

ORIGINAL ARTICLE

Identifying and Comparing the Different Learning Styles of Health Professional Students

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ABSTRACT

Objective: To compare the learning styles of first year MBBS, BDS and DPT students.

Place and Duration of Study: This study was carried out at Islamic International Medical College Rawalpindi (IIMC), Riphah College of Rehabilitation Sciences (RCRS), Islamic International Dental College Islamabad (IDC), Pakistan between February 2013 and June 2013.

Materials and Methods: It was a descriptive cross sectional study. A sample of 83 first year MBBS, 81 first year DPT and 36 BDS were recruited. Kolb's inventory (1985) was used for collection of data. It was analyzed by using SPSS 20.p value of <0.05 was considered significant. A confidence interval of 95 was maintained.

Results: Frequency of learning style showed that 38.2% of MBBS students are assimilators, 59.7% of DPT students are Accommodators and 15.2% of BDS are Converger.

Conclusion: It is concluded that the majority of students of the different disciplines have different learning style. So teacher must be aware of this fact and plan according to the learning styles of the students.

Key words: *Kolb's inventory, Accommodator, Diverger, Assimilators, Converger.*

Introduction

The acquisition of knowledge or skill is a process of acquiring new or modifying existing knowledge through practice.¹ The learning style is a person's consistent way of perceiving and processing the new information.² Undergraduate health professionals identify and prefer learning style and methods which can enhance learning.³ As health care educators, it is our responsibility to be aware of the learning styles of our students.⁴ Base on affinity to the different dimensions of learning, different learning tactics is suggested. These can be used by teachers and lecturers to direct, design and delivery of courses and solve learning problems among students.⁵ Knowing the learning style of the students can decrease the distance between teacher and learners and can promote learning.⁶

To assess different learning styles numerous instruments were made. One of the well-known instruments concerned with the learning is the Kolb learning style model.⁷ According to Kolb's model, an individual perceive the information either by Concrete Experience or Abstract Conceptualization, and process this information by Reflective

Observation or Active Experimentation. The learning style of a person depends on combination of one method of each from information perceiving or perception. Persons tend to build up authority in one experience grabbing way and one experience transforming way. Converges are demonstrated by abstract thinking and ideas. They are excellent at formulating practical applications of ideas and using deductive analysis to unravel problems. Accommodators use solid experience and vigorous experimentation. They are fine at actively involving with the world and truly doing things instead of only reading about and studying them. Diverges tend toward actual experience and reflective scrutiny. To see the things from different angle, they are imaginative and are excellent at coming up with ideas. Assimilators are illustrated by abstract conceptualization and reflective observation. They are capable of generating theoretical models by means of inductive interpretation.⁸

The learning should change the whole personality of the students instead of only giving new information or knowledge. It requires a lot of time because it is dealing with changes in core beliefs, behaviors, and attitudes.⁹ Such a change may take time possibly a few weeks, perhaps until the end of the term, or even longer so the teachers should be passion.¹⁰

This study was carried out to determine the learning style of first year MBBS, BDS and DPT students and to compare them with each other.

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Materials and Methods

This was a descriptive study and a sample of 200 (male 35, female 165) students from first year DPT, BDS and MBBS from Riphah College of Rehabilitation Sciences, Islamabad were randomly selected. Data was collected by using Kolb's LSI version- 2 (1985). This study was completed between February 2013 and June 2013. All efforts were made in this study to fulfill the ethical considerations in accordance with the 'Ethical principles for medical research involving human subjects' of Helsinki Declaration.¹¹ Ethical approval was obtained from the ethical review committee of Riphah international University Islamabad. Written informed consent was taken from the students. The students were free to withdraw at any time without

giving any reason. Strict confidentiality was maintained throughout the process of data collection, entry and analysis.

