Learning Approaches, Learning Difficulties and Academic Performance of Undergraduate Students of Physiotherapy

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ABSTRACT

A locally developed 'Approaches to Learning Inventory (ALI)' was administered to explore the learning difficulties and learning approaches of undergraduate students of Bachelor of Physiotherapy, College of Allied Health Sciences, Manipal. University examination marks of these students were also collected. Learning approach and learning difficulties were summarized by computing mean, standard deviation and percentage of students experiencing some of the academic and non-academic problems. Spearman's correlation was computed between standardized scores of examination marks, learning approach and learning difficulty scale scores. Academic performance has shown significant negative correlation with surface approach and various problems of learners like fear of failure and lack of confidence, non-academic distracters and poor English language ability. This study demonstrated significant positive association between surface approach and various problems of the learners. The students have also reported a number of academic and non-academic problems.

INTRODUCTION

The way students approach learning plays an important role in determining the outcome of any educational endeavor. Characteristics of the teaching, the course and the student are the three major components, which influence student learning. Each of these has an effect on the approach to learning adopted by the student. Teaching and course characteristics produce a variety of learning environments or contexts, which cause students to vary their approach to learning in response to these pressures.[1] Marton and Saljo in Gothenburg have carried out some seminal work in the area of 'approaches to learning'.[2]

One of the most important findings of educational research is that learning approaches are significantly influenced by students' perception of the learning environment. Ramsden reported the influence of teaching characteristics on approaches to learning which includes the teaching methods, teacher enthusiasm and commitment and the pace and level at which information is presented.[3] Numerous researchers have documented factors that encourage surface approaches to learning. These include overload of work, students' perception of the relevance of the content, assessment processes requiring and rewarding reproduction of content, poor teaching, poor student teacher interpersonal relationships and lack of opportunity for self-management.[3-9]

The approach student's use in their study has a significant impact on both the quality of the learning and their academic success. It would clearly be of value to identify students whose approach to learning was predictive of unsatisfactory performance.

Sevensson reported that students who consistently adopted a deep approach were more successful in passing examinations than those students who consistently adopted a surface approach.[10] Clarke reported better prediction of performance by subscales that address affective domain of the inventory than those which address 'cognitive styles'.[11] Newble et al. observed consistent correlation between poor performance of medical students and the surface approach subscales of Adelaide Diagnostic Learning Inventory.[12] Many times students express difficulties with the courses they are studying. The frequently reported problems in literature are difficulty in organizing study time effectively, overloaded feeling with vast study material, decreased motivation, difficulty in seeing the relevance of some subjects, difficulty in recalling previously acquired knowledge, and difficulty in applying acquired knowledge to practical situations.[13] Language ability in the current medium of instruction, cultural values and expectations concerning achievement and lifestyle factors requiring adjustment in the new environment may affect the student's performance directly or indirectly, through their influence on learning process.[14]

Research stresses an understanding of the phenomenon of learning by examining the students' experiences.[15] The present study was motivated by this concern. The study explored the learning difficulties, learning approaches and their association with performance in the university examination of undergraduate students of physiotherapy.

MATERIALS AND METHODS
Approaches to learning inventory (ALI) was used to collect data on learning approach and learning difficulties.[16] The ALI is a locally developed, self –report questionnaire containing 90 items representing learning approaches as well as learning difficulties. Six of the 9 scales in the original inventory were used to summarize the learning approach and learning difficulties of students and remaining items were treated individually for illustration purpose. Students' response to each item was scored on a five-point Likert-type scale from 5 for 'Always' to 1 for 'Never'. Adding the response to each item on the scale forms the score for each scale.

Table 1. Description of Scales

Scales and Sub-scales	Description
1. Deep Processing (DP)	Active questioning in learning, effort to understand new material, relating ideas to previous knowledge and relating concepts to everyday experience.
2. Surface Approach (SA)	Intention to complete task requirement, rote learning, memorize information needed for assessments and accepting teachers' opinion without thinking.
3. Fear of Failure and Lack of Confidence (FF&LC)	Lack of confidence in completing the course and asking questions, anxiety about examination.
4. Perceived Academic Inadequacy (PAI)	Failures to distinguish, understand, summarize and recollect.
5. Non-Academic Distracters (NAD)	Homesickness, health, financial problem, uncomfortable living environment and extracurricular activity.
6. English Language Ability (ENG)	Difficult to speak, understand and write in English.

