Approaches to Learning Among Professional Students in Relation to Professional Courses and Academic Achievement

Shelly

Associate Professor Vaishno College Education Thapkour, India

Email: piscesshelly@gmail.com

Paper No: 84   **Received:** 22 July, 2013   **Accepted:** 12 December, 2013

Abstract

The present study attempts to identify approaches to learning among professional students in relation to professional courses and achievement. Approaches and Study Skills Inventory for Students (ASSIST) was used to measure approaches to learning among professional students pursuing their studies in management, computer application, engineering and medical courses. A representative sample of 819 professional students enrolled in third year, 495 males and 324 females, was drawn on random basis while giving due weightage to gender. The results of analysis of variance on the basis of 4x2 factorial design with n=20 in each group revealed that there are significant differences in approaches to learning among professional students. The students of medical course report significantly higher mean deep learning approach than the students of computer application, engineering and management courses. The students of medical course and computer application course report significantly higher mean strategic learning approach score than their counterparts pursuing their studies in engineering and management courses. The students of management course report significantly higher mean surface learning approach score than their engineering, computer application and medical courses counterparts. The professional students with high and average achievement report significantly higher mean deep learning approach score from their counterparts with low achievement. The mean strategic learning approach scores of low achiever professional students are significantly lowest than their average and high achiever counterparts. The low achiever professional students have significantly higher mean surface learning approach score than their average and higher achiever counterparts.

Keywords: Deep Learning Approach, Strategic Learning Approach, Surface Learning Approach, Academic Achievement

How students go about learning is undervalued in higher education and by the time student enter higher education; it is assumed that they have learned how to learn (Murray-Harvey and Keeves, 1994). Institutions of higher education tend to be content driven, and students are expected to have the metacognitive motivation and strategies to direct and manage their learning. However, evidence suggests that, with regard to understanding the nature of knowledge and how to acquire it, students enter post secondary education at a basic level of cognitive development. A quality learning experience in higher education must consider process issues as well as content issues. That is, how students approach their learning should be as much a consideration of effective teaching as are content concerns.

Approaches to learning' has been conceptualized originated from Linnart Svensson's (1977) work referring to the learners' different ways of relating to the learning task. The original concept of approaches to learning was narrowly focused on the task of reading a text. It has since been broadened to include all the different sorts of learning tasks that students carry out. Matron and Saljo (1984) distinguished between learners focusing on the text as such, on the one hand, and which the text was about, on the other hand. Initially, they referred to the distinction as one between surface and deep levels of processing, but later, inspired by Svensson's work, they talked about surface and deep approaches to learning. Further research undertaken by Biggs (1987) extended the definitions to a third approach which is defined as a strategic or achieving approach. Biggs conceptualized 6-factor structure in students' approaches to learning.

Biggs (1987) defines a surface motive (SM) as an instrumental one in which the main purpose is to meet minimum requirements for assessment. Surface strategy (SS) is a reproductive one in
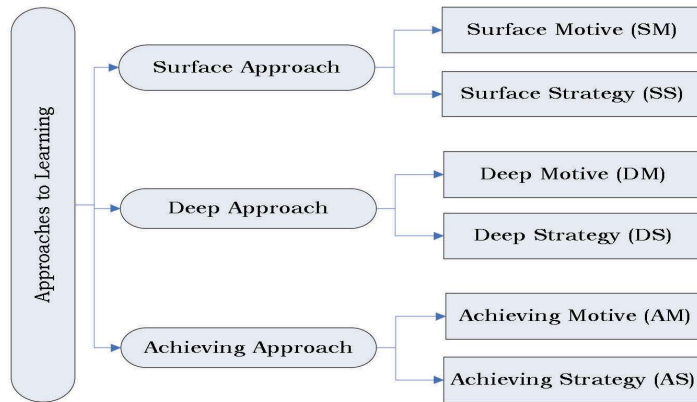
Fig. 1" Biggs' conception of a 6-factor structure in students' approaches to learning.

which the focus is on recalling the essential element of content through rote learning. The superficial approach to learning resulting from this motive – strategy combination is termed as surface approach. A deep motive (DM) by contrast is intrinsic, and meaning oriented. The associated strategy (DS) involves wide reading and an attempt to integrate new material into previous knowledge. The approach to learning resulting from this motive-strategy combination is the deep approach. An achieving motive (AM) is one in which high grades are the goals regardless of their interest level of the material to be learned. The related strategy amounts to being well organized, systematic in the application and conventional in their study skills. An achieving approach (AS) is the result of this combination. (Biggs, 1987).

