	3.0305	11
	3	4.6744	0.7783		
15	1	2.9070	1.3595	3.7293	12
	3	3.9767	1.3		
16	1	2.9767	1.1231	3.9032	13
	3	3.9302	1.1422		
17	1	3.8837	1.3131	3.7999	14
	3	4.7442	0.6933		
18	1	4.1163	0.9564	5.3884	15
	3	4.9302	0.2578		
19	1	3.4884	1.2794	0.2567	
	3	3.5581	1.2402		
20	1	3.2791	1.4364	3.5534	16
	3	4.2093	0.9401		

21	1	3.8837	0.9564	4.4112	17
	3	4.6977	0.7411		
22	1	4.1860	1.1393	4.1778	18
	3	4.9302	0.2578		
23	1	3.0233	1.2245	7.8335	19
	3	4.7442	0.7589		
24	1	3.4651	1.1412	2.9273	20
	3	4.1395	0.99		
25	1	3.4651	1.0083	6.7753	21
	3	4.6977	0.6375		
26	1	3.5581	1.2209	4.7711	22
	3	4.5814	0.698		
27	1	3.1860	1.3497	6.0215	23
	3	4.5814	0.698		
28	1	4.0000	1.2344	4.3347	24
	3	4.8605	0.413		
29	1	3.8372	0.9494	4.7500	25
	3	4.7209	0.7661		
30	1	3.3256	1.2672	5.3228	26
	3	4.4884	0.668		
31	1	2.9070	1.3059	6.8390	27
	3	4.5349	0.8549		
32	1	3.9070	1.25	4.2869	28
	3	4.7907	0.5145		
33	1	3.8605	1.1869	2.9810	29
	3	4.5814	1.0518		
34	1	4.1860	0.8239	5.652	30
	3	4.9302	0.2578		
35	1	3.1395	1.1869	4.8470	31
	3	4.2791	0.9838		
36	1	3.1395	1.3198	2.1520	32
	3	3.7209	1.1817		
37	1	4.1163	1.0284	3.6791	33
	3	4.7442	0.4415		
38	1	4.1860	0.9821	3.7233	34
	3	4.7907	0.4116		

39	1	2.8837	0.981	1.9718	
	3	3.4186	1.4838		
40	1	3.8140	1.0295	2.6093	35
	3	4.4186	1.1177		
41	1	2.6744	1.3224	9.0152	36
	3	4.6744	0.6064		
42	1	3.4419	1.2402	6.6400	37
	3	4.8140	0.5458		
43	1	3.4651	1.2218	4.7044	38
	3	4.4884	0.7359		
44	1	3.7674	1.0875	5.2775	39
	3	4.7442	0.5387		
45	1	3.6977	1.0586	7.2735	40
	3	4.9302	0.3377		
46	1	3.1395	1.1869	3.4414	41
	3	4.0698	1.3165		
47	1	3.4884	1.2026	3.7056	42
	3	4.3256	0.8652		
48	1	2.7674	1.2505	5.9056	43
	3	4.2791	1.1196		
49	1	3.3953	1.3825	6.7359	44
	3	4.8605	0.3506		
50	1	2.8140	1.3845	5.3163	45
	3	4.2791	1.1614		
51	1	3.3023	1.1657	5.2038	46
	3	4.4884	0.9353		
52	1	4.0000	1.2536	1.4432	
	3	4.3721	1.1344		

Table2

Item-total Correlations for AMI for 9-11 grade students

Item no.	Correlation	Item no.	Correlation
1	0.2155	27	0.3887
2	0.3322	28	0.5037
3	0.3628	29	0.3438

4	0.1514	30	0.3501
5	0.1504	31	0.4128
6	0.3273	32	0.4107
7	0.5295	33	0.3083
8	0.2697	34	0.4149
9	0.3038	35	0.3790
10	0.3294	36	0.2066
11	0.3145	37	0.3655
12	0.5115	38	0.2995
13	0.2892	39	0.1346
14	0.4113	40	0.1954
15	0.2943	41	0.5894
16	0.2609	42	0.5692
17	0.4158	43	0.3358
18	0.4976	44	0.5063
19	0.1096	45	0.5679
20	0.2432	46	0.2626
21	0.4802	47	0.3396
22	0.5123	48	0.4734
23	0.5637	49	0.5262
24	0.4134	50	0.2983
25	0.4225	51	0.4084
26	0.3866	52	0.2235

Table 3

Chi-square values for various items of the Academic Motivation Inventory

Item no.	Frequencies for responsest					Chi Square
	Strongly agree	agree	undecided	disagree	Strongly disagree	
1	2	2	4	37	115	296.813**
2	4	2	8	39	107	247.938**

3	5	10	8	60	77	143.688**
4	5	4	15	54	82	149.563**
5	3	8	23	54	72	111.938**
6	6	8	14	50	82	137.500**
7	8	18	24	40	70	73.250**
8	17	27	37	41	38	12.250*
9	5	13	8	49	85	148.875**
10	5	7	11	51	86	158.500**
11	9	29	16	55	51	52.625**
12	5	12	13	53	77	123.625**
13	6	4	25	43	82	129.063**
14	4	6	15	31	104	216.688**
15	19	28	34	37	42	9.813*
16	23	30	39	45	23	12.000*
17	6	7	6	37	104	224.563**
18	1	3	7	39	110	267.500**
19	11	18	37	60	34	45.313**
20	14	16	34	47	49	34.313**
21	2	5	14	54	85	163.938**
22	3	3	5	33	116	295.875**
23	6	21	17	34	82	110.188**
24	4	10	34	64	48	79.750**
25	9	9	20	43	79	110.375**
26	5	9	24	39	83	124.125**
27	10	14	30	27	79	95.188**
28	4	3	6	31	116	292.438**
29	4	6	13	43	94	180.813**
30	7	20	20	49	64	69.563**
31	12	24	29	44	51	30.563**
32	5	4	11	40	100	207.563**
33	9	7	11	36	97	182.375**
34	1	0	9	55	95	143.300**
35	12	29	24	48	47	29.813**
36	10	23	37	54	36	34.063**
37	2	2	7	53	96	217.563**

38	4	3	4	52	97	219.813**
39	20	320	45	53	22	31.188**
40	8	9	18	53	72	104.438**
41	12	20	20	40	68	64.000**
42	4	10	13	41	92	165.938**
43	4	12	24	48	72	97.000**
44	3	2	21	46	88	162.313**
45	4	2	11	41	102	222.063**
46	15	25	17	56	47	42.625**
47	5	15	20	56	64	86.313**
48	12	17	33	43	55	39.875**
49	7	9	15	38	91	155.000**
50	23	31	21	38	47	14.500**
51	6	15	17	50	72	97.313**
52	7	4	12	48	89	166.063**

**/* significant at .01/.05level

Reliability

Split half reliability for the AMI has been found to be .875. The alpha value is .871(N= 80, IX to XI grade)

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