Exploring the Learning Styles of Postgraduates in a Public-Sector University at Karachi

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ABSTRACT

Introduction: Learning styles is a term used to refer to the methods of gathering,processing,interpreting, organizing and thinking about information. Knowledge of the learning styles can be helpful in making teachingg and learning process more efficient. Little is mentioned in medical education literature in Pakistan about the learning styles knowledge in deciphering the teaching and learn ing process.

Objective: To identify the distribution of the learning styles among the postgraduate students and to find ways to improve the way the courses, the practical hours and training are performed.

Methodology:

The current study analyses the learning styles of post graduate students of Dow University of Health Sciiences Karachi to guide facilitator as well as students in organizing their teaching sessions more efficiently and maximize the utility of educational resou rces with subsequent improvement in educational process. During Jan 2016 to Dec 2016, this cross-sectional study using Kolb's learning inventory as the instrument to find out the learning styles was conducted among post-graduates' students of a public-sector university by using English language versions of Learning Style Inventy (LSI)of 216 post-graduates'students.

Results: According to observation and data analysis by Kolb's learning Styles Inventory most of the postgraduates had their learning style reflector (Diverger).However, some were Theorist (Assimilators) and then very few weres Activist (Accommodator) and Pragmatist (Converser) respectively.

Conclusions: Differences in the learning styles and learning approaches have important implications in development of effective medcal curricula in post graduate medical education.

Key words: Learning style, Postgraduate students, medical education

Introduction: The term "learning styles" refers to the concept that individuals differ regarding what mode of instruction or study is most effective for them. Proponents of learning style assessmen t contend that optimal instruction requires diagnosing individuals' learning style and tailoring instruction accordingly. Although assessment instruments are extremely diverse however, assessments of learning style typically ask people to evaluate what sort of information presentation they prefer (e.g., words versus pictures versus speech) and/or what kind of mental activity they find most engaging or congenial (e.g., analysis versus listening).The most common but the only hypothesis about the instructional relevance of learning styl es is the meshing hypothesis, according to which instruction is best provided in a format that matches the preferences of the learner.

Teaching is an ever-evolving process that demands continuous updating of both students and teachers. The challenge is to impart a large amount of knowledge within a limited time in a way that it is retained, remembered and effectively interpreted by a student. This has resulted in crucial changes in the field of medical education, with a shift from didactic teacher-centered and subject-based taching to the use of interactive, problem-based, student-centered learning. Most medical school curricula have adopted new methods of teaching and learning to varying degrees[1]. It has been argued that knowledge of learning styles can be usef ul to both teachers and students, in that teachers can tailor pedagogy to correlate with the learning styles of students[2,3].

Similarly, students wth knowledge of their learning styles could be empowered to identify and use the techniques of learning best suited to their individual styles, resulting in greater educational satisfaction[4].

Pattern of learning styles:

1. Diverger:Feeling and watching.
    - They prefer to watch rather than do.
    - Tending to gather information and use imagination to solves problems.
    - These people perform better in situations that require ideas-generation, for example, brainstorming.
2. Assimilators:Watch and think.
    - Thes people require good clear explanation rather than practical opportunity.
    - People with this style are more attracted to logically sound theories than approaches based on practical value.
3. Converger: Think and do.
    - People with a converging learning style can solve problems.
    - Find solute ions to practical issues.
    - They can solve problems and make decisions by finding solutions to questions and problems.
4. Accommodator:Do and feel.
    - People with an accommodating learning style trend to rely on others for information than carry out theire own analysis.

Kolb's theory: Life cycle stages:

Based on a model of learning that is active, cyclical, and involves:

- Concrete experience (ce)"feeling".
- Reflective observation (ro)"watching".
- Abstract conceptualization (ac)"thinking".
- Active experimentation (AE)"doing".

Objective: The presente study aims to identify the distribution of the learning styles among postgraduate students and to identify ways to improve the way the courses, the practical hours and training are performed.

Methodology: This study analy ses the learningg styles and approaches to learning in cohort of post graduate students in Dow University of Health Sciences (DUHS) during January 2016 to December 2016. The postgraduate study program is based on an apprenticeship model with on the job training, work-place based assessments, self-study and professional exit clinical examinations.Since the quantity of informsation is considerable and the healthcare is extensive, it is useful for these students to facilitate the access to information according to how they are more likely to absorb it. Knowing in which category they belong is of considerable importance in the implementation of courses and internship.To collect responses English language versions of Learning Style Inventory (LSI) was administred. Each response was scored according to protocols developed by the developers.