Approach to learning is "not a relatively fixed entity such as a trait but is malleable" (Duff, 2004). People often believe that an approach is characteristic of a student and there are 'deep' students and 'surface' students. But student learning research shows that students' approaches can vary, a student who takes a deep approach to one subject, or even part of a subject, may take a surface approach in relation to something else (Prosser and Trigwell, 1999). Contextual and relational factors allow learners to adopt different approaches in different situations (Prosser and Trigwell, 1999). It is also true that general tendencies to adopt particular approaches related to the different demands of the courses and previous educational experiences do exist. Variability in approaches thus coexists with consistency. Intrinsic interest in a learning assignment seems to lead to a deep approach, whereas a concern with external demands to a surface one. But interest or intrinsic motivation are themselves related to previous experiences of learning. The approaches to studying that students deploy in higher education are certainly influenced by their experiences of learning in secondary school (Biggs, 1987; Case and Marshall, 2004).

There is evidence of disciplinary variation in approaches to learning (Entwistle and Ramsden,1983; Smith and Miller, 2005). Disciplines

have their own categories of thought, production of knowledge, as well as means of communication and students learn tacitly the norms of their disciplinary culture during their study years (Ylijoki, 2000). Eley (2002) found out that students' approaches to learning differed across different subjects within the same discipline i.e. lower deep and higher surface approaches in accounting compared to business law.

The most significant single influence on students' learning is their perception of assessment (Ramsden, 1987). Research shows that assessment is possibly the most important of all the contextual variables that affect learning approach, as students may adopt their learning approach to suit the assessment structure (Entwistle and Ramsden, 1983). Thomson and Falchikov (1998) argue that a surface approach of cramming seems to be associated with the large number of assessments that are often required of students in higher education courses. Students differ in the approach they take to learning and in the cognitive processes they engage in when performing academic tasks and these differences are of interest because they correlate with differences in the quality of academic outcome (Ng, 2002).

The Problem

There is conflicting evidence about the use of surface and deep approaches by tertiary students. Some of this evidence suggests greater use of deep than surface approaches (e.g., Zeegers, 2001; Gordon and Debus, 2002; Chan, 2003). Other evidence suggests that students in higher education use surface approaches more than deep approaches (Ramsden, 1987; Marton and Säljö, 1997; Zeegers, 2001; Gordon and Debus, 2002). There are other findings suggesting that a deep approach develops over the course of the degree (Eklund-Myrskog, 1997), or emerges in a delayed way towards the end of the degree (Prosser and Trigwell, 1991; Ramsden, 1992; Gordon and Debus, 2002). (Long, 2003) that many students use a combination of both surface and deep approaches.

Yet, there is a paucity of researches which deals with disciplinary variation in approaches to learning. Students who represent sciences or applied sciences are more inclined to adopt a surface approach to learning, Whereas students who represent humanities or social sciences tend to adopt a deep approach to learning (Smith and Miller, 2005). On the contrary there are some studies reported that science student teachers generally have deep learning approaches (Guner, 2008). The students from the Human and Social Sciences scientific domain are more strategic in the way they approach learning and study (Valadas, 2008).

There is plethora of researches undertaken to focus on the relationship between approaches to learning and academic success. Deep approach to study has been consistently identified as being associated with higher academic scores (Byrne et al.,2002). Few authors have found no meaningful relationship between deep

approaches to studying and achievement (Boyle et al., 2003; Minbashian et al., 2004). Strategic approach positively predicted academic achievement either alone or in combination with deep approach (Boyle et al., 2003; Diseth, 2003). However, in contrast to expectations, the strategic approach did not positively predict achievement (Burton and Nelson, 2006). Negative relationships between surface approach and academic achievement have also been found (Boyle et al., 2003).

Keeping in view the importance of discipline and achievement in approaches to learning and also dearth of studies in this vital area of research in Punjab an attempt has been made to investigate the learning approaches among professional students, in the research problem entitled.

Approaches to Learning among Professional Students in Relation to Professional Courses and Academic Achievement

0bjectives

- To study and compare approaches to learning among professional students pursuing their studies in management, computer application, engineering and medical courses in relation to their academic achievement.

- In order to meet the above stated objective following hypothesis are formulated:

Hypotheses

- There will be no significant differences in approaches to learning among professional students pursuing their study in management, computer application, engineering and medical courses.

- There will be no significant differences in approaches to learning among professional students pursuing their study in management, computer application, engineering and medical courses in relation to academic achievement.

Methodology

The descriptive method of research was followed in the conduct of the present study.

