

A Survey on Study Habits of Medical Students in Shiraz Medical School

الدراسة الإحصائية للدراسات الطبية عند طلاب كلية الطب في جامعة شiraz الطبية

Background: Study habits and skills are very important particularly in medical school which is characterized by heavy workload, heavy time commitments, and high stakes assessments. Students' approach to learning, which includes study habits, has an important impact on both the excellence of the learning and their academic success. The aim of this study was to evaluate the study habits of Shiraz medical students.

Methods: In this descriptive cross sectional study Persian version of Approaches to Study Skills Inventory for Students (ASSIST) was distributed randomly among 265 Shiraz medical students in May 2010. Total completed questionnaires were 193 (72.83%). data was analyzed using SPSS 18.

Results: The results showed that most of the students use deep approach towards their studies (89.4%) and some use strategic approach (72.7%) but score was relatively low for surface approach (69.8%). There was no statistic relationship between gender and deep or surface approach that they adopted but there was statistically positive relationship between gender and strategic approach that they adopted with males good in adopting strategic approach. No statistical relationship was detected between educational level and deep approach but analysis detected a statistically positive relationship between the level of education and both surface and strategic approaches. Non clinical students adopted strategic approach whereas clinical students adopted surface approach towards their studies. No relationship was detected between place of living and approaches that they adopted.

Conclusions: Our finding suggests that there is an overlap correlation between learning approaches adopted by students in different situations. Moreover the finding showed that with increase in educational level there is a trend toward surface approach. Therefore, the adoption of factors which foster deep approaches and activities which increase students' interest should be strongly emphasized.

Keywords: Learning; Deep Approach; Strategic Approach; Surface

التعليق: إن العادات و الأساليب و المبررات لها أهمية بالغة خصوصاً في كلية الطب التي تصنف بالعمل المجهود و قلة الوقت و دعوات التخييم المسددة. توجه الطلاب لتعلم الذي يتضمن المداومة على الدرس له تأثير على تميز في الدراسة و النجاح الأكاديمي. يستخدم الطلاب ثلاث أساليب في دراستهم وهم المقاربة السطحية و المقاربة العميقة و الإستراتيجية. الهدف من هذه الدراسة هو تقييم قدره المداومة على الدرس عند الطلاب مما يمكن ان يعطى فرص للطلاب الطب لتطوير طرق تحسن مستوى دراستهم.

الأطلوب: في هذه الدراسة المقطعية - التوصيفية تم توزيع النسخة الفارسية ل (ASSIST) على 265 طالب طب في جامعة شيراز بشكل عشوائي في شهر ايار سنة 2010 و كان الطلاب من مختلف المستويات الطبية (من السنة الاولى حتى السابعة). تم ارجاع 193 استمارة كاملة الاجابة أي 72.83% و تم التحليل عبر برنامج SPSS الإحصائي و طريقه Chi-Square الإحصائية.

الاستنتاج: اظهرت النتائج أن معظم الطلاب يستخدمون المقاربة المتعمقة 89.4% و البعض يستخدم المقاربة الإستراتيجية 72.7% و لكن المجموع كان منخفضاً نسبياً بنسبته الى المقاربة السطحية 69.8%. لم يكن علاقة احصائية بين جنس الطالب و المقاربات السطحية و التعميق و لكن كان هناك تمة علاقة احصائية ايجابية بين الجنس و الدراسة الإستراتيجية التي تميزها الذكور على الأناث. لم يسجل علاقة احصائية بين المرحلة الدراسية و المقاربة العميقة و لكن تمة دراست اظهرت علاقة احصائية ايجابية بين مستوى الدراسة من جهة و المقاربة السطحية و الإستراتيجية من جهة أخرى. لم يلاحظ استخدام المقاربة الإستراتيجية من قبل طلاب المرحلة العملية بين ما لوحظ استخدام المقاربة السطحية في دراستهم.

النتيجة: النتائج اظهرت تماثل بين المقاربات الثلاثة المستخدمة من قبل الطلاب في حالات و كما اظهرت أن مع ارتفاع المستوى الدراسي يتوجه نحو المقاربة السطحية. و بتالي يجب التركيز على العوامل التي تساهم في تقوية المقاربة العميقة و الأعمال التي تشوق الطلاب الى الدراسة.

