

ORIGINAL ARTICLE

Identifying Learning Styles Among Medical Students: Does Our Assessment Favors Certain Learning Style?

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ABSTRACT

Background: Learning Style is usually identified as an individual's pattern for acquiring information.¹ This study was used to identify the learning style of Medical students and comparing the individual Learning Styles with the Result of Annual Summative Assessment to ascertain any link.

Objective: Objectives of the study were two-fold: First, to identify the learning style of Medical Students for their sake and for the sake of faculty so that adequate planning in the curriculum could be done. The second aim was to search whether our Curriculum is oriented towards a particular learning style in students through comparison of learning styles with Annual Assessment Result.

Study Design: It was a Cross-Sectional Descriptive Study

Place and Duration of Study: The study was conducted among students of 3rd year MBBS, Islamic International Hospital.

Materials and Methods: The 80-item Honey and Mumford Learning Style Questionnaire² was distributed to a class of 100 students. The result was compiled on MS Excel and compared with the results of Summative Assessment of the students.

Results: In our study, Majority of the students were Reflectors (35.5 %) (n=32), followed by Reflector-Pragmatists (13.3 %) (n=12). Theorists (12.2%), Pragmatists (11%), Reflector/Theorists (8.8%) and Activists (6.6 %) 34% of the students (n=31) had a combination learning style. One student had all four learning styles. Comparison of Assessment result with the result of the Questionnaire was done: on an Average Reflectors have scored higher (73%) as compared to Pragmatists (72%), Theorists (71.5%) and Activists (66%).

Conclusion: Although no gross difference, the Assessment result on an average, was a bit higher for reflectors. This study also shows that most of the students learn more effectively from lectures, project works and independent study.

Key Words: *Learning Styles, Assessment, Honey and Mumford.*

Introduction

Though there is no single universal definition of "learning".³ Learning is defined as "the activity or process of gaining knowledge or skill by studying, practicing, being taught or experiencing something."⁴

Individuals have been studying ways in which different persons learn. A number of learning related concepts have been circulating in the literature when attempts are made to identify performance. Learning style is the concept that has given valuable insights into learning of both academic and other settings. Learning style is the manner in which individuals choose or are inclined to approach a learning situation. Any individual Learning Style influences his performance and achievement of learning outcomes.⁵ Learning style is also identified as individual's pattern for acquiring information.⁶ Sadler-Smith described it as "a distinctive and habitual manner of acquiring knowledge skills and attitude through study or experience."⁷

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There have been extensive work in the last four decades how individuals gain information and hence their learning style. There are more than thirty different learning style descriptions like Witkin Field's dependence/independence study and Keefe and Monks Learning style profile.

Honey and Mumford learning style Questionnaire was developed by Peter Honey and Alan Mumford in 1992. The description and measurement of learning style was grounded in Kolb's Experiential Learning Model. Kolb proposed in his four stage hypothetical learning cycle that learning is a continuous process.

According to him a learner touches all the four stages while learning: 'Immediate or concrete experiences' provide a basis of 'observations and reflections'. These observations and reflections are used to develop abstract concepts which in turn produce new implications for action and thus can be 'actively tested'. Based upon their learning styles, certain individuals cope better with some stages than others.

Based upon these four stages Kolb explained four-type definition of learning styles:

1) Diverging (Feeling/Watching):

These people are able to look at issues from different perspectives. They prefer to watch rather than do

and tend to gather information. They use imagination to solve problems. They perform better in situation of ideas generation. They prefer to work in groups with an open mind.

2) Assimilating (Watching/Thinking):

Assimilating learning preference is for concise logical approach. They are more interested in ideas and abstract concepts. They are attracted to sound theories rather than practical value based approaches.

3) Converging (Thinking/Doing):

People with Converging style prefer using their learning issues to solve practical problems. They are more attracted to technical tasks rather than social or interpersonal issues.

4) Accommodating (Feeling/Doing):

People with this learning style prefer to rely on intuition rather than logic. This style is 'hands-on'. They prefer to work in teams to complete their tasks. Based on the above learning styles Peter Alan and Honey Mumford proposed four learning styles.⁸

Activists: They learn by doing. They are ready to get into any new experience. They are open-minded and unbiased.

Reflectors: Learn by observing and thinking about what happened. They learn more in activities like paired discussions and questionnaires.

Theorists: They like to understand the theory behind actions. They need concepts and models to engage in learning.

Pragmatists: Pragmatists are interested to know how to put theory into practice. They are interested in case studies and problem-solving.⁹

Alan and Mumford developed an 80-item questionnaire that helps identifying an individual's learning style. The four learning styles measured by this questionnaire have been proposed as an alternative to Kolb's Learning Style Inventory i.e.

Activist: Kolb's Active Experimentation,

Reflector: Kolb's Reflective Observation,

Theorist: Kolb's Abstract Conceptualization and

Pragmatist: Kolb's Concrete Experience. Honey and Mumford's learning style questionnaire (LSQ) has been advocated to better than Kolb's Learning style inventory (LSI).

Although it lacks internal consistency, LSQ has better test-retest reliability. It has better face validity than LSI. The students at the end of analysis of their

questionnaire can get a score showing their predominant learning style. Its' more of a self developmental tool that makes the student realize the way they learn.¹⁰ At the end of solving the questionnaire one reaches a score with one style predominating having the highest score. Initially developed for management trainees, it has been applied successfully to other disciplines including education.¹¹ Honey and Mumford Learning Style has not been assessed among our Medical Students. Measuring and identifying learning styles can help the students to appreciate their approach to learning and are encouraged to utilize learning environments that suits their learning style. Conversely, Students can also attempt bringing in modification in their learning style to maximize the use of learning resources. We have tried to search for a link in our study between Learning Style and Assessment result. Assuming that all other factors that can improve Assessment result may be distributed in whole of the class, we have tried to find a link between assessment result and Learning styles of the students.