Universe and Sample

All the professional students, pursuing their studies in management, computer application engineering and medical courses after secondary education constitute, the universe of the study. There are 117 management colleges, 40 computer application colleges, 48 engineering colleges and eight medical colleges, in Punjab (http//punjabgovt.nic.in 30-12-2009 23:43hrs), No doubt, admission to these courses is both on the basis of merit (either entrance or qualifying examination). The selection of sample was

made on third year students in order to have similarity in the subject' experience of learning in the college/institution, irrespective of their affiliation with universities. Since it was not feasible to cover all the professional colleges of Punjab for data collection, the selection of institution was made on random basis and further a representative sample of 200 students from each of the four groups of professional students was drawn on random basis while giving due weightage to gender.

Research Tool

Approaches and Study Skills Inventory for Students (ASSIST-2000)

The 52-item Approaches and Study Skills Inventory for Students was used to measure deep, strategic and surface learning approaches (Entwistle, Trait and McCune, 2000). The deep approach scale contains four, four-item subscales (seeking meaning, relating ideas, use of evidence, and interest in ideas). The surface approach scale includes four, four-item subscales (lack of purpose, unrelated memorizing, syllabus boundness, and fear of failure). Total scale scores for both the deep and surface learning approaches could theoretically range between 16 and 80. The strategic approach scale consists of five, four- item subscales (organized study, time management, alertness to assessment demands, and monitoring effectiveness). Total scale scores could theoretically range between 20 and 100. Entwistle et al. reported acceptable reliabilities for the deep (=.84), strategic (=.80), and surface (=.87) learning approaches.

Results

The means and standard deviations of deep learning approach, strategic learning approach and surface learning approach among professional groups along with their SDs in 4x3 factorial design (N=20) across professional courses x achievement are provided in table 1.

In order to find out the significance of mean differences between professional courses and achievement on deep learning approach, strategic learning approach and surface learning approach, two way analyses of variance were worked out. The results of which are reported in table 2 respectively.

Deep Learning Approach

The table 1 reveals that students pursuing their study in professional courses namely management, computer application, engineering and medical have mean deep learning approach scores of 61.35, 65.12, 63.52 and 67.77 respectively.

It may be seen from the table 1 that the mean deep learning approach scores of high achiever group of professional students, pursuing their studies in management, computer application, engineering and medical courses turned out to be 64.10, 69.45,

66.65, 70.80, respectively as compared to respective mean scores of 63.35, 66.00, 65.90, 69.25 in case of average achiever group. Whereas for low achiever group of professional students, the mean deep learning approach scores came out to be 56.60, 59.90, 58.00, 63.25 in management, computer application, engineering and medical courses respectively.

It may be noted from the table 2 that the F-value for the main effect of professional courses for deep learning approach in their academic achievement came out to be 13.19, which is significant at .01 level.

This means that professional students pursuing their studies in different courses differ significantly in their approaches to learning. In order to find out which of the differences in deep learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 3.

The perusal of table 3 shows that the students of medical course report significantly higher mean deep learning approach score than the students pursuing their studies in computer application (t=2.52; p<.05), engineering(t=4.04; p<.01), and management courses (t=6.10; p<.01).

It may also be seen from table 3 that the students of computer application course have significantly higher mean deep learning approach score than the students pursuing their studies in management course (t=3.58; p<.01).

It may also observed from table 3 that the students of engineering course scored significantly higher mean deep learning approach score than those pursuing their studies in management course (t=2.06; p<.05).

The table 3 depicts that the students of computer application course having low mean deep learning approach score do not differ significantly from the students of engineering course(t=1.52; p>.05).

It may be noted from the table 2 that the F- value for the main effect of level of academic achievement on deep learning approach came out to be 46.71, which is significant at .01 level.

In order to find out which of the differences of high, average and low achiever in deep learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 4.

Table 1: Means and SDs of Deep Approach, Strategic Approach and Surface Approach among Professional Students in Professional Courses x Achievement (N=240)

