THE PRINCIPALS' PERSPECTIVE OF THE LEARNING ENVIRONMENT IN UNDERGRADUATE MEDICAL COLLEGES OF A DEVELOPING COUNTRY

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ABSTRACT

Objective: To explore the perspective of Principals in a developing country regarding the learning environment of their respective undergraduate medical colleges, thus highlighting the difficulties faced by them and obtaining their recommendations for improving the educational environment.

Study Design: A concurrent mixed method study in the pragmatic paradigm using survey and interview techniques to collect data.

Place and Duration of Study: Study was conducted from June 2015 to December 2015 involving institutional heads of seven undergraduate medical colleges in the twin cities of Rawalpindi and Islamabad in Pakistan.

Material and Methods: Principals of seven undergraduate medical colleges in one city were given a brief questionnaire to fill which was followed by interviews. The data from the questionnaire was analyzed using SPSS-21 and the data from the interviews was analyzed using NVivo 11. Themes obtained were studied in detail for analysis and interpretation.

Results: The study determined that while the learning environment in different medical colleges is neither uniform nor optimal, most institutional heads have similar opinions about major factors contributing to the learning environment and face more or less similar difficulties. Curriculum emerged as the most important factor contributing to the learning environment. Lack of resources and shortage of academic staff were the main difficulties identified. Improved standards of student and faculty selection and better coordination between the colleges and the affiliated teaching hospitals were two of the important recommendations.

Conclusion: Lack of resources, shortage of the academic staff along with the curriculum issues were identified as the major factor contributing towards the learning environment.

Keywords: Environment, Learning, Medical institution, Principal, Undergraduate medical students.

INTRODUCTION

The learning environment (LE) of an institution can be defined as a social system that includes the learner and all factors affecting the learner. The factors are diverse: any entity interacting with the learner the interactions themselves the surroundings in which the interactions occur and all dictates applicable to the interactions are important[1-3]. The LE is crucial to the learning process as all attributes of the learner are molded by it and it is an important determinant of the competencies achieved by the graduate.

Institutional heads have a fundamental role to play in creating a vision for the institution and they must be engaged in planning and implementing strategies for improvements[4]. Their authority and leadership role puts them in a position to directly influence the outcome of all efforts directed at improving the LE[5]. It is, therefore, vital that they agree upon the features of a positive LE and their collective efforts influence the accreditation and selection standards.

Studies conducted in Pakistan, India, Bangladesh, and some other developing countries have explored the learning environment in undergraduate medical colleges by obtaining the students' perspective through the DREEM inventory[6-14]. While a few studies conducted in US have highlighted the perspective of the Deans of medical institutes and their recommendations

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for improvement, there are no studies from the developing countries that have explored the Deans' perspective.

Bondurant in 1988 presented the recommendations of a dean for improving medical education[15]. Ten years later, Daugherty, while primarily addressing the characteristics of a dean, also described the challenges a dean has to confront in managing the LE of a medical school[16]. The same year, Yedidia provided a comprehensive overview of the difficulties faced by the deans of medical colleges in United States regarding the LE and presented the Deans' recommendations for overcoming those difficulties[17].

The rationale of this study is to explore the perspectives of institutional heads about the LE of medical colleges of a developing country and obtain their views about the changes they would like to make. This research can be used as a guide for planning and implementing appropriate policies towards creating an environment that will facilitate the achievement of desired learning outcomes.

MATERIAL AND METHODS

The study was conducted from June 2015 to December 2015 involving institutional heads of seven undergraduate medical colleges in the twin cities of Rawalpindi and Islamabad in Pakistan. Three medical colleges that have recently been founded and are yet to have graduates were excluded from the study. Seven heads of institutions were selected with the assumption that less is more in studies collecting data through interviews along with an option that if data saturation could not be reached with 7 interviews, additional 3 heads of institutions will be selected[18]. All seven principals were males and were selected using purposeful homogeneous sampling technique. Among the seven participants, two were surgeons, two physicians, one pathologist, one physiologist and one specialist in forensic medicine. Permission of the Pakistan Medical and Dental Council (PM&DC), which is the accrediting body for all medical colleges in the country was obtained. Informed consent was obtained from each institutional head. Semi-structured interviews were conducted for data collection, preceded by a close-ended questionnaire for the purpose of triangulation of data. The questionnaire contained specific questions seeking direct answers to various important dimensions of the LE to be explored in general through interviews. The interviews were conducted in a friendly and comfortable environment. No untoward incident or unpleasant interaction occurred during the conversations. The participants were given pseudonyms for transcription purposes to ensure their anonymity.

