ORIGINAL ARTICLE

Approach of freshly-inducted medical students towards learning at Bahria University Medical & Dental College

Rehana Rehman,[1] Rakhshaan Khan,[2] Muhammad Arif Akahai,[3] Farheen Hassan[4]

Abstract

Objective: To compare learning approaches of male and female medical students.

Methods: The cross-sectional questionnaire-based study was conducted in March and April 2010 at the Bahria University Medical and Dental College, Karachi, Pakistan. Initially, 100 medical students were enrolled for assessment on the basis of Approaches and Study Skill Inventory for Students. Response to questions was summed up to get scores of subscales, which were then merged to formulate main scales representing learning approaches. Subscales and item responses of both genders were compared by chi-square test on SPSS 15. Results were considered significant at $p<0.05$.

Results: After 2 (2%) dropouts, the sample size stood at 98. Of them, 51 (52%) were girls and 47 (48%) boys. Strategic learning approach was found to be significantly high in females ($p< 0.01$). In subscale analysis, females were better in time management and alertness to assessment demands ($p<0.01$). In item analysis of deep approach, females scored better in seeking meaning and relating ideas ($p<0.04$). However, preferred learning environment to support understanding was found in males ($p<0.04$).

Conclusion: Female medical students in the study were strategic learners, who could manage time with respect to their studies.

Keywords: Learning approaches, Surface apathetic learners, Deep learners, Strategic learners, Learning environment, ASSIST. (JPMA 63: 320; 2013)

Introduction

Approaches to learning may be defined as the behavioural and intellectual responses elicited by students as a result of exposure to a learning situation. The terms "surface apathetic learners" (SAL) and "deep learners" (DL) were coined from the basic idea of observing students and qualitatively identifying two different ways of approaching a reading task: memorise only (SAL) or understanding the text (DL).[1] While investigating the influence of procedures of assessment in learning and studying, it was argued that the interviews used to classify approaches missed a crucial factor of assessment and introduced a third category of learners based on strategic approach (SA). In this category, students monitor efficacy while studying, and give special attention to the assessment system's demands i.e. they apply metacognitive ability by self-regulation of learning.[2]

Many models and measures of learning approaches (LA) and styles have been described in literature.[3] The instruments to study these approaches included Approaches to Studying Inventory (ASI) and the relatively modern Approaches and Study Skills Inventory for Students (ASSIST),[4-6] which has been used to measure learning styles in undergraduate students. It was proposed that the motives actually determined the learning process, i.e. the deep approach (DA) was characterised by an interest in different subjects with the intention to understand, whereas the surface apathetic approach (SAA) involved the intention to accomplish minimum tasks required for the subject of learning only. The motives related to a strategic learner (SL) was found to be a sense of responsibility through him as well as a realisation of the purpose of learning.[7] The SL, therefore, seems to have two focuses of interest, i.e. the academic context (the attribute of a DL) and the demands of the evaluation system.[8] The three trends – DA, SA and SAA – reflect different levels of processing of the learning by the learners. This concept of the difference in LA resulted in the development of a series of self-response inventories to investigate other aspects of learning i.e. motivation of students and learning, concepts with respect to teaching strategies in relation to these approaches.[2]

With the change in power distribution, awareness in subject of science, and increase in trend of females to opt for medical education, gender has become an important presage factor for the selection of different teaching strategies in view of dominant motives and preferred approaches selected by both male and female students. Though it is known that students have a variety of

1,3,4Bahria University Medical and Dental College, (Co mpilation of article, supervision of project). 2Public Health Physician (conception, study design) . 3(A cquisition of Data & Statistics).
Correspondence: Rehana Rehman. Email: drrehana7@gmail.com

learning style preferences,[9] it is not yet examined whether or not gender differences in LA preferences exist among undergraduate medical students. The current study set out to explore, highlight and compare gender differences in LA adopted by medical students.

Subjects and methods

The cross-sectional questionnaire-based study was conducted in March and April 2010 by convenience sampling at the time of admission to Bahria University Medical and Dental College, Karachi. After approval from the Ethics Review Board, all the 100 students enrolled were briefed about the survey, and asked to fill in the close-ended questionnaire on LA (tailored from ASSIST)[5,6] under the supervision of researchers and facilitators. The questions (items) consisted of statements describing what the students usually do when they learn, on a five-point scale (1 = disagree, 2= somewhat disagree, 3=unsure, 4=agree somewhat, 5 = agree). The items were summed up to form subscales and each approach had four or five subscales. DA was obtained by a total of five subscales (20 Items): seeking meaning (SM), relating ideas (RI), use of evidence (UE), interest in ideas (II) and supporting understanding (SU) for teaching preferences. Subscales of SAA included lack of purpose (LP), unrelated memorising (UM), syllabus boundedness (SB), fear of failure (FF), and transmitting information (TI) in preference of learning environment (LE). SA comprised five subscales (20 items): organised studying (OS), time management (TM), alertness to assessment (AA), achievement to motivation (AM) and monitoring effectiveness (ME) (Annexure).