Achievement	Approaches to Learning	Professional Courses									
		Management		Computer Application		Engineering		Medical		Total	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
High	Deep Approach	64.10	8.50	69.45	1.67	66.65	4.38	7 70.80	3.71	6 67.75	6.05
	Strategic Approach	76.85	14.29	89.80	1.94	87.15	7.02	9 90.80	4.63	86.15	9.90
	Surface Approach	51.10	12.23	41.90	2.31	43.20	5.64	4 40.75	2.88	44.24	7.98
Average	Deep Approach	63.35	8.14	66.00	3.55	65.90	7.30	6 69.25	3.26	6 66.12	6.23
	Strategic Approach	81.00	9.60	84.80	4.75	80.45	6.88	8 83.80	9.80	82.51	8.09
	Surface Approach	54.25	10.99	47.45	5.53	47.35	6.20	4 47.60	6.34	49.16	8.01
Low	Deep Approach	56.60	5.68	59.90	5.65	58.00	6.66	6 63.25	4.82	5 59.44	6.16
	Strategic Approach	73.65	14.63	76.10	5.33	72.85	8.13	7 78.00	3.68	7 75.15	9.04
	Surface Approach	59.00	7.84	52.20	7.88	55.10	4.30	5 51.95	3.49	5 54.56	6.73
Total	Deep Approach	61.35	8.16	65.12	5.57	63.52	7.30	67.77	5.59	6 64.44	7.10
	Strategic Approach	77.17	13.17	83.57	7.09	80.15	9.33	8 84.20	8.37	81.27	1 10.10
	Surface Approach	54.78	10.84	47.18	7.04	48.55	7.30	4 46.77	6.42	49.32	8.66

Table 2: Summary of Analyses of Variance (Professional Courses x Achievement): Approaches to Learning

Source of Variance	df	Deep Approach			Strategic Approach			Surface Approach		
		SS	MS	F	SS	MS	F	SS	MS	F
Professional Courses (A)	3	1315.51	438.50	13.19**	1917.08	639.03	8.93**	2491.55	830.52	17.19**
Achievement (B)	2	3105.62	1552.81	46.71**	5025.01	2512.51	35.11**	4267.23	2133.62	44.17**
A x B	6	66.97	11.16	0.33	1131.56	188.59	2.64*	162.97	27.16	0.56
Within	228	7578.95	33.24		16315.75	71.56		11012.55	48.30	
Total	239	12067.05			24389.40			17934.30		

*p < .05 **p < .01

Table 3: Matrix of Mean Differences of Deep Learning Approach among Professional Students in Different Courses along with t-values

Different Courses	Medical (67.77)	Computer Application(65.12)	Engineering(63.52)	Management(61.35)
Medical	_	2.65(2.52*)	4.25(4.04**)	6.42(6.10**)
C Computer Application	_	_	1.60(1.52)	3.77(3.58**)
Engineering	_	_	_	2.17(2.06*)
Management	_	_	_	_

Note: Figures in parentheses are t-values,
**p<.01 *p<.05

It may be noted from the table 4 that there is significant mean difference between high achiever professional students (67.75) and low achiever professional students (59.44) in deep learning approach (t=9.12; p<.01).

It may be seen from the table 4 that the mean scores of professional students having average achievement (66.12) differ significantly from those with low achievement (59.44) in deep learning approach (t=7.33; p<.01).

The perusal of the table 4 shows that there is no significant mean difference between high achiever professional students (67.75) with their average achiever counterparts (66.12) in deep learning approach (t=1.79; p>.05).

Table 4: Matrix of Mean Differences of High, Average and Low Achiever Groups of Professional Students in Deep Learning Approach along with t-values

	Achievement		
	High	Average	Low
	Mean (67.75)	Mean (66.12)	Mean (59.44)
High (67.75)	-	1.63 (1.79)	8.31 (9.12**)
Average (66.12)	-	-	6.68(7.33**)
Low (vf59.44)	-	-	-

Note: Figures in parentheses are t-values, **p<.01 *p<.05

The table 2 further indicates that F-value for the interaction effect of professional courses x level of academic achievement came out to be 0.33, which is not significant at .05 level. This implies that significant main effects of professional courses and level of academic achievement on deep learning approach are independent of each other.

Strategic Learning Approach

The table 1 depicts that students pursuing their study in professional courses namely management, computer application, engineering and medical have mean strategic learning approach scores of 77.17, 83.57, 80.15 and 84.20 respectively.

It is also obvious from the table 1 that the mean strategic learning approach scores of high achiever group of professional students, pursuing their studies in management, computer application, engineering and medical courses turned out to be 76.85, 89.80, 87.15 90.80 respectively as compared to respective mean scores of 81.00, 84.80, 80.45, 83.80 for average achiever group. In case of low achiever group of professional students, the mean strategic learning approach scores came out to be 73.65, 76.10, 72.85, 78.00 for management, computer application, engineering and medical courses respectively.

It may be noted from the table 2 that the F- value for the main effect of professional courses in strategic learning approach came out to be 8.93, which is significant at .01 level.

In order to find out which of the differences in strategic learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 5.

The table 5 shows that the students of medical course report significantly higher mean strategic learning approach score than the students pursuing their studies in engineering (2.62; p<.01) and management courses (t=4.56; p<.01).

The table 5 reveals that the students of computer application course scored significantly higher mean strategic learning approach score than the students pursuing their studies in engineering (2.22; p<.05) and management courses (t=4.15; p<.01).