Figure-1: Word nodes that emerged from qualitative analysis using Nvivo, depicting the development of themes. The size of the box relates with the emphasis on the theme.

Figure-2: Triangulation / confirmation of emergence of themes with word cloud indicating frequency of words used during interviews.

Each participant was first contacted by telephone for an appointment. The meeting was held in the office of the respective institutional head. A 12- item questionnaire was given to each participant before the interview. The questionnaire was filled by the participant in the presence of the interviewer. The interviews were conducted by the primary researcher and were concomitantly typed by an expert typing assistant.

The interviewer being a former principal of a medical college found it easier to develop rapport with the heads of institutions and helped the interviewees to share information not easily retrievable otherwise. A few prompt questions and probes were available to the interviewer in print form. Everything said by the interviewees was recorded while the discussion was kept focused on the relevant issues by using the prompt questions and probes. The ambience of the office, the presence of another person invited by the principal for his assistance and any evasion of a subject were recorded separately. Complete confidentiality and anonymity were ensured throughout the process.

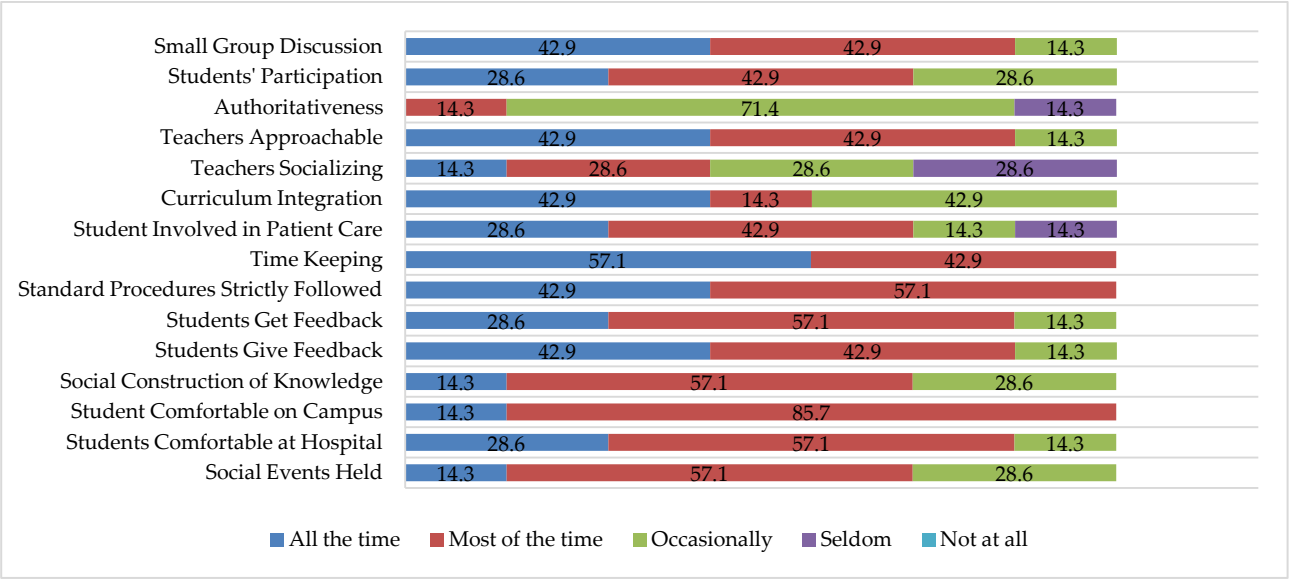

Figure-3: Responses of the participants to the survey questionnaire.

Data Analysis

The questionnaire data were analyzed using SPSS 21. Descriptive statistics such as percentages were calculated and used for deriving inferences. Each typed interview was first read in its original form and field notes were accordingly added to make data more comprehensive. Then it was corrected for spelling and grammatical errors and reread and matched with the interview questions and the research objective. The transcribed material was entered into N-vivo version 11 for organization and analysis of qualitative data. Nodes were identified in the transcribed material based on existing theory related to learning environment highlighting the areas of emphasis by participants and data was checked for saturation of information. With the help of N-Vivo a diagram was created that compared the nodes according to the number of items coded (fig-1). Word clouds were created for individual interviews and for all the interviews collectively to display the participants' emphasis on certain words depicting their intentions, thus demonstrating plausibility, confirmability and sturdiness of analysis. (fig-2) The nodes were collapsed into three major themes. Under each theme, the chunk of relevant data was organized and reduced to a summary. Constant iterative process was adopted where the themes, word cluster and interpretations were matched with the objective of the research. Member checking

was done by the other two researchers for triangulation i.e. to verify plausibility and confirmability of interpretations and their saturation. Suggestions given through member checking were used to re-visit the objective of the research, themes, and gist of ideas under each theme to draw conclusions.

