Virtual Patient Simulator for Skill Training in Dentistry

Group 16 :

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Background

DENTAL STUDENTS

- Appropriate patient assessment for clinical disciplines.
- Including proper
  - History taking
  - Examination
  - Decision on required investigations

VIRTUAL PATIENTS (VP)

- Used for
  - Repetitive and deliberate practice
  - Record keeping & reproducibility, assessment

Problem

- Need for,
  - Appropriate patient assessment
  - Proper clinical reasoning methods

Adequate training in problem based decision making

- Lack of fair Assessment process
- Less chances for a real time tutoring system
- Less human resources

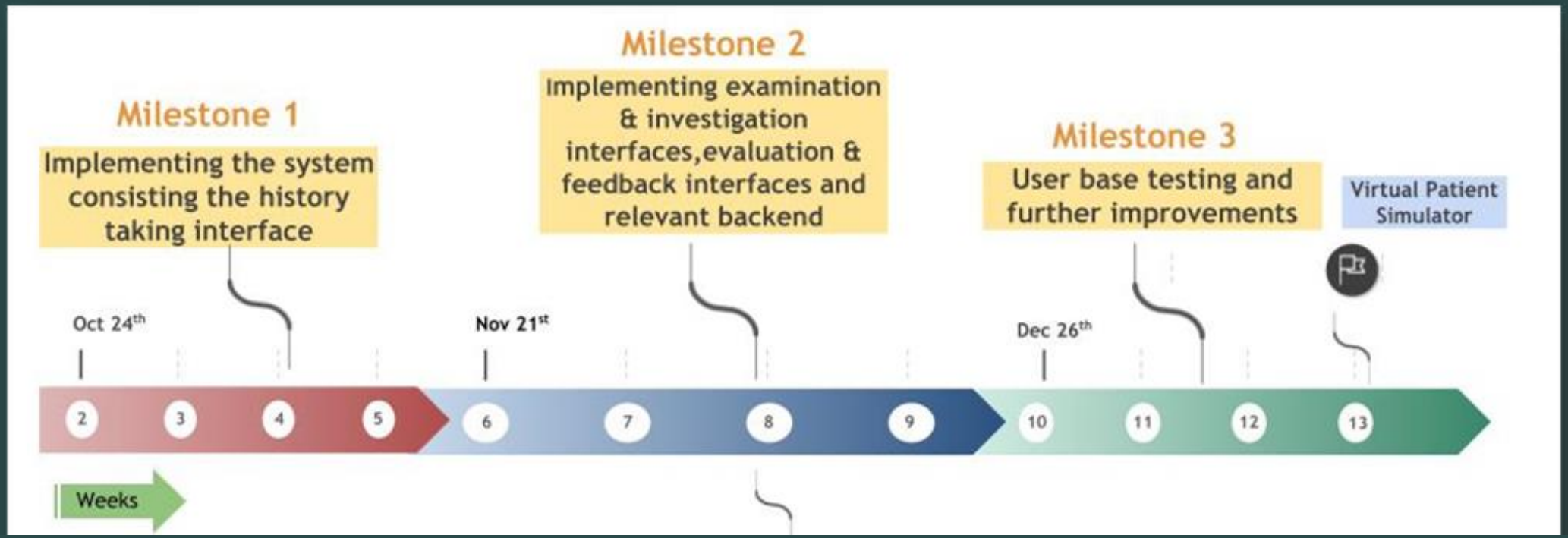
Solution

Virtual Patient Simulator

- Assist the students using a virtual environment.
  - develop clinical reasoning and decision making skills

- Virtual interface to practice patient assessment
  - following the main phases as in a real patient assessment.