Results: For this study 216 postgraduate students of a public sector medical university participated by face to face interview.The mean age of participants was 37.22 ±6.9128 years and female (n=120) outnumbers male (n= 96). Socioeconomically 50% participants were from middle class family. According to observation and data analysis by Kolb's learning Styles Inventory most of the post graduates had their learning style reflector (Diverger).However, some were Theorist (Assimilators) and then very few were Activist (Accommodator) and Pragmatist (Converser) respectively. The pattern of learning styles among postgraduate students were

104(48.1%)pragmatist (Converser), Activist (Accommodator) and reflector (Diverger) both were 48(22.2%) and theorist (Assimilators) were only 16(7.4%)respectively.

Table 1 Demographic characteristic (n=216)

S.NO	Characteristics	No/Mean	Percentage/ ±SD
1.	Age (years)	37.22	±6.91
2.	Gender Male Female	 96 120	 44.4% 55.6%
3.	Education 1. 16 years 2. 18 years	 176 40	 81.5% 18.5%
4.	Income Low Medium High	 72 109 35	 33.33% 50.47% 16.20%

Table 2: Gender wise comparison of learning scores

Gender		**N**	**Mean**	**±SD**	**p value**
CE	Male	96	14.33	6.493	
Female		120	15.33	3.679	0.18
RO	Male	96	13.25	5.921	
	Female	120	15.47	3.087	<0.001
AC	Male	96	19.83	5.411	
	Female	120	15.67	3.293	<0.001
AE	Male	96	20.67	4.964	
	Female	120	16.73	2.921	<0.001
LD	Male	96	2.58	0.959	
	Female	120	2.27	0.857	0.011

Table 3: Education wise comparison of learning scores

Education Score		**N**	**Mean**	**±SD**	**p value**
CE	**3**	**176**	**15.05**	**5.538**	**0.348**
	4	**40**	**14.20**	**2.672**	
RO	**3**	**176**	**14.50**	**4.994**	**0.87**
	4	**40**	**14.40**	**3.045**	
AC	**3**	**176**	**17.82**	**5.092**	**0.055**
	4	**40**	**16.20**	**3.098**	
AE	**3**	**176**	**18.86**	**4.677**	**<.001**
	4	**40**	**16.80**	**2.345**	
LD	**3**	**176**	**2.27**	**0.810**	**0.011**
	4	**40**	**3.00**	**1.109**	

Table 4: Correlations of learning scores

	Concrete Experience	Reflective Observation	Abstract Conceptualization	Active experimentation
CE	1			
RO	0.956’			
AC	0.198’	0.228’		
AE	0.311’	0.408’	0.627’	
LD	0	0.258’	0.106’	0.159’

Discussion: The Kolb’s questionnaire was developed by Peter Diesche which was used to determine basic demographic, education goals and goals in attending college. Kolb explains that learners must be open and receptive to external stimuli to learn effectively. He further proposes that the learn er must be able to consider new observations in light of old perceptions. The learner must be able to conceptualize in an abstract theme and must be able to test implications of concepts and hypotheses.Kolb’s inventory is very useful to comprehend learning styles of postgraduate students in a medical university. Curriculum development, training, teaching and assessment will be at par excellence if these studies are conducted in future at an early stage[5].
Our study revealed several interesting differences among post graduates with regards to learning styles and approaches. To begin with the respnse rates in our study was altogether quite high. Post graduates were individually approached by the investigators, and that may explain the high response in the group. The differences observed in our students may be attributable to the pre-university education system in the country[6], where students tradit ionally follow didactic lectures in schools[7].
Limitations: This study had several limitations. Firstly, there is little evidence that learning styles really do make a difference to learning. Nonetheless, knowledge of learning styles and approaches can be used to tailor curricula to suit the majorit of students. Secondly, our study was cross sectional rather than longitudinal. Thus, we were only able to describe differences between the cohorts studied, and no firm conclusions can be drawn regarding changes in learning styles and approches over time.

Conclusions: Differences in the learning styles and learning approaches have important implications in development of effective medical curricula in post graduate medical education.

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