الكلمات الرئيسية: طلاب، تعلم، المقاربة العميقة، المقاربة الإستراتيجية، المقاربة.

شیراز میڈیکل یونیورسٹی میں طلباء کی تعلیمی عادتوں کا جائزہ.

بررسی عادات مطالعه دانشجویان پزشکی دانشکده پزشکی شیراز

زمینه و هدف: مهارت‌ها و عادت‌های مطالعه بالخصوص در دانشکده‌های پزشکی بسیار مهم هستند که با بار کاری سنگین، تعهدات زمانی سنگین و ارزیابی مخاطرات فراوان مشخص می‌شوند. نگرش دانشجویان به یادگیری که شامل عادت‌های مطالعه می‌باشد اثرات مهمی روی برتری یادگیری و موفقیت‌های علمی آنها دارد. هدف از این مطالعه ارزیابی عادت‌های مطالعه در دانشجویان پزشکی شیراز بود.

روش: در این مطالعه مقطعی، مدل فارسی نگرش مطالعه به مهارت‌های اکتشافی دانشجویان، بطور تصادفی بین 265 دانشجوی پزشکی توزیع گردید. کل پرسشنامه‌هایی که تکمیل گردید 193 (72.83%) بود. داده‌ها با استفاده از نرم افزار آماری SPSS 18 آنالیز گردید.

یافته ها: نتایج نشان داد بیشتر دانشجویان از نگرش عمیق در مطالعه خود استفاده می‌نمایند (89.4%) و برخی از نگرش استراتژیک بهره می‌برند (72.7%) اما نمره نگرش سطحی به مطالعه کمی کمتر بود (69.8%). ارتباط معنی داری بین جنسیت و نگرش سطحی و عمیق به مطالعه وجود نداشت، اما از نظر آماری ارتباط مثبت بین جنسیت و نگرش استراتژیک به مطالعه وجود داشت که مردان نسبت به زنان وضعیت بهتری داشتند. هیچ ارتباط آماری بین سطح آموزش و نگرش عمیق به مطالعه وجود نداشت اما آنالیزها نشان داد که ارتباط آماری مثبت بین سطح آموزش و هر دو نگرش سطحی و استراتژیک وجود دارد. دانشجویان مقطع غیر بالینی نگرش استراتژیک داشتند در حالیکه دانشجویان مقطع بالینی نگرش سطحی به مطالعه داشتند. هیچ رابطه آماری معنی داری بین محل زندگی و نگرش‌های مختلف به مطالعه مشاهده نشد.

نتیجه گیری: یافته‌ها نشان داد که یک رابطه همپوشانی بین نگرش‌های یادگیری در دانشجویان با وضعیت‌های مختلف وجود دارد. علاوه بر این با افزایش سطح آموزش گرایش به نگرش سطحی وجود دارد. بنابر این، پذیرفتن فاکتورهایی که فعالیت‌ها و نگرش‌های عمیق را تقویت می‌کند باید به شدت مورد تأکید قرار گیرد.

واژه‌های کلیدی: یادگیری، نگرش عمیق، نگرش استراتژیک، نگرش سطحی

یک گرانته: طبی یونیورسٹیوں میں طلباء کی تعلیمی عادتوں اور مہارتوں کا جائزہ لینا نہایت ضروری ہوتا ہے کیونکہ ان طلباء کو تعلیم اور علمی کام سے فرصت نہیں ملتی اور ہمیشہ مشغول رہتے ہیں۔ تعلیمی عادتوں کا اثر تعلیمی کیفیت اور مستقبل کی عملی زندگی پر نہایت اہمیت رکھتا ہے۔ طلباء عام طور سے تین طرح سے تعلیم حاصل کرتے ہیں یا بڑی گہرائی سے پڑھتے ہیں یا سطحی پڑھائی کرتے ہیں یا پھر تعلیم کو اپنا اسٹریٹیجک ہدف بنالیتے ہیں۔ اس تحقیق کا مقصد شیراز طبی یونیورسٹی کے طلباء کی تعلیمی عادتوں کا جائزہ لینا ہے۔

روش: اس تحقیق میں شیراز طبی یونیورسٹی کے طلباء کو تمام سطوح پر سوالنامے دئے گئے اور ایک سو ترائوے طلباء نے ان سوالناموں کو پر کرکے واپس کیا۔ ان سوالناموں کا تجزیہ ایس پی ایس ایس سافٹ ویئر سے کیا گیا۔

