IDENTIFICATION OF THE LEARNING STYLES OF MBBS STUDENTS OF THE CONVENTIONAL AND MODULAR SYSTEM

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ABSTRACT

OBJECTIVE: To find out the frequency of different learning styles of MBBS students of the Conventional and Modular System.

METHODS: This descriptive cross sectional study was conducted at Rawal Institute of Health Sciences, Riphah International University Islamabad, Pakistan from June 01, 2013 to December 01, 2013. A sample of 293 MBBS students was randomly selected from both conventional and modular systems. Both male and female students were administered a questionnaire, based on Kolb's learning style inventory to collect the initial answers and ranking of each participant. Calculations were done to reach the conclusion (learning style of each student). Data was analyzed by using SPSS 17.

RESULTS: Out of 293 students, 159 (55%) belonged to the conventional system and 134 (45%) were from the modular system. Overall majority of students were convergers (37.2%), followed by accommodators (25.6%). In the conventional system, majority of the students were convergers (55.4%), while 17.6 % each students were accommodators & assimilators. Most of the students in the modular system were accommodators (35.1%), followed by divergers and assimilators (24.6% each).

CONCLUSION: Overall majority of MBBS students are convergers. The conventional system had more convergers who rely more on the abstract thinking or ideas whereas the modular system had more accommodators who believe in hands on practical learning.

KEY WORDS: Medical Education (MeSH), Internship and Residency (MeSH), Learning (MeSH), Learning style (non-MeSH), Accommodator (non-MeSH), Diverger (non-MeSH), Assimilator (non-MeSH), Converger (non-MeSH).

INTRODUCTION

Learning is the process of obtaining new or changing and strengthening the existing information, behaviors, skills, values or preferences and building up different types of knowledge. It is the gradual process of getting information from experience.[1-3] Learning styles vary from individual to individual. Each individual prefers different learning style and techniques. Kolb's Learning Style Inventory (LSI) was designed to focus on the learning process for the individual derived from experimental learning theory (ELT).[4] Different studies are published regarding its reliability and validity. LSI is a very popular assessment tool despite arguments against its use. In a study carried out on reliability and validity of Learning Style Inventory, determination is made concerning the appropriateness of the LSI as a measurement tool to assess different learning styles.[5]

Kolb's model work on two levels, a four stage cycle consisting of Concrete Experience (CE), Reflective observation (RO), Abstract conceptualization (AO) and Active Experimentation (AE) and four types of learners have been identified consisting of Divergers (CE/RO), Assimilators (AC/RO), Convergers (AC/AE), Accommodators (CE/AE).[6] Concrete experience is involvement in a new experience, Reflective observation means observing others or developing opinions about one's own experience, Abstract conceptualization is the forming theories to enlighten observations and Active experimentation is using theories to solve problems and to make decisions.

Kolb identified four types of learners. The divergers learn best through concrete experience and reflective observation. They prefer to learn via logical instructions or hands-on experience with conversations. They take experiences and think deeply about them and like to receive constructive feedback. The convergers show best results when there is a simple and correct answer to a problem. Their principal learning abilities are abstract conceptualization and active experimentation. The accommodators show best results through concrete experimentation. Accommodators love to have new experiences. They are in-

tuitive and often use the trial-and-error approach to solve problems. The assimilator is the combination of abstract conceptualization and reflective observation. They like to organize diverse items into an integrated whole and have the most cognitive approach, preferring to think than to act.[6]

Problem based learning is a learning tool in which patient's problem is used as a trigger for the students to acquire knowledge and to develop their problem solving skills. The new subject is taught to the students by the strategy of problem solving. Students learn and at the same time enhance their abilities related to finding solutions to problems. Students apply the knowledge they have and discover what they need to know. They improve their communication skills and abilities to work successfully in the team.[7] In PBL working, students first identify what they previously know, what they must know and how and where to access new information that may lead to resolution of the problem.[8] Students taught by PBL method show less surface learning, more deep learning and more versatility in learning styles, compared with students taught by traditional didactic methods.[9]

Traditional teaching methodologies at any level of education often produce students who are bored with their education. They are forced to memorize huge amounts of information which is mostly irrelevant and not helpful in the practical implication. PBL approach promotes self-learning in students and they learn how to work as a team. Students become active and self- learners. Assessment of graduates from the Arabian Gulf University, which practices the PBL method, recommend its use in areas of clinical competence, interpersonal relations and self-directed learning.[10]