Table 5: Matrix of Mean Differences of Strategic Learning Approach among Professional Students in Different Courses along with t-values

Ddi	Medical (84.20)	Computer Application(83.57)	Engineering(80.15)	Management(77.17)
Medical	_	0.63(0.41)	4.05(2.62**)	7.03(4.56**)
Computer Application	_	_	3.42(2.22*)	6.40(4.15**)
Engineering	_	_	_	2.98(1.93)
Management	_	_	_	_

Note: Figures in parentheses are t-values ,**p<.01 *p<.05

The table 5 further depicts that the mean difference in strategic learning approach between the students of medical course and computer application course (t=0.41; p>.05) and engineering course and management course (t=1.93; p>.05) turned out to be insignificant.

It may be noted from the table 2 that the F- value for the main effect of level of achievement on strategic learning approach came out to be 35.11, which is significant at .01 level.

In order to find out which of the differences of high, average and low achiever groups in strategic learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 6.

Table 6: Matrix of Mean Differences of High, Average and Low Achiever Groups of Professional Students in Strategic Learning Approach along with t-values

	Achievement		
	High	Average	Low
	Mean (86.15)	Mean (82.51)	Mean (75.51)
High High (86.15)	-	3.64 (2.72**)	11.00 (8.23**)
Aver Average (82.51)	-	-	7.36 (5.50**)
Low Low (75.51)	-	-	-

Note: Figures in parentheses are t-values,
**p<.01 *p<.05

It may be seen from the table 6 that the mean difference in strategic learning approach between high achiever professional students (86.15) and low achiever professional students (75.51) turned out to be significant (t=8.23; p<.01).

It may be portrayed from the table 6 that there is significant mean difference between high achiever professional students (86.15) and average achiever professional students (82.51) in strategic learning approach (t=2.72; p<.01).

The perusal of the table 6 shows that the mean difference in strategic learning approach between average achiever professional students (82.51) and low achiever professional students (75.51) turned out to be significant (t=5.50; p>.01).

The table 2 further indicates that F-value for the interaction effect of professional courses x achievement turned out to be 2.64 ,which is significant at .05 level thereby meaning that significant achievement differences in strategic learning approach are dependent on type of courses being pursued by professional students. As evident from Fig. 1, the academic achievement in strategic learning approach turned out to be significant only in case of management students (t=3.75: p<.01).

High achiever professional students have significantly higher mean strategic learning approach score than average achiever
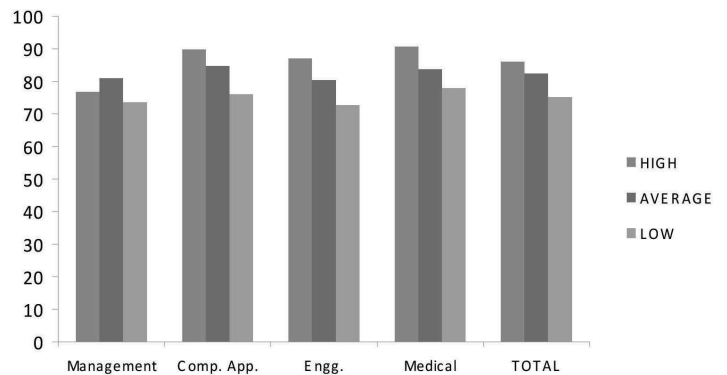

Fig. 2: Comparison of High, Average and Low Achiever Professional Students in Strategic Learning Approach

professional students pursuing their studies in computer application course (t=3.85; p<.01), engineering course (t=3.04; p<.01) and medical course (t=2.89; p<.01).

High achiever professional students have significantly higher mean strategic learning approach score than low achiever professional students pursuing their studies in computer application course(t=10.79; p<.01), engineering course (t=5.96; p<.01) and medical course (t=9.70; p<.01).

Average achiever professional students have significantly higher mean strategic learning approach score than low achiever professional students pursuing their studies in computer application course (t=5.44; p<.01), engineering course (t=3.19; p<.01) and medical course (t=2.48; p<.05). However, in case of professional students pursuing their study in management course. High achiever in comparison to average (t=1.08; p<.05) and low achiever (t=0.70; p<.05) and also average achiever in comparison to low achiever (t=1.88; p<.05) do not differ significantly in their strategic learning approach. It may be noted that achievement wise differentials in strategic learning approach are restricted to computer application, engineering and medical courses and not in case of management course.

Surface Learning Approach

The table 1 represents that students pursuing their study in professional courses namely management, computer application, engineering and medical have mean surface learning approach scores of 54.78, 47.18, 48.55 and 46.77 respectively.