There were two parts of learning style questionnaire (LSQ). The First part was concerned with information perceiving by concrete experience or abstract conceptualization and the second part was concerned with information processing by active experimentation or reflective observation. The A response stand for the concrete experience B for abstract conceptualization, C for active experimentation and D for reflective observation. The final score of the learning style of the students was got by adding up scores of first and second part. If the scores of B and C were high it meant the Converge, if A and D were high it meant Diverge, if B and D were high it meant Assimilator and if A and C

Table I: Learning Style Questionnaire (LSQ)

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 Observation	
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

were high it meant Accommodator as shown in table I. The data were analyzed using SPSS v. 20 The data shows the frequency of four learning style in three disciplines, 16% and 11.5 % 7.5% students were converging, assimilating and diverging respectively. According to discipline DPT student's dominant learning style is accommodators (59.7%),

Table II: Learning Style of Health Professional Students

Learning style	Number	Percentage (%)
Accommodating	30	15
Diverging	15	7.5
Converging	32	16
Assimilating	23	11.5
Accommodating/ Diverging	13	6.5
Accommodating/ Converging	27	13.5
Diverging/ Assimilating	18	9
Converging/ Assimilating	25	12.5
All	17	8.5
Total	200	100

MBBS student's dominant style is assimilating (38.2%) and BDS students' have no dominant style as shown in table II.

According to gender there was no single dominant learning styles with males preferably are accommodators and female are Converger.

Discussion

Learning never becomes a burden on the students if it is done in the preferred learning style of the students. If students start enjoy learning than it has positive results on student's progress in examination. The responsibility is on the teacher to realize the

Table III: Comparison of Learning Style of Health Professional Students by Discipline and Gender

Learning Style	Male (Percentage)			Female (Percentage)		
	DPT	BDS	MBBS	DPT	BDS	MBS
Accommodating	40	0	13.6	19.7	6.1	11.5
Diverging	20	0	4.5	12.7	12.1	1.6
Converging	0	0	18.2	14.1	15.2	18
Assimilating	0	0	13.6	4.2	6.1	24.6
Accommodating/ Diverging	0	33.3	4.5	12.7	6.1	0
Accommodating/ Converging	0	0	13.6	11.3	21.2	14.8
Diverging/ Assimilating	10	33.3	4.5	9.9	12.1	6.6
Converging/ Assimilating	10	33.3	22.7	8.5	12.1	13.1
All	20	0	4.5	7	9.1	9.8
Total	100	100				

students' learning style and adjust rather than to look forward to the students to get used to his/her style of teaching.¹²

The model anticipated by David Kolb illustrates four types of learning styles.¹³ It is one of the extensively used learning model.¹⁴ His inventory is the frequently used instrument for evaluation of learning style evaluation.¹³

In our study, there is a large variety in learning styles among students irrespective of the gender, with bulk of the students' converger and accommodators. These results are different to the studies carried out by Khalid Farooq Danish in IIMC which showed a great majority of learners in IIMC clinical classes are accommodators; followed by converges, diverges and assimilators in that order.¹⁵ this may be due to reason that previous study was carried out in students of clinical classes and in our study the students are of first year classes and the system of teaching in our study is modular and at that time it was conventional system of teaching. May be due to these reasons that most of the students in our study are Converger and than Accommodators.

In comparison by gender of MBBS, DPT and BDS students in our study it is interested to find out that most of the male are Converger while most of the female students are assimilators in MBBS, in DPT both genders mostly are accommodators while in BDS there is a mixed learning style. Previous studies showed majority of students were Accommodators

who is the mixer of concrete experience and active experimentation and is totally based on hands on practical learning.¹⁶ This difference may be due to the reason that previous studies were carried out in students of conventional schooling system and now there is modular system in IIMC which have more problem based learning and small group discussions. Compared to its most of the DPT students are accommodators while BDS students do not have a single learning style and these two disciplines have conventional teaching system depending on large lecture format.

When we compared the learning styles by gender, male students are mostly accommodators and convergent while female students are mostly assimilating and convergent. These results are similar to results of the study carried out by Waleed Hamad Al BuAli in Saudi Medical students.¹⁰

Conclusion

Learning style comparison of the students of Riphah University showed that it is not same for the different discipline. It is different in the MBBS, BDS and DPT students. The MBBS has Modular system of teaching while DPT and BDS have conventional teaching system. The learning style by gender was also different. So there is need to translate these finding into teaching methodologies to improve the learning of the students.

Study Limitations

This study was carried out by administering questionnaire which students themselves filled. Student mood, feeling, and own personal perspectives are the limiting factors.

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