The newly established institutions are implementing PBL from the first year and are making relevant changes in their curriculum for making PBL approach successful and beneficial for the students.[11]

This study was conducted to find out

TABLE 1: LEARNING STYLE QUESTIONNAIRE (LSQ)[4]

Part 1: Concrete Experience VS Abstract Conceptualization

1. I prefer:
   a. Hands-on learning experiences
   b. Learning through thinking and reasoning
2. I tend to:
   a. Rely on feeling when making decisions
   b. Rely on logical reasoning when making decision
3. I learn more effectively from:
   a. My peers
   b. My teacher
4. I like learning through:
   a. Simulations
   b. Lectures
5. I lean well by:
   a. Practical experience
   b. Applying theories to hypothetical situations
6. I am best at learning:
   a. Facts
   b. Concepts

Part 2: Active Experiment Vs Reflective Observative

1. I learn best through:
   a. Active involvement in projects
   b. Observation
2. I would rather:
   a. Do volunteer work with disadvantaged youth
   b. Read about disadvantaged youth
3. I prefer assignment that:
   a. Require me to work examples
   b. Require me to think about situations.
4. I learn well through:
   a. Participation in a discussion
   b. Listening to what other have to say
5. I tend to:
   a. Jump right in and do something new
   b. Think about possible outcome before trying something new.
6. I learn best:
   a. By doing
   b. Watching and then reflecting

TABLE II: PERCENTAGE OF DIFFERENT LEARNING STYLES IN CONVENTIONAL SYSTEM AND MODULAR SYSTEM

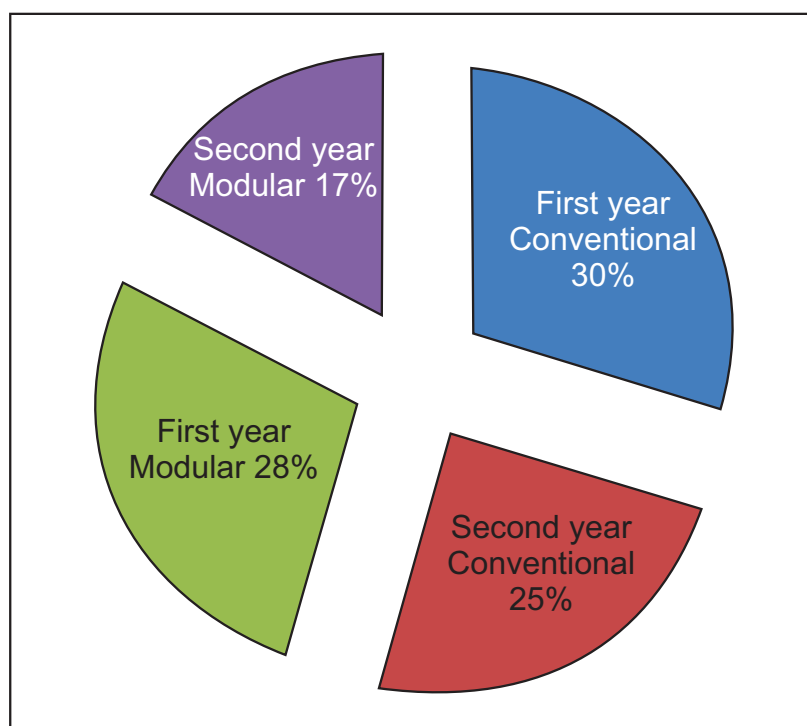| Learning style	Conventional system		Modular system		Total	
	Frequency (n=159)	Percentage	Frequency (n=134)	Percentage	Frequency (n=293)	Percentage
Accommodators	28	17.6 %	47	35.1%	75	25.6%
Convergers	88	55.4%	21	15.7%	109	37.2%
Divergers	15	9.4%	33	24.6%	48	16.4%
Assimilators	28	17.6%	33	24.6%	61	20.8%

Figure 1: Numbers of Students from Modular and Conventional Systems

the frequency of different type of learners in conventional lecture based system and the new integrated modular system using PBL approach. In the ongoing shift from the conventional to the modular system if we know the frequency of different types of learners in our institution, we will be delivering them knowledge in the way that is most suitable for them which will help us in making this transition fruitful and successful. Because understanding the learning style of our students is the basic requirement of individuals approach to teaching and it has definite impact on the faculty of all disciplines.