Meanings of various scales are shown in Table 1. The items under the scale deep processing are worded in such a way that high scores are desired on those items (Example: I make note of characteristics that are useful to classify or distinguish). The higher the score, the more is the deep processing. The items under the scales surface approach, fear of failure and lack of confidence, perceived academic inadequacy, non-academic distracters and English language ability are worded in such a way that low scores are desired on those scales (Example: I find it difficult to speak and express myself in English). Higher scores on surface approach indicate that surface approach is more pronounced. Higher score on respective scales indicate that students are more fearful and less confident regarding examination and course completion and have significantly less positive perception about academic capability. Higher scale scores indicate that nonacademic distracters are a more significant problem. On the English-language scale, higher-scale scores are associated with lower or less proficient English-language ability. The scales were

validated by experts and tested for reliability. Internal consistency coefficient, Cronbach's Alpha for these scales were within the acceptable limits. Table 2 shows a reliability coefficient based on 1928 health science students of various specialties and from this present study.[16]

Table 2. Cronbach's alpha for scales and subscales

Scales and Subscales (no. of items)	*Alpha*	
	Present Study (n=164)	*Previous study* (n=1928)*
Deep processing (8)	0.78	0.76
Surface approach (4)	0.54	0.62
Fear of failure and lack of confidence (4)	0.52	0.59
Perceived academic inadequacy (4)	0.38	0.60
Non-academic distracters (6)	0.48	0.61
English language ability (4)	0.65	0.71

* Data collected during the development of the inventory[16]

SAMPLE

The sample for the study consisted of first to final year BPT (Bachelor of Physiotherapy) students studying in College of Allied Health Sciences, Manipal. More than 95% of these students were from different regions of India, and away from their parents. The majority of the students (90.64%) had their instruction in English during high school and others in their native language.

The inventory was administered to 164 students. Students were encouraged to put their names on the response sheet to allow later correlation with academic performance. However, they were reassured that only the researcher would have access to their responses. Responses were obtained approximately 6 to 10 weeks before their university (final) examination. Of the 164 students, only 149 students wrote their identity (name/ register number) on the inventory. University examination marks of these 149 students were collected from the office of the controller of examination, Manipal Academy of Higher Education. Computing Z-scores, the marks obtained by first to final year students were standardized. Data was analyzed by computing percentages, mean, standard deviation and correlation coefficient.

RESULTS

Scale scores are summarized in Table 3. The data displayed indicate that deep processing is predominating in our sample with a mean percentage score of 67.92. Regarding various problems experienced by the students, poor perception about academic capability is found to be the major problem with a mean percentage score of 49.36 followed by fear of failure and lack of confidence, non-academic distracters and English language ability (Table 3).

Table 3. Summary of scale scores

Scales (No. of Items)	Mean N=	(S.D) 164	Mean %	Max. Score
DP(8)	27.17	(6.38)	67.92	40
SA (4)	8.28	(3.05)	41.42	20
FF&LC (4)	9.25	(3.14)	46.27	20
PAI (4)	9.87	(2.65)	49.36	20
NAD (6)	12.29	(3.78)	40.97	30
ENG (4)	5.35	(2.31)	26.73	20

Table 4. Correlation between performance and various scales

Corr.	Z-Score (n=149)	DP8 (n=164)	SA (n=164)	FF&LC (n=164)	PAI (n=164)	NAD (n=164)
DP	0.14	1.00				
SA	-0.26**	-0.36***	1.00			
FF&LC	-0.17*	-0.06	0.29***	1.00		
PAI	-0.15	-0.18*	0.46***	0.40***	1.00	
NAD	-0.23**	0.08	0.25***	0.41***	0.33***	1.00
ENG	-0.28***	-0.02	0.17*	0.21**	0.13	0.19*

Pearson's correlation coefficient
*$P<0.05$, **$P<0.01$, ***$P <0.001$

Table 4 shows correlation between performance and various scale scores. Academic performance (Z-score) has shown negative correlation with surface approach, fear of failure and lack of confidence, non-academic distracters and poor English language ability. Deep approach has shown significant negative correlation with surface approach and perceived academic inadequacy. Surface approach has shown significant positive correlation with fear of failure and lack of confidence, perceived academic inadequacy, non-academic distracters and English language ability indicating more surface approach in students with various problems. The problems have also shown significant positive correlation with one another.