RESULTS

Thematic analysis through NVivo identified 34 factors that contributed to LE according to the participants' perspective (fig-1 & fig-2). These factors were grouped into the following six major themes depicted in table-I.

The graph fig-3 indicates that dominantly the environment is not authoritative and the faculty is approachable. More than 50 percent of the institutions were practicing some kind of integration in the curriculum. Time keeping and following standard procedures were prevalent, indirectly indicating that self-directed learning is not a feature yet.

Table-I: The factors identified by the participants.

Themes	Sub- Themes
1. Infrastructure	
2. Curriculum	Curriculum and Syllabus Instructional Strategies Assessment Feedback
3. Students' role in the learning environment	
4. Faculties' role in the learning environment	
5. Difficulties and Deficiencies perceived by the Principals	
6. Recommendations of the Principals for improvement	

DISCUSSION

In this study institutional heads identified curriculum, role of students and faculties and infrastructure as the main determinants of the learning environment of medical colleges. The learning environment is a manifestation of the curriculum and derives from it[19]. To achieve the goals of the curriculum these two should be closely aligned. Any change or reform in one has to be mirrored by a change or reform in the other[1]. Curriculum emerged as the most important factor in our study (table-II, Comments # 4-23).

There are studies that have obtained the perspective of students, faculty and staff about the environment in a medical college, though there is a scarcity of literature about the perspective of institutional heads. In one such study, the specific areas of the learning environment that were associated with better performance, from the students' perspective, were a relevant learning environment, a positive emotional climate and closeness among students[20]. Organizations such as the Association for Medical Education in Europe (AMEE), the American Association of Medical Colleges (AAMC) and the World Federation for Medical Education (WFME) all stress the importance of the relevance of the learning environment[21]. This was reflected in our study by participants emphasizing the need for purpose-built hospitals and integration of the college and hospitals (table-II, Comments # 43 and 59).

A study from Sri Lanka found that inattention to factors such as accommodation, food, library and IT support and student-teacher relationship can prevent the students from getting the full benefits of the course[22]. In our study the results of the survey as well as the themes obtained support this observation wherein active involvement of students, their congenial relationship with faculty and their comfort on the campus and at hospitals were supported by all participants. (fig-3, table-II,

Comments # 29-31) Financial assistance, medium

Table-II: Some comments of the participants quoted verbatim.

Theme-1: Infrastructure
The LE is not just the building and the lawns; it is like an aura created by a number of factors including infrastructure and resources.
An important part of the LE are the people with whom the learner interacts, followed by the interactions, the place itself and the facilities provided.
Space is a very important factor. Learners need to be comfortable during all their activities.
Theme-2: Curriculum
Sub-theme (i): Curriculum/ syllabus
The curriculum is the most important component of LE. Students should be involved in the development of the curriculum. They should be able to give feedback and select topics and methods.
The curriculum which is the most important component has been developed by people who are not part of the learning environment. The Curriculum Committee dictates it but it is up to the university how it is implemented.
We are satisfied with the curriculum which is a major aspect of the environment. It is very structured and completely modular.
The LE cannot and should not be standardized as it should suit the dominant student culture. The outcomes should be standardized and each college should utilize the available resources in their own way to achieve the outcomes.
There is a dichotomy in the planning and implementation of curriculum which effects the environment to a large extent: Even where teaching is integrated there is a final professional exam of each subject.
Integrating the curriculum will improve the LE but two major challenges to integration are the resistance of the senior faculty that does not allow the change and the accreditation rules that do not give appropriate credit to specialists and subspecialists of clinical subjects.
The mindset of not just the faculty and learners but also of the other stakeholders has to change before integrating the curriculum. We had to face angry parents who had been told by their wards that the exam questions were not from the syllabus.
Faculty has to be trained in integration of both teaching and assessment. Books are not integrated; someone has to sit and produce integrated modules of study. This is not a piece of cake.
Sub-theme (ii): Instructional Strategies
We cannot leave our students to achieve the objectives by themselves through self-directed learning even if we consider it good for their learning because they come from a system of education that promotes rote learning
Students come from a background that is not conducive for active or deep learning.
We have to change the system of selection and assessment in order to promote an environment of active and deep learning. If recall is rewarded in both these situations the students will stick to recall.
We are desirous of learner-centered activities but the major problems are the resentment and ego of most teachers and the lack of trained facilitators.
Sub-theme (iii) Assessment
Assessment is an important component of the learning environment. It directs the teaching and learning methods. In our institutions the major indicator of success is the annual examination. We realize it is not a good judgment of learning but for the time being this is the system we follow.
We have an active assessment unit and whatever goes on in the form of clinical evaluations or tests is added by the unit to the final awarded credit.
In order to have assessments which promote critical thinking one needs a good question bank.
The faculty designs the assessments and prepares the questions. With their busy schedules these may be neither standardized nor optimal. If the faculty is not trained at assessment procedures the students will not get trained in analytical thinking.
Our assessment is aligned with the outcomes. We use C3 level MCQs and Mini CEX and OSCEs. We have mid module and end of module assessments that count towards the final assessment.
Sub-theme (iv): Feedback
Feedback is a very important feature of the learning environment. In our system faculty selection and retention is based upon the students', course directors' and the patients' feedback.
Feedback is important to monitor the learning activities and environment. We have a system of organized feedback. The feedback form is on the LMS (learning management system).
We consider feedback an important component of any learning environment. We are using the Campus based management system. There are scheduled sessions for feedback.
We do not have a structured feedback system available to us but it is important, no doubt.
Graduates communicate with the college at a personal level. There is no structured system to get their feedback but it can serve very well to improve the institution.
We have no system to get feedback from the graduates but we understand it has an important role for evaluation of our learning environment.
Alumni share their experiences and provide tips to students on social media. There is no compulsory feedback system.

