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Original Article

Academic Motivation Among First-Year Medical Students at HITEC IMS Following an Integrated Curriculum, A Prospective Study

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Abstract

Objective: To evaluate the impact of the curriculum's level 7 integration on first-year students' level of academic motivation.

Methods: This longitudinal study was conducted at HITEC-IMS, Anatomy Department over a period of 12 weeks. Purposive sampling technique was employed to engage all first year MBBS students, taught an academic module through the integrated curriculum at level-7. Pre and post module data was collected in two phases, through a pre-validated 28-item Academic Motivation Scale (AMS) questionnaire with five factor variation at the Likert scale, wherein 4 items represented amotivation, 11 intrinsic motivation, and 13 extrinsic motivations.

Results: A highest mean motivation score was observed for extrinsic motivation in both phases of the study without any statistically significant difference. While a statistically significant results (p-value <0.05) were observed in the form of a rise in means scores for three out of four items representing amotivation, and a decline in case of five out of eleven items showing intrinsic motivation.

Conclusion: The study identified that in our context, the major motivation with which a medical student embarks upon the journey of medical education, and continues to have later on is extrinsically derived. Moreover, the amotivation enhances and the intrinsically driven motivation; which lacks behind other factors even at the outset, reduces with exposure to integrated medical curriculum.

Keywords: Academic Motivation, Integration, Medical students, Curriculum

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Introduction

Motivation is indispensable in the field of educa-tion and plays a vital role in the academic perfor-mance of the students.[1,2] A high level of motivation is a prerequisite for academic success, continued medical education and professional development.[3,4] Different definitions of motivation have been proposed by psychologists, such as the desire or want that energizes and directs goal-oriented behavior.[5] Deci and Ryan's self-determination theory (SDT) established different levels of academic motivation along a spectrum ranging from amotivation to intrinsic motivation. Intrinsic motivation reflects the human propensity to learn and assimilate, while extrinsic motivation results from external factors triggering self-regulation.[6] It has been demonstrated that intrinsic motivation, as opposed to extrinsic drive, is associated with more creativity, a lower level of surface information, deeper learning, better academic performance, reinforcement of feel good or compatible, and a reduction in losses.[7]

Motivational problems are prevalent and a source of frustration among teachers. The medical field is a long term commitment that demands strenuous work and dedication which a medical student can only handle if motivated. The motivational factors vary among students according to their age, gender, educational background, ethnicity, and socioeconomic status.[8] In order to provide a more comprehensive understanding of the academic environment, Vallerand et al. divided the original definition into three subtypes: orientation towards knowledge

(enjoyment of learning), orientation towards achievement (creation of products by surpassing the constraints), and orientation towards knowledge and orientation toward stimulating experiences (developing intellect to challenge and go beyond the boundaries).[9]

In quest of a contextually suitable doctor, the medical curriculum is experiencing a shift from traditional to integrated. The study style required for integrated curriculum is bound to have an effect on the level of academic motivation of the students.[10] Academic Motivation Scale (AMS); originally, consisting of 28-items measured on seven-point Likert scale, is a commonly employed tool for assessing students' motivation for learning.[11] In Pakistan, this has been used only in Poonch Medical College (AJK) in a cross-sectional study reporting on the level of motivation through data collected once, and not addressing any change ensuing due to the continued curricular burden.

Medical educators have acknowledged that there is a critical need for the integration of basic and clinical medical sciences since it is crucial for students to reach the caliber required by an optimal physician.[12] As the burden and dynamics of an integrated medical curriculum are different there is a need to inquire that how this integrated approach may affect the degree of motivation amongst undergraduate medical students. Hence, the present study is planned to assess the change in academic motivation level of first year students after level 7 integration, with the hope that the results will help in formulating positive curricular modifications and relevant institutional policies accordingly.