نتائج: اس تحقیق سے پتہ چلا ہے کہ زیادہ تر طلباء نواسی فیصد، گہرائی سے تعلیم حاصل کرنے کو ترجیح دیتے ہیں اور اسٹریٹیجک ہدف کے تحت بھی طلباء کی ایک بڑی تعداد تعلیم حاصل کرتی ہے۔ بہتر فیصد۔

سفرشات: اس تحقیق سے پتہ چلا ہے کہ طلباء جیسے جیسے اونچی کلاسوں میں پہنچتے لگتے ہیں گہرائی سے تعلیم حاصل کرے کی روش سے دور ہوتے جاتے ہیں اور سطح روش اپنانے لگتے ہیں لہذا یہ سفرش کی جاتی ہے ایسی روشیں اپنائیں جاتیں جن سے طلباء کی دلچسپی میں مزید اضافہ ہو اور وہ گہرائی سے تعلیم میں دوبارہ دلچسپی لینے لگیں۔

کلیدی الفاظ: گہرائی سے تعلیم حاصل کرنا، سطحی تعلیم۔

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INTRODUCTION

What we learn depends on how we learn, and why we have to learn it (1). Students learn in different ways, some of which may be more appropriate than others. The approach students choose appears to be a central factor in determining both the quality and quantity of their learning (2). Learning and teaching processes contain active cooperation and interaction between student and educator (3). The students' approach to learning, which includes study habits, has been shown to predict the students' success (4). Good study habits make the job of being a college student much easier. Many students, who could succeed in university, fail because they never learned to manage their time efficiently. Good study habits result in better grades and more time for other activities. Even the best students can usually benefit from an in-depth evaluation of their current study habits. Of course there are many ways to achieve academic success, but your approach may not be the most effective or efficient (5). Academic success for the student may encompass goal setting, proper time management, study skills, and their preferences for a particular style of learning. A student learning style determines how that person comprehends and retains information and is important for the student and educators (6). The approach students' use in their study has a significant impact on both the quality of the learning and their academic success and plays an important role in determining the outcome of any educational endeavor (7, 8). Learning styles influence the maintenance of information and the depth of understanding (9). Fielden states that good study habits help the student in critical reflection in skills outcomes such as analyzing, critiquing, and synthesizing (10). Nneji states that study habits are learning tendencies that enable students work privately (11). Azikiwe describes study habits "as the way a student plans his or her reading outside lecture hours in order to master a particular subject or topic". Study habits help students master their areas of specialization (12).

Many students entering university do not always have the necessary skills to deal with the challenges of the new learning environment. Ultimately, their success or failure within university courses can be determined by their skill to choose the most appropriate strategy within a particular learning situation. This might, for example involve working within a group to get ready for an oral presentation on a given topic or studying for a multiple choice question test. Each requires a different set of skills (13).

Students also come into universities with different attitudes about what learning itself really means. When adults from a range of ages and educational backgrounds are asked to explain what they understood by "learning," a series of contrasting conceptions are found which can be seen as a hierarchy, increasing in both sophistication and complexity (1).

Three basic study approaches have been identified as: surface, deep and strategic, each resulting in different learning outcomes. The most advantageous and successful is the deep study approach. A student with a deep approach seeks to understand, relates new ideas to previous knowledge, relates concepts to experience, examines the logic of the argument and uses evidence critically. In a

surface approach, the student's intention is to complete the task, memorize information and focus on individual points, without recognizing the wider context or reflecting on the process or the purpose of study. They also tended to use rote learning in an attempt to remember the facts they thought they might be required to reproduce at the end of the exercise. Such students have fear of failing and lack motivation. Student adopting a strategic approach organize their work, manage time well, and aim specially to pass assessments (14).