Varying percentage of students in this study have reported various academic and non-academic problems. Table 5 shows percentage of students experiencing various problems.

Table 5. Learning Difficulties/Factors Hindering Learning (n=164)

Abbreviated items	%
Academic Problems	
01. Ambiguity about depth of knowledge required in various subjects.	57.9
02. Over loaded feeling by the vast syllabus	49.7
03. Falling short of time to answer all the questions in the examination	39.8
04. Irrelevant topics	19.9
05. Poor teaching.	51.2
06. Inaudible lectures	29.2
07. Difficulty in speaking and expressing in English.	14.5
08. Difficulty in following the varying pronunciation and accent of English	11.5
09. Inability to concentrate during lectures	27.5
Non-academic problems	
10. Inability to adjust to the living environment	28.2
11. Personal /family related problems	28.1
12. Unavailability of healthy food.	56.7
13. Worry about health.	24.0
14. Interference of extracurricular/social activities	21.6
15. Poor financial condition	16.4
16. Studying for the sake of parents	9.7
17. Weak eyesight.	16.4
18. Home sickness	19.9

*Students experiencing the problems always, most often and often were clubbed together to compute the percentage

Discussion

In most health science courses, considerable attention is given to the definition of curriculum content, to the organization of the teaching and to the conduction of assessments and examinations. Little attention has been given to the impact of these activities on the way students learn. A concern for this aspect of the educational effort is essential to help students learn in an effective and efficient manner.

Deep processing is predominate in our sample. Students adopting the deep approach are motivated by an interest in the subject material and /or recognition of its vocational relevance. While studying the subject the intention is to understand its meaning and to relate it to previous knowledge and personal experiences.

Students adopting the surface approach are predominantly motivated by either a desire simply to complete the course or a fear of failure. The intention is to fulfill the course requirements by memorizing and reproducing the material they believe is likely to come up in the assessments. The outcome of surface approach is just a superficial level of understanding. If a learner's intentions and strategies are limited to surface learning, his or her ability to function at more advanced levels, to solve problems, to apply principles and to deal with novel or unanticipated situations is severely limited.[17]

In this study, academic performance has shown significant negative correlation with surface approach and various problems of learners like fear of failure and lack of confidence, non-academic distracters and poor English language ability. The study has demonstrated significant positive association between surface approach and the various problems of the learners. The problems are also found associated with one another. The students have also reported a number of academic and non-academic problems. Academic and non-academic problems can cause fear of failure, lack of confidence and poor perception about their ability which leads to poor study approaches. The extent of influence of these factors depends on personality characteristic of the individual. It is also a component that influences student learning.[18]

A vast syllabus and increased workload leads to anxiety followed by poor study approaches. Test anxious students are prone to adopt surface processing.[18] Meyer and Parsons found association between the workload subscale and reproducing orientation.[19] Entwistle, and Tait reported the association between deep approach and perceptions of relevance and surface approach with a heavy workload.5 Chambers reported that there is close relationship between perceptions of workload and perceptions of difficulty.6 According to him, stress and anxiety due to personal or family related problems also leads to a feeling of overburden.

Ramsden reported that main study orientations depend on students' perceptions of assessment, choice over subject matter and methods of studying it, workload and quality of teaching in academic departments.[3] Anxiety created by insensitive teaching or an over- demanding syllabus, push students towards the surface approach as a coping strategy.

To improve the quality of learning students should be helped to overcome academic and non-academic problems. This study demonstrated correlation between scales representing learning approaches, learners' problems and academic performance. This indicates that in order to help students learn in an effective and efficient manner, we need to review learning environment from the learner's perspective.

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