Methods

This longitudinal study was conducted at HITEC-Institute of Medical Sciences Anatomy Department over a period of 12 weeks, after the approval of the institutional ethics committee. Purposive sampling technique was employed to engage all first year MBBS students of HITEC-IMS, who were taught an academic module through the integrated curriculum at level 7, after informed consent. The standard was set to include the students joining the module at the outset, and exclude those with less than 50% attendance by the end of the module. The data was collected, first at the commencement (first phase) and then after conclusion of the academic module (second phase). A total of one hundred responses were collected in both the phases. The 28-item AMS questionnaire with five factor variation at the Likert scale (already validated) was used in the research.[8,9]

Items 5, 12, 19 and 26 of the AMS questionnaire represent amotivation, which is the state of lacking an intention.

Extrinsic motivation, a state that includes the circumstances, situations, rewards or punishments, is described by AMS items 1, 3, 7, 8, 10, 14, 15, 17, 21, 22, 24 and 28.

Intrinsic motivation; referring to the intrinsic thought process leading to an action and/or an activity for its own sake is represented by AMS items 2, 4, 6, 9, 11, 13, 18, 20, 16, 23, 25, 27.9

Statistical Package for Social Science (SPSS), version 22, was used to conduct the analysis at a 95% confidence interval. To display the baseline attributes, descriptive statistics were employed. A five-point Likert scale, with 1 representing "does not correspond at all" and 5 representing "corresponds exactly," was used to gauge the respondents' motivation levels. For each item, the responses were utilized to determine the mean, standard deviation, skewness, and kurtosis values. Mean scores for motivation were compared at two phases by the paired sample T-test depicting any change by exposure to the integrated curriculum at level 7.

Results

The mean age of the 100 respondents was 19.31±1.134. Among them, 49% were male and 51% female, 56% boarders and 44% non-boarders.

A total of 98% reported emotional support by the family, and 57% by friends. Majority of respondents have entered this profession by their own choice (77%) while 23% followed the wish of their parents.

The mean motivation scores of all 28 items are presented in Table I. The highest mean motivation score at the start of the module, was observed for item 3 (4.54 ± 0.904) followed by item 2 (4.33 ± 0.954) & item 17 (4.30 ± 0.969). The lowest score was found for item 5 (1.32 ± 0.709) & item 26 (1.39± 0. 827). While in post module data, the mean motivation score in item 3 dropped to (4.31 ±1.032) followed by a drop in item 2 (4.02 ±1.015) & item 17 (4.01±1.020) as compared to phase 1.

Table II shows the percentage of the responses to each item at 5-point scale in both phases separately. It can be observed that for all the items, except items 5, 12, 19, and 26, the highest number of respondents chose "corresponds exactly" in phase-1, and ‘’corresponds moderately’’ in phase-2.

Table III shows the statistical comparison of mean motivation score of responses to all items, between phase 1 and phase 2, as calculated by paired sample t-test. A statistically significant difference in the mean motivation level was observed for the items 2, 5, 6, 11, 12, 14, 17, 25, 26 & 27 with p-values < 0.05. Among these, item 5,12, & 26 were representing amotivation while, item 2,6,17,25&27 were describing the scale of intrinsic motivation. Thus, the post -module data had a higher score in amotivation and intrinsic motivation items (p-value <0.05).