METHODS

Subject and study design:

It was a cross sectional study, conducted at Rawal Institute of Health Sciences and Riphah International University from June 2013 to December 2013. A total of 293 students belonging to MBBS course were requested to participate in the study and after informed consent data was collected using predesigned, pretested, self-administered structured questionnaires. Out of total 293 respondents 159 students (116 males and 43 females) were from conventional system of education and 134 (22 males and 112 females) belonged to modular system of education. The instructions for completing the form were clarified, to avoid random and chance bias during filling. After explaining the aim of study and the method of data collection, all students were asked to return the distributed questionnaires.

Instrument for determination of learning style:

Kolb's learning style inventory (LSI) was used to collect the initial answers and ranking of each participant. Calculations were done to reach the conclusion (learning style of each student). The LSI is composed of two parts: Concrete experience Vs Abstract conceptualization and Active experiment Vs Reflective observative. Each part contains 6 divisions, each with two options. Each respondent was requested to opt for the one option according to his/her preference.

Data Analysis:

After the identification of the learning styles data was analyzed using SPSS version 17. Frequency of the students was measured by calculating percentages.

RESULTS

Out of 293 students, 159 students (55%) were from conventional educational system and 134 (45%) were from integrated modular curriculum as shown in Figure 1:

Overall majority of students were Convergers (37.2%), followed by accommodators (25.6%). In the conventional system, majority of the students were convergers (n=88/159; 55.4%), while 17.6% each students were accommodators & assimilators (Table II). Most of the students in the modular system were accommodators (35.1%).

DISCUSSION

Identification of the learning styles of students results in better understanding between the students and teachers and

enhances the process of learning and teaching at the same time. Students learn best when information is given to them in their preferred way of learning.[12]

Most of the students in the conventional system were found to be convergers. The preferred way of learning for convergers is abstract conceptualization and experimentation. The great majority in the modular system were accommodators whole believe in concrete experimentation.

The student bodies are very diverse in terms of learning styles. If the teachers know the learning styles of their students, they would know better regarding when and why their students have difficulty in learning and they will be in a better position to help students in identifying their strengths and weaknesses.[11]

As faculty our aim is to convey the best of knowledge and this is our responsibility to know the learning styles of our audience to make teaching successful. According a study, for successful communication of information between teachers and students, we need to deliver material in a multifaceted way across range of learning styles.[12] This just can't happen through our taken for granted teaching mode. Determination of learning styles of the students makes the process of teaching and learning more rewarding. This is our duty to consider the learning style of our students and delivering them knowledge in the way that is suitable for them. Another study strongly suggested that identification of the learning styles of the learners is one of the keys for making teaching and learning rewarding.[13]

The incorporation of learning styles in our teaching is necessary for making

teaching and learning a dialogue which is teaching in an interactive and cooperative manner rather than scripted delivery of information in the form of didactic lectures. According to Tiberius active learning techniques engage variety of learners in collective dialogue.[14]

As faculty we should try to provide variety of learning experiences so that at one point or the other each learning style is addressed. The rationale of this study was to help the faculty in developing a lesson plan that addresses variety of learners in our institutions. To find out the differences in learning styles in two system and address and convey it to authorities so that needful steps cab be taken for better learning of students. We can identify further areas of research such as how do grades correlate with the learning styles. To achieve this the first step was identification of the Learning styles of the students of both the systems.

CONCLUSION

The outcome of our study reveals that overall majority of MBBS students are convergers. The conventional system had more convergers who rely more on the abstract thinking or ideas whereas the modular system had more accommodators who believe in hands on practical learning. Keeping this in mind, our faculty members must focus on adopting teaching styles that will help students believing in concrete experience, abstract conceptualization and active experimentation.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

AAB: Study design, acquisition of data, drafting the manuscript, final approval of the version to be published.

MK: Concept, analysis & interpretation of data, final approval of the version to be published.

HB: Critical revision, drafting the manuscript, final approval of the version to be published.

SJ: Acquisition of data, drafting the manuscript, final approval of the version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.