Theme-3: Students' role in the learning environment.

There has to be a standard student: faculty ratio to provide a healthy learning environment. The number of students enrolled varies from college to college. The cultural background of students also varies from college to college and city to city. Uniform accreditation requirements do not cater for these differences.

In a comfortable environment, students should be linked with faculty and the dean. Students' representative should be able to give informal feedback about anything without any reservation.

Treating the learners with more respect and freely communicating with them facilitates problem-solving. The faculty and students should mutually develop the disciplines.

Students and teachers should have a congenial relationship. Entering offices should not cause the students anxiety.

Students should be involved in decision-making. Their representatives should attend the meeting of faculty board of studies.

Students should be involved in every process in order to get a LE that is optimal.

Student should know about the faculty's personalities and skills before they start their learning. They should not have to deal with perfect strangers.

Theme-4: Faculties' role in the learning environment.

We must particularly focus upon training our teachers. Most consultants are more interested in private practice. It is high time we created a balance between teaching and private practice.

Faculty should be formally trained for all basic activities. The faculties' skills should match the students' requirements so that they can handle every learner's style and requirement.

The faculty has to be convinced and trained before introducing a change; often they don't like it.

Judging the faculties' skills is complicated. Learning is not measurable. A teacher may teach skills but harm professionalism and vice versa.

I think Health Professionals' Education is the rehabilitation department of the teachers, learners and the medical sciences as a whole. The deterioration in medical practice of fresh graduates is not because the learners are worse; it is the faculty which has deteriorated.

Our teachers are assessed by the students and monitored by program directors. Twice a year we have an international party evaluation.

We have no system to assess the skills of the teacher. And often there is shortage of faculty in the public sector medical colleges as the salaries are much lower compared to the private sector colleges.

Theme-5: Difficulties and Deficiencies perceived by the Principals.

In general the LE in medical colleges is not conducive to optimal learning because we are not keeping pace with the way our youth is evolving.

The hospitals in the cities are over-crowded because of a poor healthcare system and are not built for purpose. That is why they create an unfriendly learning environment for the undergraduates.

Lack of trained faculty is a problem.

The criteria for faculty selection are not practical. The number of research publications in itself is not a sufficient criterion to predict better teaching abilities.

The Principal has very little authority to select suitable faculty.

The administration, not formed by academicians, does not share the Principals' point of view.

The Principals do not have a way to hold the faculty accountable.

Resources are controlled by third parties that have their own interests. They are not missionaries; they want to make money and gain influence.

The Government tends to offer little support to private medical colleges. It should be more supportive considering that, after all, these colleges are also facilitating education.

Theme-6: Recommendations of the principals.

Policy makers should ensure that the basic criteria are met in all colleges and that these follow the curriculum in a standardized way providing similar conditions and activities to the learners. Only then learners can have similar learning environments and develop similar competencies.

The accreditation body should facilitate the implementation of the curriculum, not just act as a police force. Whether private or public, there should be a definite allocation of resources for running a medical college which may come from the government, trusts, or companies- whoever has the ownership of the college.

We should change the system before entry to the medical college. It should be standardized and aligned with teaching in medical colleges.

The faculty should be trained before embarking upon the modular and integrated system. It will be disastrous for the learning of students if untrained faculty takes it up.