Table 1: *Mean motivation scores in all 28-items AMS scale in both phases*

	Item	Mean		SD	
		Pre. M.	Post. M.	Pre. M.	Post. M.
1	Because with only a high-school degree I would not find a high-paying job later.	3.31	3.37	1.574	1.475
2	Because I experience pleasure and satisfaction while learning new things	4.33	4.02	0.954	1.015
3	Because I think that a college education will help me better prepare for the career I have chosen.	4.54	4.31	0.904	1.032
4	For the intense feelings I experience when I am communicating my own ideas to others.	3.29	3.20	1.297	1.092
5	Honestly, I don't know; I really feel that I am wasting my time in school.	1.32	1.96	0.709	1.127
6	For the pleasure I experience while surpassing myself in my studies.	3.92	3.45	1.032	1.250
7	To prove to myself that I can complete my college degree.	4.02	3.91	1.303	1.129
8	In order to obtain a more prestigious job later.	3.97	3.98	0.989	1.073
9	For the pleasure I experience when I discover new things never seen before.	4.27	3.98	1.024	1.119
10	Because eventually it will enable me to enter the job market in a field that I like	4.10	3.90	1.078	1.124
11	For the pleasure that I experience when I read interesting authors.	3.76	3.15	1.224	1.201
12	I once had good reasons for going to college; however, now I wonder whether I should continue.	1.74	2.13	1.220	1.412
13	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	3.84	3.80	1.178	1.073
14	Because when I succeed in college, I feel important.	3.79	3.47	1.274	1.132
15	Because I want to have "the good life" later.	4.21	3.97	1.076	1.058
16	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	4.21	3.91	1.085	1.120
17	Because this will help me make a better choice regarding my career orientation.	4.30	4.01	0.969	1.020
18	For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	3.43	3.27	1.191	1.309
19	I can't see why I go to college and frankly, I couldn't care less.	1.90	1.97	1.18	1.297
20	For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	3.94	3.74	1.108	1.116
21	To show myself that I am an intelligent person.	3.34	3.11	1.289	1.363
22	In order to have a better salary later.	3.51	3.41	1.235	1.232
23	Because my studies allow me to continue to learn about many things that interest me	4.29	4.13	0.988	0.950
24	Because I believe that a few additional years of education will improve my competence as a worker.	4.11	3.81	1.024	1.187
25	For the "high" feeling that I experience while reading about various interesting subjects	3.97	3.58	1.010	1.084
26	I don't know; I can't understand what I am doing in school	1.39	1.98	0.827	1.231
27	Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	4.07	3.59	0.946	1.173
28	Because I want to show myself that I can succeed in my studies.	4.04	3.74	1.163	1.203

Table 2: *Percentage of the responses to each item at 5-point Likert's scale in both phases*

Item No.		Level of correspondence				
		Not at all n(%)*	Little n(%)*	Moderate n(%)*	A lot n(%)*	Exactly n(%)*
1.	Pre-module	21	14	13	17	35
	Post- module	18	8	27	13	34
2.	Pre- module	1	6	10	25	58
	Post- module	3	4	20	34	39
3.	Pre- module	4	3	4	22	70
	Post- module	4	4	6	29	57
4.	Pre- module	11	17	27	22	23
	Post- module	8	14	41	24	13
5.	Pre- module	79	13	5	3	1
	Post- module	49	21	16	13	1
6.	Pre- module	3	9	12	45	31
	Post- module	9	13	27	26	25
7.	Pre- module	8	8	11	20	53
	Post- module	4	7	23	26	40
8.	Pre- module	1	8	20	35	36
	Post- module	4	5	19	33	39
9.	Pre- module	3	4	12	25	56
	Post- module	3	10	15	30	42
10	Pre- module	2	9	14	27	48
	Post- module	5	6	20	32	37
11	Pre- module	7	9	20	29	35
	Post- module	13	11	39	22	15
12	Pre- module	65	15	7	7	6
	Post- module	50	18	13	7	6
13.	Pre- module	7	4	24	28	37
	Post-module	3	10	21	36	30
14.	Pre- module	9	7	18	28	38
	Post- module	8	9	29	36	18
15.	Pre- module	4	4	13	25	54
	Post- module	3	6	21	31	39
16.	Pre- module	5	4	8	31	52
	Post- module	3	9	22	26	40
17.	Pre- module	4	1	9	33	53
	Post- module	2	7	18	34	39
18.	Pre- module	9	10	31	29	21
	Post- module	13	12	34	17	24
19.	Pre- module	54	17	16	8	4
	Post- module	57	12	15	10	6
20.	Pre- module	5	6	16	36	37
	Post- module	4	9	27	29	31
21.	Pre- module	12	12	29	24	23
	Post- module	17	17	23	24	19
22.	Pre- module	9	11	25	30	25
	Post- module	9	10	38	17	26