Students adopting the surface study approach are mainly motivated by either a wish simply to complete the course or a fear of failure. The intention is to complete the course requirements by memorizing the material they believe will possibly come up in the final assessments. In contrast, students adopting the deep approach are predominantly motivated by paying attention to the subject material and / or appreciation of its professional relevance. While studying the subject their aim is to understand its meaning and to relate it to previous knowledge and personal experiences. The third approach is the strategic one, students for whom the major motivation is achievement of high grades. They are motivated by a sense of competition. Their main intention is to be successful and is prepared to use whatever means necessary. At any one time they might elect to use a surface approach or a deep approach depending on what they feel would produce the most successful results. (2)

Each of the learning approaches surface, deep and strategic are reflected in characteristic intellectual processes that are used by the students as they set about their learning task. These are by no means simple, as students in each main category may operate in different ways. These processes have a considerable importance because they appear to be related directly to the quality of learning outcome.

In 1999, Chou et al. evaluated the effects of learning approaches on academic achievement of Taiwanese college accounting students. Their result showed that Taiwanese accounting students tend to display moderate uses of deep processing. They show slightly more signs of surface processing, and fear of failure (15).

In year 2007 Jonas- Dwyer and Sudweeks at University of Western Australia and Murdoch University Perth conducted an exploratory study of students' approaches to studying histology and pathology. Results indicated that one third of the students (31%) changed their learning approach from deep approach to either a strategic or surface approach. There was an 11% increase in the strategic approach and 20% increase in the surface approach. (16).

In December 2003 Siddiqui investigated study approaches of Pakistani students in tertiary institution using revised version of Biggs Study Process Questionnaire (R-SPQ-2F). The results showed that the students predominantly have higher score on deep approach. No statistically significant difference was observed on the basis of age, gender and highest qualifications obtained but differ significantly for various fields of study (17).

In year 2003 Mansouri, Soltani et al. investigated the approaches to the learning of midwifery and nursing students at School of Nursing and Midwifery in Shiraz Iran. The result showed that rate of nursing students adopting the deep approach was high (64%). This result for midwifery

students was also high (63%) (18).

METHODS

In this cross sectional, descriptive study questionnaires were distributed randomly among 265 medical students of Shiraz medical school in May 2010. The sample size was determined by Krejcie and Morgon table of research activities. The questionnaires were distributed randomly among students studying in different educational levels from the first year to seventh year. A total of one hundred ninety three questionnaires were returned back and analyzed in this study.

The Approaches and Study Skills Inventory for Students (ASSIST) was used to identify students' preferred approaches for studying. The ASSIST is based on Marton and Saljos ideas on approaches to learning (1976-1997) and developed by Tait, Entwistle and McCune in 2000 (19). The ASSIST was previously known as the Approaches to Study Inventory (ASI) but developed over time to Revised Approaches to Study Inventory (RASI) and then the ASSIST. ASSIST is a self-report questionnaire containing 52 items, each of which scored on five-point Likert-type scale ranging from 1 (disagree), 2 (disagree somewhat), 3 (unsure), 4 (agree somewhat) and 5 (agree). The 52 items are grouped into three factors: 16 items represent the deep approach, 16 represent the surface approaches, and 20 represent the strategic approach to learning. The inventory was translated into Persian by experts of English language. The content validity of the Persian translation of inventory was checked by experts and its reliability was checked by pilot study.

The first part of the questionnaire included a number of questions about demographics of the respondents, age, sex, year of entrance into the medical school, and level (year) of education.

The responses to 52 inventory items were categorized into deep, strategic or surface approaches according to the guidelines supplied with the inventory. Accordingly, those who achieved the highest score in 16 particular items were using deep approach, those who achieved the highest score in another 16 items were using surface approach, and those who achieved the highest score in the remaining 20 items were using strategic approach. The ranking from each questionnaire as well as demographic information were entered into statistical program for data analysis. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 16 for window. Descriptive statistics like means, percentages and Chi-square significance test were used in the analysis. A probability value of <0.05 was considered significant.

RESULTS

In this study a translated version of ASSIST was distributed among 265 medical students studying in different educational years. Out of 265 questionnaires distributed 193 questionnaires were completed and returned back giving a response rate of 72.83%. Among 193 students seventy (36.30%) were male and one hundred twenty three (63.7%) were female with ages ranging from eighteen to twenty seven years (mean age 23.27 + 2.216 years).