Only complete responses were included and analysed by computer, using SPSS version 15. Scoring of LA was carried out by raw total of item responses of all subscales. Comparison of scales, subscales and item scores was done by application of chi-square test, with results being considered significant at $p<0.05$.

Results

After excluding two incomplete questionnaires, the response rate stood at 98%. Of the total, there were 51 (52.04%) females and 47 (47.95%) males with a mean age of 18±1 years. The premedical background of 84 (85.71%) was Intermediate board and 14 (14.28%) had come from the Cambridge

Table: Comparison of learning approaches in both genders.

Gender	Superficial A Mean±SD	Deep A Mean±SD	Strategic A Mean±SD
Males (47)	68±13.32	82±9.53	77±13.45
Females (51)	69±10.97	80±10.19	79±12.76
P-value	0.124	0.53	0.016

Annexure: Description of items and subscales.

Subscale	Q	Items for deep approach
Seeking meaning	4	I usually set out to understand for myself the meaning of what we have to learn
	17	When I'm reading an article or book, I try to find out for myself what the author means
	30	When I am reading I stop from time to time to reflect on what I am trying to learn from it
	43	Before tackling a problem or assignment. I first try to work out what lies behind it
Relating ideas	11	I try to relate ideas I come across to those in other topics or other courses whenever possible.
	21	When I am working on a new topic, I try to see in my own mind how all these ideas fit together
	33	Ideas in course book or articles often set me off on long chains of thoughts of my own
	46	I like to play around with ideas of my own even if they don't get me very far
Use of evidence	9	I look at the evidence carefully and try to reach my own conclusion about what I'm studying.
	23	Often I find myself questioning things I hear in lectures or read in books.
	36	When I read, I examine the details carefully to see how they fit in with what's being said.
	49	It's important for me to be able to follow the argument, or to see the reason behind things
Interest in ideas	13	Regularly I find myself thinking about ideas from lectures when I'm doing other things.
	26	I find that studying academic topics can be quite exciting at times.
	39	Some of the ideas I come across on the course I find really gripping.
	52	I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them.
Subscale	**Q**	**Items for strategic approach)**
Organised studying	1	I manage to find conditions for studying which allow me to get on with my work easily.
	14	I think I'm quite systematic and organized when it comes to revising for exams.
	27	I'm good at following up some of the reading suggested by lecturers or tutors.
	40	I usually plan out my week's work in advance, either on paper or in my head.
Time management	5	I organize my study time carefully to make the best use of it.
	18	I'm pretty good at getting down to work whenever I need to.
	31	I work steadily through the term or semester, rather than leave it all until the last minute.
	44	I generally make good use of my time during the day.
Alertness to assessment demands	2	When working on an assignment, I'm keeping in mind how best to impress the marker.
	15	I look carefully at tutors' comments on course work to see how to get higher marks next time.
	28	I keep in mind who is going to mark an assignment and what they're likely to be looking for.

	41	I keep an eye open for what lecturers seem to think is important and concentrate on that.
Achievement motivation	10	It's important to me to feel that I'm doing as well as I really can on the courses here.
	24	I feel that I'm getting on well, and this helps me put more effort into the work.
	37	I put a lot of effort into studying because I'm determined to do well.
	50	I don't find it at all difficult to motivate myself.
Monitoring effectiveness	7	I go over the work I've done carefully to check the reasoning and that it makes sense.
	20	I think about what I want to get out of this course to keep my studying well focused.
	34	Before starting work on an assignment or exam question, I think first how best to tackle it.
	47	When I have finished a piece of work, I check it through to see if it really meets the requirements

Subscale	Items for surface apathetic approach	
Lack of purpose	3	Often I find myself wondering whether the work I am doing here is really worthwhile.
	16	There's not much of the work here that I find interesting or relevant.
	29	When I look back, I sometimes wonder why I ever decided to come here.
	42	I'm not really interested in this course, but I have to take it for other reasons.
Unrelated memorising	6	I find I have to concentrate on just memorising a good deal of what I have to learn.
	19	Much of what I'm studying makes little sense: it's like unrelated bits and pieces.
	32	I'm not really sure what's important in lectures, so I try to get down all I can.
	45	I often have trouble in making sense of the things I have to remember.
Syllabus boundness	12	I tend to read very little beyond what is actually required to pass.
	25	I concentrate on learning just those bits of information I have to know to pass.
	38	I gear my studying closely to just what seems to be required for assignments and exams.
	51	5I like to be told precisely what to do in essays or other assignments.
Fear of failure	8	Often I feel I'm drowning in the sheer amount of material we're having to cope with.
	22	I often worry about whether I'll ever be able to cope with the work properly.
	35	I often seem to panic if I get behind with my work.
	48	Often I lie awake worrying about work I think I won't be able to do.

system. Of the 14 who did O level, 4 (28.57%) did A level while 10 (71.42%) joined the local stream. In item analysis of DA, seeking meaning (Q17), females tried to find the meaning of an article or book themselves ($p<0.04$). Relating ideas (Q46) ($p<0.04$), females played around with ideas of their own. In use of evidence (Q23), females questioned things heard in lectures or read in books ($p<0.02$). They showed an interest in ideas given in lectures (Q 13) ($p<0.007$).