23.	**Pre- module**	2	5	11	26	56
	Post-module	2	3	18	34	43
24.	**Pre- module**	3	3	20	28	46
	Post- module	5	8	27	21	39
25.	**Pre- module**	2	7	19	36	36
	Post- module	6	5	37	29	23
26.	**Pre- module**	78	10	7	5	6
	Post- module	50	21	17	5	7
27.	**Pre- module**	1	6	17	37	39
	Post- module	6	11	28	28	27
28.	**Pre- module**	6	5	14	29	46
	Post- module	8	5	25	29	33

**Frequency and percentages are equal due to the sample size being exactly 100.*

Table 3: *The statistical comparison of mean motivation score of responses to all items, between phase 1 and phase 2, as calculated by paired sample t-test(* is significant , ** highly significant)*

		Sig. (2-tailed)
Pair 1	Q1Pre - Q1post	.773
Pair 2	Q2Pre - Q2Post	.037*
Pair 3	Q3Pre - Q3Post	.084
Pair 4	Q4Pre - Q4Post	.591
Pair 5	Q5Pre - Q5Post	.000**
Pair 6	Q6Pre - Q6Post	.004*
Pair 7	Q7Pre - Q7Post	.533
Pair 8	Q8Pre - Q8Post	.949
Pair 9	Q9Pre - Q9Post	.054
Pair 10	Q10Pre - Q10Post	.177
Pair 11	Q11Pre - Q11Post	.000**
Pair 12	Q12Pre - Q12Post	.032*
Pair 13	Q13Pre - Q13Post	.791
Pair 14	Q14Pre - Q14Post	.049
Pair 15	Q15Pre - Q15Post	.112
Pair 16	Q16Pre - Q16Post	.044*
Pair 17	Q17Pre - Q17Post	.034*
Pair 18	Q18Pre - Q18Post	.320
Pair 19	Q19Pre - Q19Post	.680
Pair 20	Q20Pre - Q20Post	.191
Pair 21	Q21Pre - Q21Post	.221
Pair 22	Q22Pre - Q22Post	.575
Pair 23	Q23Pre - Q23Post	.208
Pair 24	Q24Pre - Q24Post	.062
Pair 25	Q25Pre - Q25Post	.004*
Pair 26	Q26Pre - Q26Post	.000**
Pair 27	Q27Pre - Q27Post	.001*
Pair 28	Q28Pre - Q28Post	.086

Discussion

What "moves" us is motivation, as the word implies. It is thought to be a state that energizes or de-energizes activities. Teachers have always found that a lack of motivation is one of the most frustrating obstacles to students learning.[13] Certain theorists highlight the importance of self-belief and competence, while others give precedence to goal orientation. A third group contends that individual motivation is influenced by the difficulty of the task.[14] In summary, robust and adaptable critical thinking abilities are fostered through intrinsic drive. On the other side, amotivation and solely extrinsic motivation result in low interest and academic persistence.[15] Curriculum integration aims to support students in making connections both within and between disciplines. It fosters depth and breadth in learning, stimulates good attitudes in students, speeds up information retrieval, leads to a more integrated knowledge foundation, and gives students more quality time for curriculum inquiry. Anything that eliminates the traditional topic barriers and makes learning more meaningful, applicable, and stimulating for students must be in the interest of good education.[10] All this seems to have either negative or positive effect on academic motivation, what this study tried to explore.

This study was conducted to assess the level of academic motivation and how it evolves with exposure to medical curriculum integrated at level 7. The first-year medical students were selected as they had no previous exposure to any model of medical curriculum, and their level of academic motivation at the outset (phase-1) represented as inherent a level as possible in regards to medical studies. The phase-2 results then outlined any changes evolved as they went through the dynamics of integrated medical curriculum.