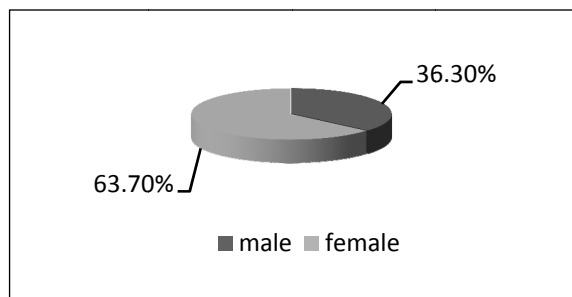


Figure 1. The percentage of male and female students

Basic science students were forty two (21.8%), physiopathology student were twenty one (10.9%), students were thirty three (17.1%), externs were forty (20.7%) and interns were fifty seven (29.5%). These students were further categorized into two groups; clinical and non clinical group. Therefore clinical students were one hundred thirty (67.3%) and non clinical basic science students were sixty three (31.7%).

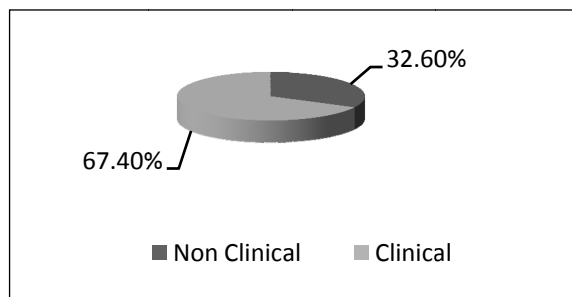


Figure 2. The percentage of Clinical and non clinical students participated in this study

One hundred eight (56%) students were living in dormitory and eighty five (44%) were living outside dormitory in rented houses alone or with family and friends.

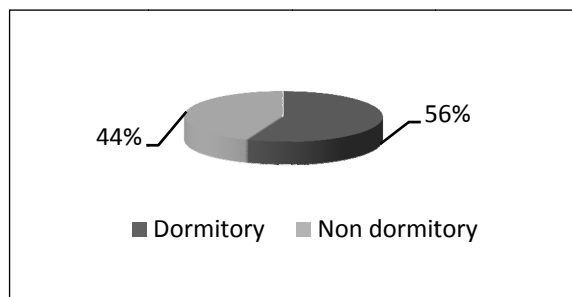


Figure 3. The percentage of dormitory and non dormitory students

It was seen that the age of students in each educational level was almost in the same range giving the same results on the basis of age and educational level so only educational level was taken into consideration.

The number and percentage of medical students adopting

and not adopting deep, strategic, and surface approaches are presented in table 1.

The rate of medical students adopting deep approach was high (89.4%).

In this study 123 females and 70 males participated using different approaches towards their studies. The frequency of students who adopt deep & strategic approach and those who don't adopt deep & strategic is shown in table 2.

Statistical analysis revealed no statistically significant positive relationship between gender and deep approach as $P > 0.05$.

Statistic analysis revealed a statistically significant positive relationship between gender and strategic approach as $P < 0.05$.

Males are better at using strategic approach than females.

The frequency of females and males using surface approach towards their studies and those who don't use surface approach are represented in the table 3. The statistical analysis does not reach a statistical significance.

A total of 193 students who participated in this study categorized into clinical and non clinical basic science students on the basis whether they have joined their clinical

course in hospitals or not. Out of 193 students 130 (67.3 %) were clinical and 63 (31.7 %) were nonclinical. The frequency of both groups using deep and strategic approach towards their studies is shown in table 4.

Statistical analysis did not detect a relationship between clinical and using non clinical students adopting deep approach as $P > 0.05$.

Statistical analysis revealed a statistically significant positive relationship between clinical and non clinical basic science students in their use of strategic approach ($P < 0.05$). Non clinical students manage their studies with strategic approach more successfully than clinical students.

Now the frequency of clinical and non clinical medical students who used surface approach is shown in table 5.

Statistical analysis revealed a statistically significant positive relationship between clinical and non clinical students and surface approach adopted by them ($P < 0.05$). Clinical students used surface approach more than non clinical students.

