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Educational Study

## Educational environment measurement, how is it affected by educational strategy in a Saudi medical school? A multivariate analysis

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### المخلص

**أهداف البحث:** تهدف هذه الدراسة إلى دراسة ومقارنة البيئة التعليمية لمسار منهجين متوازيين في كلية الطب بجامعة الدمام. وكذلك دراسة تأثير المنهج والمستوى الدراسي وجنس الدارس على تقييمه لبيئته التعليمية.

**طرق البحث:** تم استخدام مقياس دندي للجهاز للبيئة التعليمية المعروف بـ "دريم" لهذا الغرض. ووزعت استبانة البحث لعدد 573 طالبا وطالبة بواسطة الباحث للإجابة عليها وجمعها مباشرة فور الانتهاء منه. وقد شمل التحليل الإحصائي على: (1) الإحصاء الوصفي، (2) تأثير كل متغير على حدة، (3) تأثير عدة متغيرات مجتمعة عن طريق تحليل معامل الارتباط والإنحناءات التحليلية لجميع المتغيرات.

**النتائج:** حصل استبيان دريم في هذه الدراسة على مجموع كلي مقداره 106/200م. وكان منهج الدراسة المتغير ذو التأثير الأكبر على مستويات تقييم الطلاب للبيئة التعليمية مقارنة بالمستوى الدراسي وجنس الدارس. وكان مستوى الرضا أعلى لدى طلاب وطالبات المنهج القائم على حل المشكلات خاصة بالأمكن البيئية الآمنة، وبوجود الثقة بالنجاح، وغياب الملل مع امتلاك مهارات حل المشكلات، ومهارات التعامل. كما كان واضحا أن الطالبات أكثر رضا في مسار منهج حل المشكلات وأقل رضا في مسار المنهج التقليدي. وكان غياب التوجيه والإرشاد الأكاديمي بارزا.

**الاستنتاجات:** في المجمل كانت البيئة التعليمية في الجانب الإيجابي وهناك مجال للتحسين. وكان واضحا أن طلاب مسار منهج حل المشكلات، والطالبات، وجميع

الدارسين بالمستويات الدراسية الأولى هم الأكثر رضا من غيرهم عن البيئة التعليمية.

**الكلمات المفتاحية:** البيئة التعليمية; التعليم بأسلوب حل المشكلات; مقياس دندي للجهاز للبيئة التعليمية; دريم

### Abstract

**Objectives:** This study was an attempt to measure and compare the educational environment of two parallel curricular streams in the University of Dammam. It examined the effect of the type of curriculum, year of study and gender on students' perception of their educational environment.

**Methods:** The Dundee Ready Education Environment Measure (DREEM) tool was selected for this purpose. It was administered to 573 (Male 241, female 332) students by the researcher and collected at the same setting. The statistical analysis included (i) Descriptive statistics (ii) Effects of single variables (iii) Multivariate and regression analysis. The researcher used Mann–Whitney test and Kruskal–Wallis test for determining the effects of single variables with respect to two groups and three groups respectively. In

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order to determine the combined effect of the gender, year of study and method of teaching the researcher used Spearman rank correlation and Multiple linear regression.

**Results:** DREEM score was 106/200. The curriculum had the greatest impact on students' perception of their educational environment as compared to year of study and gender. PBL stream had higher student satisfaction. Female students were more satisfied in the PBL stream and were less satisfied in the traditional one. Lack of counseling services was prominent in all.

**Conclusions:** The overall educational environment is on the positive side with room for improvement. PBL students, females and junior students were more satisfied about the educational environment than their counterparts.

**Keywords:** Curriculum; DREEM; Educational environment; PBL

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## Introduction

According to Meyer-Parsons (1989), improving the medical learning environment by changing teaching methods, for example, will lead to better learning and better perception by students of their educational environment.<sup>1</sup>

The present study aims to measure students' perceptions about the educational environment in a medical school that teaches medicine by 2 different educational strategies parallel to each other namely conventional and problem-based learning. The conventional curriculum is a discipline-based 100% Flexnerian curriculum with no integration and complete separation between preclinical and clinical phase. The PBL curriculum, on the other hand, is a hybrid with few resource sessions and two case discussions per week. In the first session, students analyze the triggers and determine their learning needs. In the second session, they come prepared and present the material to their group members. Results of this study are expected to have strong implications on adoption of an effective curriculum design and teaching/learning practices in the mainstream of medical school, focusing remedial actions to a particular stage or year in the curriculum or to a particular gender. In addition, it will help in prioritizing development of subsets of the educational environment scales according to students' requirements.

Students experience or perceive the educational environment of the overall medical school as climate. It is the climate that influences behavior.<sup>2</sup> There is increasing evidence of the importance of educational environment in the measurement of effective student learning. The educational environment makes a great impact on students' learning experiences and outcomes. It dictates how, why and what students learn.<sup>3</sup>

It has a major impact on the well being of the individual, his progress and his career choice.<sup>2,4</sup> The quality of the learning environment has been identified as a factor for effective learning and students' academic success.<sup>5</sup> It is also one of the most important factors for determining the success of a curriculum.<sup>6</sup>

Creation of a conducive environment is indispensable to success. In such an environment, not only learning is valued but also the evaluation, review and commitment to improvement.<sup>7</sup>

Learning depends on several factors, but a crucial step is the engagement of the learners. This is affected by their motivation and perception of relevance, which in turn, can be affected by their previous experiences and preferred learning styles, and by the context and environment in which the learning is taking place.<sup>8</sup>

Clinical Research using students' perceptions of important dimensions of the classroom environment as independent variables has established consistent relationships between learning environment, and students' academic and social emotional outcomes.<sup>9-15</sup>

One of the main qualities of a positive educational environment is to impart students' influence and responsibility over their own learning situation, and thereby increase the likelihood that students would become active learners. This focus is consistent with a social cultural perspective which views learning as an active process, taking place in interactions with other more knowledgeable persons.<sup>9</sup>

The UK Standing Committee on Postgraduate Education highlighted the importance of educational environment in their statement that "A working environment that is conducive to learning is critically important to successful training".<sup>16</sup>

## Materials and Methods

**Inclusion criteria:** All medical students in the conventional and PBL program in levels III, IV and VI were included. Students were 573; 241 males and 332 females in both conventional and PBL curricula.

This is a cross-sectional study that was performed during the academic year 2009/2010 in a medical school in the Kingdom of Saudi Arabia.

The Dundee Ready Educational Environment Measure (DREEM) Inventory was used for measurement of students' perceptions of the educational environment in its original language (English). This instrument is intended to measure and diagnose the environments of educational institutions in the healthcare professions.<sup>17,18</sup>

Anonymous Questionnaires were directly administered and supervised by the researcher and students were given 1-2 h to answer them. Students were not allowed to discuss with each other but they were allowed to ask questions to the instructor about the meaning of statements or educational terms in the questionnaire.

Data analysis was done using Statistical Package for Social Sciences (SPSS) for Windows Version 16. Descriptive statistics were used to show the distribution of the data. It was used to give mean scoring of each statement in each students' subgroup, overall and subscale means. Besides the statistical significance, the items were scrutinized for the educational significance in interpreting the values.

Inferential statistics were used to derive conclusions about the population, based on the sample of data. In order to determine the combined effect of the gender, year of study and method of teaching the researcher used Spearman Rank Correlation.

Multivariate logistic regression models were used to identify the factors related to educational environment perception

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