Our results showed that the mean motivation scores varied across all 28-items both in phase-1 and phase-2. The scores for items representing extrinsic motivation not only showed highest values in phase-1, decline in

all in phase-2, but only two out of twelve items showed a statistically significant decline in phase-2 compared to phase-1, while rest of the comparison yielded insignificant results. The highest mean motivation score at both phases was observed for item 3: ''Because I think that a college education will help me better prepare for the career I have chosen''; this might be due to the fact that medical students are usually high achievers, ambitious to perform well and overcome the various difficult concepts expected to be handled by them in future.[16] This finding does not correspond with the results of AMS data, obtained from Poonch medical college AJK Pakistan, wherein the highest mean score was reported for item 17 which dealt with career orientation and further choice.[11] However, both items 3 and 17 represent extrinsic motivation, hence it might be concluded that majority of medical students are motivated by extrinsic factors. Furthermore, statistically insignificant differences in most of mean scores relevant to extrinsic motivation as per our results endorse that medical students remain prone to be motivated by extrinsic factors even after exposure to integrated curriculum.

As far as the mean scores for the items checking the amotivation are concerned, three out of four items showed a statistically significant increase in post module phase. While all 11 items concerning intrinsic motivation showed a decline with statistically significant results in 5 out of 11. This helps in drawing a conclusion that the intrinsic motivation declines and amotivation surges after exposure to intense medical curriculum. This aligns with Gabriel Mendes' study from Brazilian medical school, which demonstrated significant shifts in motivation throughout the course of medical school, peaking during the first few semesters of the programme.[17] Following admission to medical school, a student's motivation starts to depend on issues with the curriculum, learning style, and resources offered by the medical school in addition to the student's innate qualities. Greater intrinsic motivation at the beginning of the course comes from the extrinsic factor of decision to pursue a profession in medicine as a doctor.[18]

A study conducted by Cristina Marta Del-Ben concluded that curriculum changes with early clinical exposure than late, were associated with increased motivation towards learning in Year one, which persisted until Year six.[19] The difference between their and our results may be attributed to the different approach while collecting data, as theirs was subject to clinical experience while our study focused on period of knowledge gain during early year.

In an effort to modernize the teacher-centered pedagogical model that has been used for centuries, more medical schools and postgraduate programmes are implementing active techniques as teaching/learning tools. The active methodology of teaching can cause anxiety in students.[20] It is well recognized that compared to students who enroll in medical schools using traditional teaching methods, have a higher risk of experiencing stress and anxiety. In our study the percentage of boarder students was more as compared to the day scholars which can be an added factor for anxiety and lack of interest in learning. Research has demonstrated that medical students who have at least one burnout symptom may experience detrimental impacts that not only disrupt the teaching and learning process but also are linked to changes in academic motivation and accomplishment over time. These factors, along with the fact that burnout has been documented in a number of different occupations, indicate that medical students are significantly more likely than other students to experience this syndrome. Greater Burnout Students exhibited the least desirable kind of academic motivation, with lower levels of intrinsic motivation and self-efficacy and higher levels of amotivation and test anxiety.[21,22]

It should be noted that extrinsically driven motivation leads to scarce interest as well as minimal persistence of academic drive.[15] The results of our study which endorse the fact that it remains the major driving force for our medical students, calls for a major shift in medical curriculum and the learning environment it provides, in order to let our students not only consolidate but later on capitalize upon the intrinsic motivation – an essential ingredient to a becoming a successful and happy physician.

Conclusion

The study identified that in our context, the major motivation with which a medical student embarks upon the journey of medical education, and continues to have later on is extrinsically derived. Moreover, the amotivation enhances and the intrinsically driven motivation, which lacks behind other factors even at the outset, reduces with exposure to integrated medical curriculum.

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References

1. Steinmayr R, Weidinger AF, Schwinger M, Spinath B. The importance of students' motivation for their academic achievement—Replicating and extending previous findings. Frontiers in Psychology.2019; https://doi.org/10.3389/fpsyg.
2. Hongbin Wua , Shan Lib , Juan Zhengb, Jianru Guoc. Medical students' motivation and academic performance: the mediating roles of self-efficacy and learning engagement. Medical Education Online 2020; 25(1): 1742964.