Statistical analysis revealed a statistically significant positive relationship between clinical and non clinical students and

Table 1. The Number and Percentage of Medical Students using and not using Deep, Strategic and Surface Approaches

Approaches	Deep Approach		Strategic Approach		Surface Approach	
	Using	Not using	Using	Not using	Using	Not using
Students	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
	168 (89.4)	20 (10.6)	136 (72.7)	51 (27.3)	134 (69.8)	58 (30.2)

Table 2. The Frequency of students using and not using deep approach by gender

Students	Approaches					
	Deep Approach		P Value	Strategic Approach		P Value
	Not using	Using		Not using	Using	
	N (%)	N (%)		N (%)	N (%)	
Female	14 (11.6)	107 (88.4)	0.57	39 (33.1)	79 (66.9)	0.02
Male	6 (9.0)	61 (91)		12 (17.4)	57 (82.6)	

Table 3. The Frequency of students using and not using surface approach by gender

Students	Approaches		
	Not using surface approach	Using surface approach	P Value
	N (%)	N (%)	
Female	43 (35)	80 (65)	0.056
Male	15 (21.7)	54 (78.3)	

surface approach adopted by them ($P < 0.05$). Clinical students used surface approach more than non clinical students. Out of 193 students who participated in our study 108 (56%) lived in university dormitory and 85 (44%) lived outside dormitory. The frequency of students who used deep and strategic approaches and those who didn't use these approaches on the basis of place where they lived is presented in table 6.

Statistical analysis did not reveal any statistical relationship between the place where students lived and deep approach they adopted.

No statistically significant relation was detected between places where students lived and strategic approach that they used ($P > 0.05$).

The frequency of students using surface approach and the place where they lived is shown in table 7.

Table 4. The frequency of clinical and non clinical students using and not using deep & strategic approaches						
Students	Approaches		P Value	Approaches		P Value
	Not using deep approach	Using deep approach		Not using strategic approach	Using strategic approach	
	N (%)	N (%)		N (%)	N (%)	
Non clinical	7 (11.1)	56 (88.9)	NS	10 (16.9)	49 (83)	0.031
Clinical	13 (10.4)	112 (89.6)		41 (32)	87 (68)	

NS denotes not significant.

Table 5. The frequency of clinical and non clinical students using and not using surface approach			
Students	Approaches		P Value
	Deep	Strategic	
	N (%)	N (%)	
Non clinical	25 (40.3)	37 (59.7)	0.035
Clinical	33 (25.4)	97 (74.6)	

Table 6. The frequency of students using and not using deep and strategic approaches on the basis of their place of living						
Students	Deep Approach		P Value	Strategic Approach		P Value
	Not using	Using		Not using	Using	
	N (%)	N (%)		N (%)	N (%)	
Dormitory	12 (11.5)	92 (88.5)	0.656	29 (27.9)	75 (72.1)	0.833
Non Dormitory	8 (9.5)	76 (90.5)		22 (26.5)	61 (73.5)	

Table 7. The frequency of students using and not using surface approach on the basis of their place of living			
Students	Approaches		P Value
	Not using surface approach	Using surface approach	
	N (%)	N (%)	
Dormitory	35 (32.7)	72 (67.3)	0.397
Non Dormitory	23 (27.1)	62 (72.9)	

There was no statistical relationship detected between the place where the students lived and the surface approach ($P > 0.05$).

DISCUSSION

The result of current study provided us with a better understanding of Shiraz medical students study habits. The results also yield insights into the relationship between different study approaches used by the students and their gender, educational level, and the place where they lived. The main finding of this study was that most of the students used deep approach towards their study (89.4%). Some of the students used strategic approach (72.7%), surface approach used was relatively low (69.8%). It is encouraging to see that students' scores are high in the case of deep approach. The adoption of deep approach by the students in this study might be related to their internal motivation and their interest in this field, what else is the reason for their preference to deep approach needs to be studied comprehensively.

In 2006 a study was performed by Siddique in Pakistan in which approaches of students in Pakistan were evaluated in 15 higher educational centers across Pakistan. They reported that their highest score for surface approach might be due to their old fashion teaching practices which are still based on traditional models of teacher-centered learning. Their examination system does not take higher cognitive skills into account although they are more inclined towards the reproduction of facts (17).

In 2005 a survey was done in University of Edinburgh Medical School U.K by Reid, Durall and Evans to study medical students' approaches to learning. They used ASSIST as their instrument. Their results were similar to ours with deep and strategic approaches scoring high and surface learning scoring low (14). In 2005, another study was conducted among nursing and midwifery students in Shiraz Iran by Mansouri, Soltani, Rahemi et al. Their study was also in favor of deep approach (18).