It is also seen from the table 1 that the mean surface learning approach scores of high achiever group of professional students, pursuing their studies in management, computer application, engineering and medical courses turned out to be, 51.10, 41.90, 43.20 40.75 respectively as compared to respective mean scores of 54.25, 47.45, 47.35, 47.60 in case of average achiever group. In case

Table 7: Matrix of Mean Differences of Surface Learning Approach among Professional Students in Different Courses along with t-values

Different Courses	Management(54.78)	Engineering(48.55)	Computer Application(47.18)	Medical(46.77)
Management	–	6.23(4.91**)	7.60(5.99**)	8.01(6.32**)
Engineering	–	–	1.37(1.08)	1.40(0.74)
Computer Application	–	–	–	0.32(0.41)
Medical	–	–	–	–

Note: Figures in parentheses are t-values
**p<.01 *p<.05

of low achiever group of students, the mean surface learning approach scores came out to be 59.00, 52.20, 55.10, 51.95 for management, computer application, engineering and medical courses respectively.

It may be noticed from the table 2 that the F-values for the main effect of professional courses came out to be 17.19, which is significant at .01 level.

In order to find out which of the differences in surface learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 7.

The table 7 shows that the students of management course report significantly higher mean surface learning approach score than the students pursuing their studies in engineering (t=4.91; p<.01), computer application (t=5.99; p<.01) and medical courses (t=6.32; p<.01).

The table 7 reveals that there is no significant mean difference between the students of engineering course and those pursuing their studies in computer application (t=1.08; p>.05) and medical courses (t=0.74; p>.05).

The perusal of table 7 depicts that mean difference between the students of computer application course and those pursuing their studies in medical course (t=0.41; p>.05) turned out to be insignificant.

It may be noted from the table 2 that the F- value for the main effect of academic achievement on surface learning approach came out to be 44.17, which is significant at .01 level.

In order to find out which of the differences of high, average and low achiever groups in surface learning approach are significant t-test was applied. The matrix of mean differences along with t-values is given in table 8.

Table 8: Matrix of Mean Differences of High, Average and Low Achiever Groups of Professional Students in Surface Learning Approach along with t-values

	Achievement		
	High	Average	Low
	Mean(54.56)	Mean(49.16)	Mean(44.24)
Low (54.56)	-	5.40 (4.91**)	10.32 (9.39**)
Average (49.16)	-	-	4.92(4.48**)
High (44.24)	-	-	-

Note: Figures in parentheses are t-values
**p<.01 *p<.05

It may be portrayed from the table 8 that there is significant mean difference between low achiever professional students (54.56) and average achiever professional students (49.16) in surface learning approach (t=4.91; p<.01).

It may be seen from the table 8 that the professional students having low mean achievement score (54.56) differ significantly from their counterparts with high achievement score (44.24) in surface learning approach (t=9.39; p<.01). The perusal of the table 8 shows that the mean difference in surface learning approach between average achiever professional students (49.16) and high achiever professional students (44.24) turned out to be significant(t=4.48; p<.01).

The table 2 further indicates that F-value for the interaction effect of professional courses x level of academic achievement came out to be 0.56, which is not significant at .05 level. This implies that significant main effects of professional courses and academic achievement on surface learning approach are independent of each other.

Conclusion

On the basis of analyses of the variance, following conclusions were drawn:

- The students of medical course report significantly higher mean deep learning approach score than the students

pursuing their studies in computer application, engineering, and management courses. Whereas the students of computer application course and engineering course report significantly higher mean deep learning approach score as compared to their counterparts in management course. The mean deep learning approach score of students of computer application course and engineering course do not differ significantly from each other,

- The students of medical course and computer application course report significantly higher mean strategic learning approach score than the students pursuing their studies in engineering and management courses. There is no significant mean difference in strategic learning approach score of the students of medical course and computer application course and engineering course and management course.

- The students of management course report significantly higher mean surface learning approach score than the students pursuing their studies in engineering, computer application and medical courses. The students of engineering course and those pursuing their studies in computer application course and medical courses do not differ significantly amongst each other in their surface learning approach.

- The professional students with high and average achievement report significantly higher mean deep learning approach score from those students with low achievement. However there is no significant mean difference between high achiever professional students with their average achiever counterparts in deep learning approach.

- The mean strategic learning approach scores of, high achiever professional students are significantly higher than their average and low achiever counterparts and, average achiever professional students are significantly higher than their counterparts low achiever pursuing their studies in computer application, engineering and medical courses.

- Achievement wise differentials in strategic learning approach are restricted to computer application, engineering and medical courses and not in case of management course.