In item analysis of SA, time management (Q31), females worked steadily through the term or semester rather than leave it all until the last minute ($p<0.05$). In alertness to assessment demands (Q2), while working on an assignment, they kept in mind the need to impress the marker ($p<0.04$). In the same subscale (Q41), females kept an eye on what lecturers seemed to think was important and concentrated on that ($p<0.02$). Achievement to motivation results (Q50) discovered motivation in females more than the males ($p<0.03$). No significant results were seen in comparison between genders in item analysis of SAA.

In subscale analysis, females showed alertness to assessment demands ($p<0.01$), while males preferred an LE which encouraged understanding ($p<0.04$).

Scale comparison (LA) as an aggregate in both genders (Table); suggested that females were strategic learners ($p<0.01$), while there was no significant difference detected in SAA and DA.

Discussion

Students come to medical colleges from varied ethnic and cultural backgrounds, from a multitude of training programmes and institutions with differing learning styles[10] requiring a compatible teaching methodology to accommodate them. Best practice, most likely, involves a teaching paradigm which addresses and incorporates multiple dimensions of LA that are destined to build self-efficacy.[11] These approaches are not actually the individual characteristics of the learners, but are influenced by personal experiences, teaching strategies used, and methods for assessment in the context of learning. In view of this, learning can be better facilitated if instructors are aware of their teaching styles as well as the LA of students so as to create an LE best suited for the learners. Keeping this perspective, ASSIST was selected to obtain information about learning characteristics of undergraduate medical students, relationships between approaches to studying and perceptions of LE.[12,13]

The comparison of cognitive abilities of both genders is a never-ending debate. Although they exhibit distinct characteristics, it is proposed that girls and boys are equal intellectually, if left alone. Females, however, exhibit conceptions of knowledge, facts and learning in their intellectual development that is qualitatively different from males.[14] At the same time, they lag in classroom confidence, logical approach and group dynamics compared to males with less number of role models available in their respective field. Males prefer rational

appraisal with use of common sense, whereas females use "elaborative" processing with personal relevance and individual links with the material being taught.[15]

The SAA, which is associated with heavy workload, extensive course material, limited time to pursue subjects in depth, limited choice over study topics, and an assessment system that tests the reproduction of factual information only,[3] was adopted equally less by both male and female students. The SA provides an insight of subject in addition to time management, organisation of study, alertness to assessment, and monitoring studying forms basis of learner centered approach. This approach was found to be greater in females; they organised their time to study in accordance with the assessment demands. Results were similar to an earlier study[16] which found that females tend to adopt tactical approach to learning (SA), while males prefer to use evidence in support of understanding (DA). In another study, National University of Singapore students' score on deep strategies was lower in females as they found difficulty in abstract conceptualisation, elaborative processing and relating course material to their personal experiences.[15]

Gender exhibited a statistically significant effect on the preference of the type of teacher, where the males preferred a teacher who supported understanding, and females preferred passive transmission of information. Our results are similar to a study[17] in which pre-clinical male students preferred teachers who supported understanding compared to females. However, as a result of exposure to student-centered LE, both genders preferred a teaching style which supported understanding during clinical teaching.

One way to improve student motivation and performance is to adapt teaching approaches to meet the different learning style preferences of both male and female students.[9] As these approaches are not a fixed attribute of the learner, but a function of both learner characteristics and the teaching factors, as outlined by 3P model[18] in which task Processing by all students is based on interactions of the teaching and learning context (Presage) to synthesise Product in the form of a meaningful and desirable learning outcome. The awareness of LA may possibly motivate teachers to move from their preferred methods to those which are liked by students for better learning. Recognising individual's strengths and preferred learning style in this process will thus allow facilitation of the learning process for the achievement of better learning outcome. Self awareness of individual LA at the same time may help students to evaluate and modify their own behaviour.

Conclusions

Female medical students were found to be strategic learners, while male students preferred a learning environment that encourages understanding. There is a need for student-focused/conceptual change-based paradigm in contrast to the dissemination of information in a teacher-centered fashion. There is also a need to encourage and motivate students towards learning with understanding for improvement in the overall learning outcome.

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