Problem Statement:

Learning style of the students is not known.

Any association between the assessment result and a particular learning style if present is not established.

Research Question:

What are the learning styles of our students in question (3rd year MBBS)?

Is there any link with their preferred learning style and assessment result?

Materials and Methods

It was a cross sectional descriptive study conducted at Islamic International Medical College, Rawalpindi, Pakistan among Year 3, MBBS students. All students present in the class were first given an introduction of the study, learning styles and Honey and Mumford learning style Questionnaire. Filling in the questionnaire was considered as their consent to participate in the study.

Instrument:

80-item honey and Mumford's Learning style questionnaire was distributed to the students of a class of 100 students. There was place for writing the name and roll no. They had the option of writing their email address if they wished to be communicated

their learning style.

The students were given ample time for filling in the questionnaire. They were required to tick mark the option which they considered best representing them. Each option tick marked was marked one the results were calculated, compiled and analyzed. They were compared with result of Summative Assessment of the students. Individual results were sent to the students who consented by giving their email addresses.

Results

Out of a class of 100 students, 98 students were present. 88 students filled in the questionnaire. So the response rate was 89.7%. The Frequency with which different Learning Styles appear in these 92 students is shown in Table I. The result of the previous final examination of the class was obtained. The average marks of the students in each group were calculated (shown in Table II).

The chart (Figure 1) shows that when the average results of student groups pertaining to predominantly one group compared showed that Pragmatist were having the maximum score.

The above chart show that when the average assessment score of group of students(pertaining to a predominantly one learning style) were compared showed that Pragmatist were having the highest score, followed by reflectors, activist and theorist i.e., 73.12,69.26,68.75 and 65.4 respectively.

Discussion

Learning style of students has been the focus of research in many studies. Honey and Mumford learning style questionnaire that is easily available on the internet. It has been used to identify learning style of undergraduate and Post graduate students as well as nursing students.

In our study about 1/3 of students had 'Reflectors' learning style. Sandra Fleming and colleagues reported the same style being predominant.¹² The most frequent learning style was 'reflector (26%), in another study, followed by Reflector/Theorist (17.2%) and then activist (16.7%).¹³ This meant these students occupying a major proportion were those who preferred to observe things from different perspectives. Instead of jumping into conclusions they preferred to collect data and preferred to think thoroughly before coming to a conclusion.¹⁴ When

Irfan Shukr and colleagues found that the predominant learning styles among undergraduate medical students were activists (45%) while the post graduate medical students were mainly reflectors (38%).¹⁵ In our study we had 33% reflectors in undergraduate level while the Activists were only 4.5%. Majority of the learning styles were mixed learning styles in our study. Similarly a wide range of Learning Styles have been found by Lesmes-Anel J and colleagues.¹⁶ Though this has been suggested in the literature that learning styles do affect performance and that medical teachers should use variety of teaching strategies to cater the need of students with different learning styles¹⁷, no study is found that compares the Honey and Mumford learning styles with the assessment result. When we compared the learning styles with assessment result we found that on an average 'Pragmatists' had a higher score.

Limitation of the study:

The sample size in our study is small. There is a need for a similar study with large sample size to produce a more meaningful link between Learning style of students and assessment result. Having said, this study gives a direction to a more meaningful probing to the effect of learning style on their performance in the assessments.

Annexure

Table I: The Frequency of different Learning styles.

Predominant Learning Style	No. of students	Percentage
Activist	4	4.5
Reflector	29	32.9
Theorist	7	7.9
Pragmatist	8	9
Reflector/Theorist/Pragmatist	13	14.7
Reflector/Pragmatist	8	9
Reflector/Theorist	6	6.8
Theorist/Pragmatist	3	3.4
Activist/ Reflector/Theorist	1	1.1
Activist/ Theorist/Pragmatist	1	1.1
Activist/ Reflector	1	1.1
Activist/ Reflector/ Pragmatist	1	1.1
Activist/ Reflector/Theorist/Pragmatist	6	6.8

Table II: Average Marks of Student Groups with a Common Learning Style

Predominant Learning Style	Average Marks of the group
Activist	68.75
Reflector	69.26
Theorist	65.4
Pragmatist	73.12
Reflector/Theorist/Pragmatist	68.54
Reflector/Pragmatist	70.3
Reflector/Theorist	66.83
Activist/ Reflector/Theorist	70
Activist/ Theorist/Pragmatist	61
Activist/ Reflector/ Pragmatist	64
Activist/ Reflector/Theorist/Pragmatist	69.6

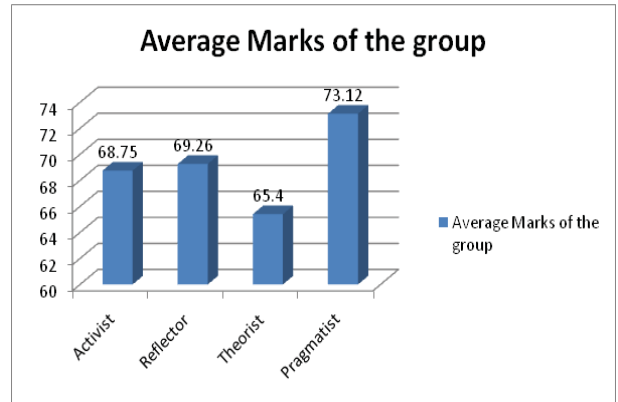


Fig 1: Comparison of Average marks of student groups with distinct Learning Styles

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