In the present study there was no statistically significant difference between adopting deep approach by students and their gender but there was a statistically significant positive relationship between gender and strategic approach that they adopted. Male students were better at using strategic approach than female. The characteristic features of students adopting a strategic approach are that they are efficient in organizing their work and managing their time, and working hard in their studies. They were concern about their working conditions and had clear objectives for their studies. The strategic approach is also known as "Achieving Orientation". Achieving motive of this approach is based on competition: to get the highest grades, whether or not the material is attractive (20). There is accumulating evidence that overloaded syllabuses, limitation of time, particularly in the applied sciences, lead to student coping with strategies that inhibit high quality learning (1). Students who adopt a strategic approach to learning are able to use deep or strategic approach at any moment to reach their objectives. Considering the fact that these types of students are able to use a deep approach as well, they should have had a higher level of interest in their field compared with students who used a surface approach alone (2).

According to our result that male students are good at strategic approach, meaning that male students are good at managing their time, they are more goal-oriented, study with strategies and aim in mind, are flexible in learning and study harder. So male students better know how to be competitive and attain highest possible grades in their exam. On the basis of level of education no statistically significant relationship was detected between clinical and non clinical students and deep approach that they adopted but there was statistically positive relationship between clinical and nonclinical students and strategic approach. Non clinical students manage their studies with strategic approach more successfully than clinical students. Non clinical students being better at strategic approach might be due to their aim of attaining high grades. When medical students are qualified in passing medical entrance examination they are competitive and maintain their competitiveness in first few years of their course. They work hard not to ensure understanding but to ensure that their marks are sufficiently high. The other possible reason might be overloaded syllabuses and limitation of time that forces them to work hard and manage their time efficiently so adopt strategic approach.

Our results revealed that clinical students were using surface approach more than non clinical students as there was a statistically significant positive relationship between surface approach and their level of education. Numerous researches have documented factors that encourage surface approaches to learning. These factors consist of overload of work, students' perception of the significance of the content, assessment processes, poor teaching, poor student teacher interpersonal relationship, lack of chance for self management (21, 22, 23, 24, 25). Many times students express difficulties with the courses they are studying. They frequently reported problems in literature; such as difficulty in organizing study time effectively, overloaded feeling with vast study material, decreasing motivation, difficulty in seeing the relevance of some subjects, difficulty in recalling previously acquired knowledge, and difficulty in applying acquired knowledge to practical situations (26). Lack of alignment, heavy workload and high stakes assessments are precisely the factors that influence students towards using surface study approaches in order to 'keep up', irrespectively of their personal motivation or intelligence (27, 28).

In a study conducted among 2005 in Shiraz nursing and midwifery students, a higher percentage of nursing students adopted a strategic approach as their year of study increased which was in contrast to our study. This difference might be due to difference in clinical schedule between medical and nursing students but in midwifery students adoption of deep or strategic approach was not affected by the level of education (18).

This study has shown that medical students in their early years of basic sciences get high scores in the case strategic approach and as their level of education increases they prefer surface approach. But overall students scored high for deep approach. This shows overlap correlation between different approaches that students select in different situations. Thus, students use different approaches at different points in their studies and this is encouraging. The

learning process is dynamic and based on the students' requirements for different abilities at different times.

The reason for the deep approach of medical students might be their interest in this medical field. Students selected for joining medical courses were the students who were the top ones in passing the national entrance exam called "Konkour". This shows that these students were already used to adopting deep approach in their studies. Now, the reasons for changing their strategies throughout the medical courses need further studies.

As it was clear from this study that as student's educational level increases there is more trends towards surface approach.

Therefore, medical students should be encouraged to be self-advocate in their learning approaches and should also be encouraged to increase their internal motivation, active learning, group work, problem based learning, examinations assessing higher level of learning, interactive lecturing, adequate study time, text book reading, oral or written class presentation, teachers enthusiasm, and

organized lectures, all of which foster deep learning, should bring about improved outcome.

Limitations

There were some limitations to this study. Firstly, the number of student participating in this study were not enough to consider learning approaches adopted by students in each educational level separately, this was due to lack of cooperation of students. Secondly, it was not a longitudinal study therefore it was not possible to compare the students study approach as their level of education increases. Thirdly, the approach student selected was not compared with their grades in order to see the affect of approach selected by students on their grades.

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