3. Kunanitthaworn. Factors associated with motivation in medical education: a path analysis. BMC Med Edu. 2018; 18(1):140
4. Tohid H, Jabbari MM. Procedia - Social and Behavioral Sciences 31 2012; 820 -4.
5. Sarkis AS, Hallit S, Hajj A, Kechichian A, Karam Sarkis D, Sarkis A, Nasser Ayoub E. Lebanese students' motivation in medical school: does it change throughout the years? A cross-sectional study. BMC Med Edu. 2020; https://doi.org/10.1186/s12909-020-02011
6. Ryan RM, Deci EL. Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary educational psychology. 2000 Jan 1;25(1):54-67.
7. Fabrizio P, Agur AM, Groff SL. Which Motivational Behaviors Impact Success in a Clinical Anatomy Course for Entry Level Doctor of Physical Therapy Students? Rev Argen Anat Clín. 2021;13(1):9.
8. Al Ansari AM, Kumar AP, AlSaleh AF, Arekat MR, Deifalla A. Validation of academic motivation scale among medical students using factor analysis and structural equation modeling: Middle Eastern perspective. J Edu Health Promotion. 2021;10(3):364.
9. Vallerand RJ, Pelletier LG, Blais MR, Briere NM, Senecal C, Vallieres EF. The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. Edu Psychol Measur. 1992;52(4):1003-17.
10. Magoma CM. The shift and emphasis towards curriculum integration: Meaning and rationale. Afr Edu Res J. 2016;4(2): 25-30.
11. Javaeed A, Asghar A, Allawat Z, Haider Q, Mustafa KJ, Ghauri SK. Assessment of Academic Motivation Level of Undergraduate Medical Students of Azad Kashmir, Pakistan. Cureus. 2019;11(3): e4296.
12. Dubhashi SP, Dubhashi RS, Sindwani R. Integrated Teaching: The Need of the Hour. Bang J Med Edu. 2022;13(1):79-86.
13. Vu T, Magis-Weinberg L, Jansen BR, van Atteveldt N, Janssen TW, Lee NC, van der Maas HL, Raijmakers ME, Sachisthal MS, Meeter M. Motivation-achievement cycles in learning: A literature review and research agenda. Edu Psychol Rev. 2022;34(1):39-71.
14. Hattie J, Hodis FA, Kang SHK. Theories of motivation: Integration and ways forward. Contemp Edu Psychol. 2020;61(1):101865.
15. Sansone C, Tang Y. Intrinsic and extrinsic motivation and self-determination theory. Mot Sci. 2021; 7(2): 113-4.
16. Sarikhani Y, Ghahramani S, Bayati M, Lotfi F, Bastani P. A thematic network for factors affecting the choice of specialty education by medical students: a scoping study in low-and middle-income countries. BMC Med Edu. 2021;21(12):1-2.
17. Silva GMCD, Borges AR, Ezequiel ODS, Lucchetti ALG, Lucchetti G. Comparison of students' motivation at different phases of medical school. Rev Assoc Med Brasil. 2018 ;64(10):902-8.
18. Kunanitthaworn N, Wongpakaran T, Wongpakaran N, Paiboonsithiwong S, Songtrijuck N, Kuntawong P, Wedding D. Factors associated with motivation in medical education: a path analysis. BMC Med Edu. 2018;18(12):140.
19. Del-Ben CM, Shuhama R, Costa MJ, Troncon LEA. Effect of changes to the formal curriculum on medical students' motivation towards learning: a prospective cohort study. Sao Paulo Med J. 2019; 137(2):112-8.
20. Boni RA, Paiva CE, De Oliveira MA, Lucchetti G, Fregnani JH, Paiva BS. Burnout among medical students during the first years of undergraduate school: Prevalence and associated factors. PloS One. 2018;13(3): e0191746.
21. Lyndon MP, Henning MA, Alyami H, Krishna S, Zeng I, Yu TC, Hill AG. Burnout, quality of life, motivation, and academic achievement among medical students: A person-oriented approach. Persp Med Edu. 2017; 6: 108-14.
22. Zalts R, Green N, Tackett S, Lubin R. The association between medical students' motivation with learning environment, perceived academic rank, and burnout. Int J Med Edu. 2021;12(1):25-30.