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LETTER TO THE EDITOR

Transforming Dental Education in the Digital Age: Launching the Digital Dental Demonstration Room

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TO THE EDITOR:

As the student body increases and the number of faculty members decreases, the pressing problems in education are growing. Educational space is running out, and classrooms are packed with students, some standing in corridors. This is highly prejudicial to the overall quality of education.

The increasing number of students has translated to fewer resources (classroom space, equipment, staff). This is most important in medical education because it directly relates to human health. Decreased classroom interaction and learning apps impact the requisite skills.

One of the key problems is that direct observation of students by teachers in dental education scores a very low rank due to limitations.

Conversely, the utilization of digital technologies in dental education programs is blossoming, but this trend will obviously rely on available and desired local grounds. The Challenge in Digital Education is the agility to adapt and apply technological development on a continuous basis in dentistry (1,2)

The results of a systematic review study showed that the published literature in the field of digital dental education is divided into six areas: Web-based knowledge transfer/e-learning, Digital surface mapping, Dental simulator motor skills, 3D printing and prototyping, Digital radiography, and Surveys on the penetration and adoption of digital education (2)

Digitalization in dental education expands document availability and improves communication between students, teachers, and administrators. It is critical to embed this practice into dental curricula for future oral health care providers, as this trend affects everybody.

Students in busy educational environments are often uncomfortable inspecting their professors' clinical techniques thoroughly because of the oral cavity itself. One way to solve this issue is the intraoral camera. It is a small, handheld device that dentists use to obtain magnified images of the insides of a patient's mouth. Intraoral cameras provide high-resolution images for diagnosing dental diseases, patient education, and treatment progress documentation. Its compact and pleasant design allows dentists to show images of ideal oral images to patients so they can see their oral health problems. Moreover, these photos can be printed and filed with patient records for future comparison. These cameras have also been used in Malaysia for student education and assessment (3).

Incorporating intraoral cameras into dental devices and high-tech monitors is a great way to accommodate more students on the patient's side. It allows the students to see the professors' clinical work in steps and finer details, which helps them better understand the important steps. By showing live images of the procedures, students can examine and replay methods as demonstrated, allowing them to ask inquiries immediately throughout the live display. A Digital Dental Demonstration room (3DR) was a novel idea developed at the Birjand University of Medical Sciences. This facility not only enhances student experience in the classroom but also promotes a more student-centered approach to learning and, therefore, better equips future dentists to face professional responsibility.

Designing the new educational space

The design of the new educational space for dental students was carried out in several stages:

1. Needs assessment:
   - Educational needs assessment: Increased student capacity and crowded clinical departments and the need for a room to digitally display the professor's performance
   - Technology needs assessment: A room with a dental unit, intraoral and extraoral cameras, monitors, and suitable chairs for students
   - Human resources needs assessment: Training professors to use the equipment and the presence of a technology expert for setup and support
2. Design and development: Providing the equipment, including a dental unit with a camera and a 65-inch monitor, and hiring a technical expert.
3. Implementation: Use of 3D room for student training
4. Evaluation: Survey of students and faculty

Results of evaluation

Since the launch of this room at the university, nine faculty members have been actively holding classes in it. This activity indicated its success, as shown in Tables 1 and 2.

TABLE I. THE ATTITUDES OF PROFESSORS ON 3DR

#	Items	Very High (%)	High (%)	Medium (%)	Low (%)	Very Low (%)
1	How satisfactory is the quality of equipment used in this room?	(22.22) 2	(44.44) 4	(33.33) 3	-	-
2	To what extent has using this system solved the problem of directly displaying work on the patient for students?	(55.55) 5	(22.22) 2	(22.22) 2	-	-
3	Has the use of this room contributed to student learning?	(33.33) 3	(55.55) 5	(11.11) 1	-	-

4	Has using this room positively influenced the interaction between teacher and student?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
5	Do students understand the processes well using this room?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
6	Are the training sessions in this room engaging for students?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
7	Is the room space suitable and comfortable?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
8	Is the arrangement of the equipment optimal?	(22.22) 2	(66.66) 6	(11.11) 1	-	-
9	Does this room provide more comfort for patients?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
10	Is using this room cost-effective for a large population of students?	(33.33) 3	(55.55) 5	(11.11) 1	-	-
11	How beneficial is the use of this room in training sessions?	(44.44) 4	(44.44) 4	(11.11) 1	-	-

TABLE III. THE ATTITUDES OF STUDENTS ON 3DR

#	Items	Very Satisfied (%)	Satisfied (%)	Medium (%)	Dissatisfied (%)	Very Dissatisfied (%)
1	How is the room arranged?	(25) 4	(25) 4	(31.25) 5	(18.75) 3	-
2	How is the quality of equipment used in this room?	(43.75) 7	(18.75) 3	(25) 4	(6.25) 1	-
3	Can you understand the process of performing work by watching the teacher's actions on the monitor?	(62.5) 10	(25) 4	(6.25) 1	(6.25) 1	-
4	Did you find the training sessions in this room engaging?	(62.5) 10	(31.25) 5	(6.25) 1	-	-
5	To what extent did being present in this room help your learning compared to when all students are positioned above the patient?	(56.25) 9	(31.25) 5	(22.22) 2	-	-

Other applications of 3DR:

- This room has also become a center for conducting research in educational processes.
- Another use of this room is to hold practical workshops and CME programs.

In conclusion, given the increasing student population, the lack of educational space, and the need to prioritize patient comfort, spaces like 3DR seem necessary. A survey of professors and students confirmed the effects of this change.

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