- The low achiever professional students have significantly higher mean surface learning approach score than their average and high achiever counterparts. However the average achiever professional students have significantly higher mean surface learning approach score than their high achiever counterparts pursuing their studies in management, computer application, engineering and medical courses.

Discussion

The professional students pursuing their studies in management, computer application, engineering and medical courses differ in their approaches to learning. The professional students pursuing their studies in medical course and computer application course are more inclined towards deep learning approach and strategic learning approach as compared to their counterparts pursuing their studies in management course. Whereas the professional students pursuing their studies in management course are endorsed more towards surface learning approach. The results get support from the investigations carried out by Booth et al. (1999) who found that Australian university management accounting students had significantly higher surface learning approach scores and lower deep learning approach scores than documented norms for Australian arts, education and science university students. Similarly, Eley (1992) found that Australian university accounting students exhibit higher scores for a surface learning approach and lower scores for a deep learning approach than biochemistry, chemistry and English literature students. In contrary to above results Smith and Miller (2005) found that students who represent sciences and applied sciences are more inclined to adopt a surface learning approach, whereas students who represent humanities or social sciences tend to adopt a deep learning approach. Conversely, Guner (2008) revealed that science student had deep learning approaches.

Results indicates that there is significant relationship between approaches to learning and academic achievement. High achiever professional students are inclined more towards deep and strategic learning approaches. Whereas low achiever professional students are endorsed more towards surface learning approach. The results get support from the investigations carried out by Byrne et al. (2002) who revealed that the deep and strategic learning approaches are positively associated with high academic performance and the surface learning approach with poor academic performance. Similarly, Chan et al. (2006) concluded that academic achievement was positively and significantly related with deep strategy but not with surface strategy. In contrary to above results, Coutiho (2008) found that deep learning approach had a weak and negative relationship with performance. Similarly, Valadas (2008) suggested that the use of deep approach to learning may not result in academic success. Martinsen (2003) revealed that the surface and strategic learning approaches significantly predicted achievement. However, contradictory to the findings of the study Yilmaz and Orphan (2010) found that performance scores of the students did not show statistically significant difference between deep and surface learners.

Implications

- The findings of this study indicate that the professional students pursuing their study in management course are

more inclined towards surface learning approach than their counterparts pursuing their studies in engineering, computer application and medical courses. The teachers need to change the learning approach of students pursuing their studies in management course by minimizing the usage of surface learning approach and developing inclination and interest towards high quality learning namely, deep learning approach.

- Inappropriate assessment procedures discourage positive attitudes towards learning and encourage surface learning approach among students. Educators play an important role in planning assessments to shape student learning. Such assessment items are consistently and explicitly designed to both encourage and reward deep learning approach. Teachers may encourage deep learning approach by including tasks that require a level of critical analysis and synthesis rather than rewarding memorization.

- The professional college experiences must be such that the student develops into somebody, who is interested and capable of independent learning. Learning to learn involves the student acquiring skills and strategies that allow them to learn effectively throughout their lives, i.e. shift from knowledge based educational approaches to process based educational approaches.

- In nut shell, we agree that the overriding purpose of higher education is to foster higher order intellectual capacities in students. Toward this end, we assume it is appropriate to design instructions that include the objective of enhancing student metacognition. Such instructions will include the provision of explicit how-to-learn activities in the classroom to raise student awareness of their own ways of learning. The hard part of teaching is not getting students to learn content: the hard part is getting them how to learn and generate creative solutions. To sum up it is worthwhile to quote

"In our fast changing society we must produce graduates who have learned how to learn and who are capable of continuously adapting themselves to help in the ongoing development of society".

References

Biggs, J.B. 1987. *The Study Process Questionnaire (SPQ): Manual.* Hawthorn Victoria: Australian Council for Educational Research.

Biggs, J.B. 1989. Approaches to the enhancement of tertiary teaching. *Higher Education Research and Development* **8**: 7-25.

Booth, P., Luckett, P. and Mladenovic, R. 1999. The quality of learning in accounting education: The impact of approaches to learning on academic performance. *Accounting Education* **8**: 277-300.

Boyle, E. A., Duffy, T. and Dunleavy, K. 2003. Learning styles and academic outcome: The validity and utility of Vermunt's inventory of learning styles in a British higher education setting. *British Journal of Educational Psychology* **73**: 267-290.

Burton, L.J. and Nelson, L.J. 2006. The relationships between personality, approaches to learning, and academic success in first-year psychology distance education student. *Educational Psychologist* **34**(2):54-67.