The learners and their financers should have some mandate to speak for their rights. There should be a session every six months which should be attended by the students, and their parents or guardians, in addition to members of the academic council

Integration will not be feasible unless the accreditation body gives equal weightage to a professor of anatomy and a professor of surgery for teaching in the integrated system. Similarly a professor in chemical pathology should be as eligible to teach biochemistry as a professor in biochemistry.

For developing a better learning environment in medical colleges the accreditation body should revise its requirements for infrastructure, keeping in view the trend towards more learner-centered activities. Similarly it should revise the requirement for laboratories; they are still requiring the use of obsolete equipment used more than forty years ago.

Most campuses are now over-crowded. Student-exchange programs, the use of shared facilities, and learning in community set ups should be organized to promote better learning environments

The college and the affiliated hospital should be as integrated as possible to create an environment that facilitates contextual learning. Decisions about these should not be made in isolation.

of instruction and student counseling services

were other factors highlighted in the same study but were not derived from our study.

Financial difficulties, shortage of academic staff and lack of communication between students and teachers have been identified by University lecturers as factors detrimental to the learning environment[23]. The first two of these were the outstanding difficulties appearing in our results (table-II, Comments # 44,49). while student-faculty relationship was considered an important factor (table-II, Comments # 29-34). This latter factor was also highlighted in other studies that brought up the issues of students welfare and students' need for social desirability and self-efficacy to be addressed in a learning environment[24].

Imran et al engaged students from colleges in all the provinces of Pakistan to determine the factors influencing students' perception of the learning environment. In their results satisfaction with infrastructure and the teachers scored the least. Their study found variations from college to college with regard to faculty: student ratio, instructional strategies, faculty development and student support and identified teaching methods and a good student support system as areas to improve the environment[11]. These observations were similar to those of our own study (table-II, Comments 28, 35, 40, 41, 51).

Jawaid and Aly have summarized in their article the factors determining the LE, ways of evaluating it and suggestions for improving it. Very similar to the themes of our study, they have listed the curriculum, faculty, instructional strategies, the role of students and faculty, student support and safety, infrastructure and logistics, assessment and feedback as the important determinants of the learning environment[25].

The major difficulties our study determined were lack of the Principals' authority to bring about changes, lack of their control over the hospital environment, lack of administrative support from higher offices and poor organization of resources and budgeting (table-II comments 46,48,49,59). Decreased funding and the compulsion to raise funds for education by clinical enterprises were other difficulties (table-II comments 49,50). Other studies affirm these and point towards the imbalance between the responsibility and authority of the Dean and lack of support from higher offices as well as the need to harmonize the needs of the college and the affiliated hospitals[14,15].

The major recommendations for improvement in our study were improved standards for faculty and student selection, better faculty training , more help from the accrediting body to implement the curriculum and more integration between the college and the affiliated hospital (table-II comments 44, 45,47, 51, 52, 59). Other studies have recommended mechanisms for performance review of faculty, a process of rewarding the faculty for commitment, more authority and leadership for the dean and more support for the dean from higher offices[15,16].

A number of studies have emphasized the need for collective and collaborative efforts to improve the environment in a medical college[1,16,22] and research by all stake holders in the field to make evidence-based modifications[1,21].

Evaluation is the force that motivates change[26]. Students, faculty and administrators should all evaluate and suggest interventions to improve the learning environment[27]. The important underpinning of such cooperation will be collective deliberation, dialogue and discussion[28].

We suggest that there is a need for institutional heads to share their views, experiences and recommendations in a systematic manner and, thereby, collectively provide a framework for a positive LE. This can take the form of a platform, similar to the Council of Deans of the American Association of Medical Colleges, where Principals meet regularly to discuss, prioritize and settle outstanding issues[29].

Limitations of the Study

The short duration of study did not allow measurement of outcomes anticipated after implementation of suggestions given by principals. In addition, lopsided gender representation may have compromised the diversity of opinions and suggestions generated through discourse.

RECOMMENDATION

The results revealed that most heads of medical collleges wanted improvement in the LE of their own as well as other medical colleges of the country and their opinion about the factors that influenced the learning environment and recommendations for optimizing it were relevant and mostly overlapping. Heads of institutions do realize the significance of learning environment to optimize quality of medical students' learning. If they forward their unequivocal recommendations to the local accreditation council these may provide useful evidence to revise selection criteria for learners, selection and promotion criteria for faculty, and accreditation standards for undergraduate medical colleges thereby optimizing the learning environment across the medical colleges in the country.

CONCLUSION

Lack of resources, shortage of the academic staff along with the curriculum issues were identified as the major factors contributing towards the learning environment.

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CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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