Byrne, M. Flood, B. and Willis, P. 2002: The Relationship between learning approaches and learning outcome: A study of Irish accounting students. *Accounting Education* **11**(1); 27-42.

Case, J. and Marshall, D. 2004. Between deep and surface: Procedural approaches to learning in engineering education contexts. *Studies in Higher Education,* 29(5), 605-615.

Chan, K.W. 2003. Hong Kong teacher education students' epistemological beliefs and approaches to learning. *Research in Education* **69**: 36-50.

Chan, K.W. and Lai, P-Y. 2006. Revisiting the trichotomous achievement goal framework for Hong Kong Secondary students: A structural model analysis. Available on-line at *http://www.findarticles.com/p/articles.*

Coutinho, S.A. and Neuman, G. 2008. A model of metacognition, achievement goal orientation, learning style and self-efficacy. *Learning Environments Research* **11**(2): 131-151.

Diseth, A. 2003 : 'Personality and approaches to learning as predictors of academic achievement'. *European Journal of Personality*, 17,143-155.

Duff, A. 2004. The revised approaches to studying inventory and its use in management education. *Active Learning in Higher Education* **5**(1): 56-72.

Eklund, M.G. (1997). The influence of the educational context on nurses' conceptions of learning and approaches to learning. *British Journal of Educational Psychology*, 67, 371-381.

Eley, M.G. 1992. Differential adoption of study approaches within individual students. *Higher Education* **23**: 231-254.

Entwistle, N. and Ramsden, P.R. 1983. *Understanding Student Learning.* London: Croom Helm.

Entwistle, N.J., Tait, H. and McCune, V. 2000. Patterns of response to an approaches to studying inventory across contrasting groups and contexts. *European Journal of the Psychology of Education* **15**: 33-48.

Gordon, C. and Debus, R. 2002. Developing deep learning approaches and personal teaching efficacy within a preservice teacher education context. *British Journal of Educational Psychology* **72**: 483-511.

Guner, T.D. and Rýza, A.A. 2008. Examining learning approaches of science student teachers according to the class level and gender. *Education Review* **5**(12): 54-59.

Long, W.F. 2003. Dissonance detected by cluster analysis of responses to the approaches and study skills inventory for students. *Studies in Higher Education* **28**: 21-35.

Martinsen, O. 2003. Approaches to learning, cognitive style, and motives as predictors of academic achievement. *Educational Psychology* **23**(2): 195 – 207.

Marton, F. and Saljo, R. 1997. Approaches to learning. In F. Marton, D. Hounsell, and N. Entwistle (Eds.), *The Experience of Learning. Implications for Teaching and Studying in Higher Education.* Edinburgh: Scottish Academic Press, 39-59.

Minbashian, A., Huon, G.F. and Bird, K.D. 2004. Approaches to studying

and academic performance in short-essay exams. *Higher Education* **47:** 161-176.

Murray-Harvey, R. and Keeves, J.P. 1994. Students' learning processes and progress in higher education. Available on-line at *http://www.caper.com.au/pages /Murrayharvey CV2006.*

Prosser, M. and Trigwell, K.1999. *Understanding Learning and Teaching: The Experience in Higher Education*. Buckingham: The Society for Research into Higher Education and Open University Press.

Ramsden, P. 1987. Improving teaching and learning in higher education: The case for the relational perspective. *Studies in Higher Education* **12**: 275-286.

Ramsden, P. 1992. *Learning to Teach in Higher Education*. London: Routledge.

Smith, S.N. and Miller, R.J. 2005. Learning approaches: Examination type, discipline of study, and gender. *Educational Psychology*, 25(1), 43-53.

Svensson, L. 1977. On qualitative differences in learning: III-study skill and learning. *British Journal of Educational Psychology* **47**: 233-243.

Thomson, K. and Falchikov, N. 1998. Full on until the sun comes out: The effects of assessment on student approaches to studying. *Journal of Assessment and Evaluation in Higher Education*, **23**: 379-390.

Valadas, S.T. and Goncalves, F.R. 2008. Academic success and competencies for learning in Portuguese higher education students: A quantitative investigation. *Higher Education Research and Development* **5**(2): 185-190.

Yilmaz, M.B. and Orphan, F. 2010. Pre-Service English teachers in blended learning environment in respect to their learning approaches. *The Turkish Online Journal of Educational Technology* 9(1): 157-164.

Ylijoki, O.H. 2000. Disciplinary cultures and the moral order of studying: A case study of four Finnish university departments. *Higher Education* **39**: 339-362.

Zeegers, P. 2001. Approaches to learning in science: A longitudinal study. *British Journal of Educational Psychology* **71**: 115-132.