Milestones

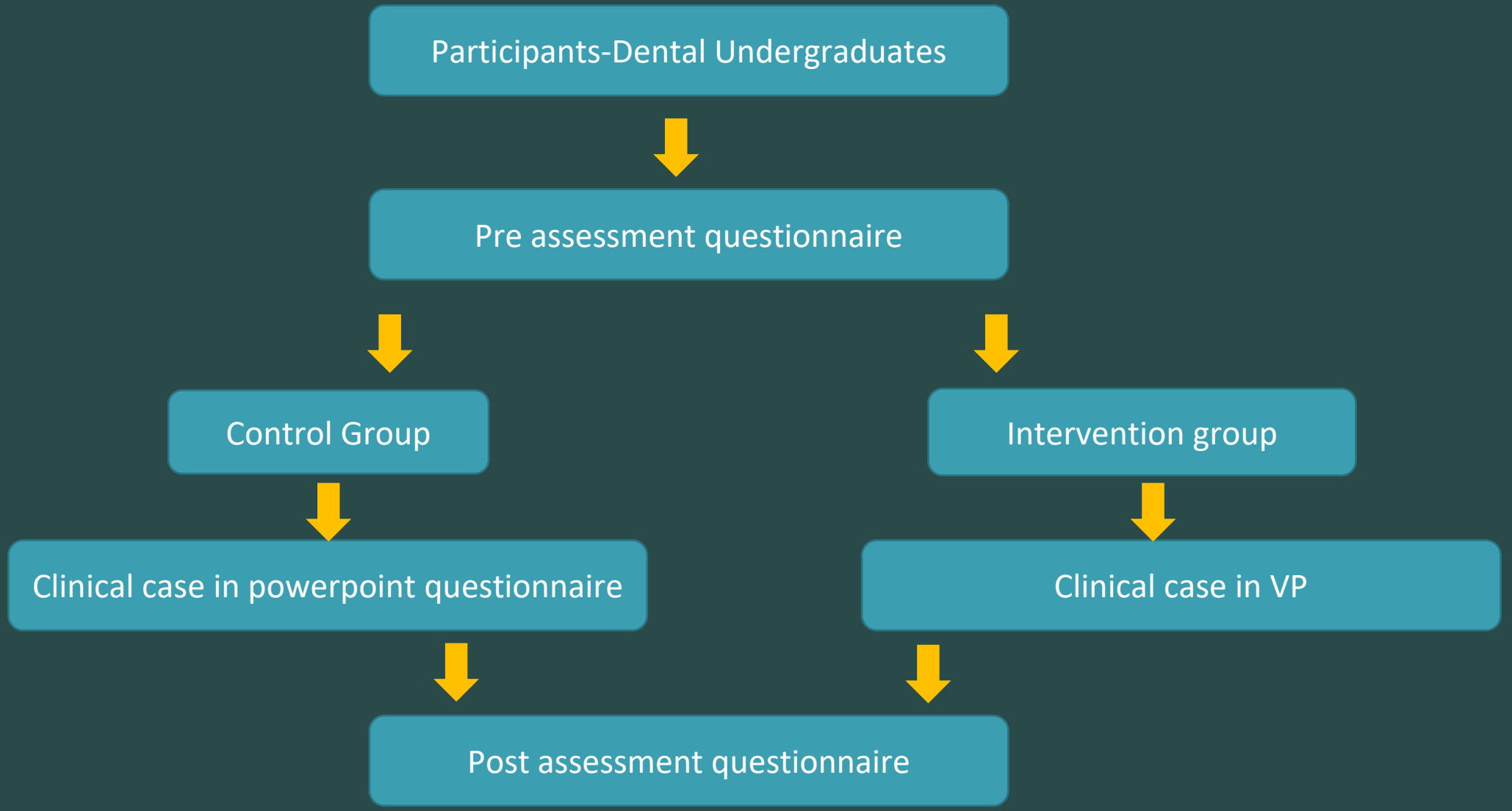

Milestone 1
Implementing the system consisting the history taking interface
Milestone 2
Implementing examination & investigation interfaces,evaluation & feedback interfaces and relevant backend
Milestone 3
User base testing and further improvements
Virtual Patient Simulator
Oct 24th
Nov 21st
Dec 26th
2
3
4
5
6
7
8
9
10
11
12
13
Weeks

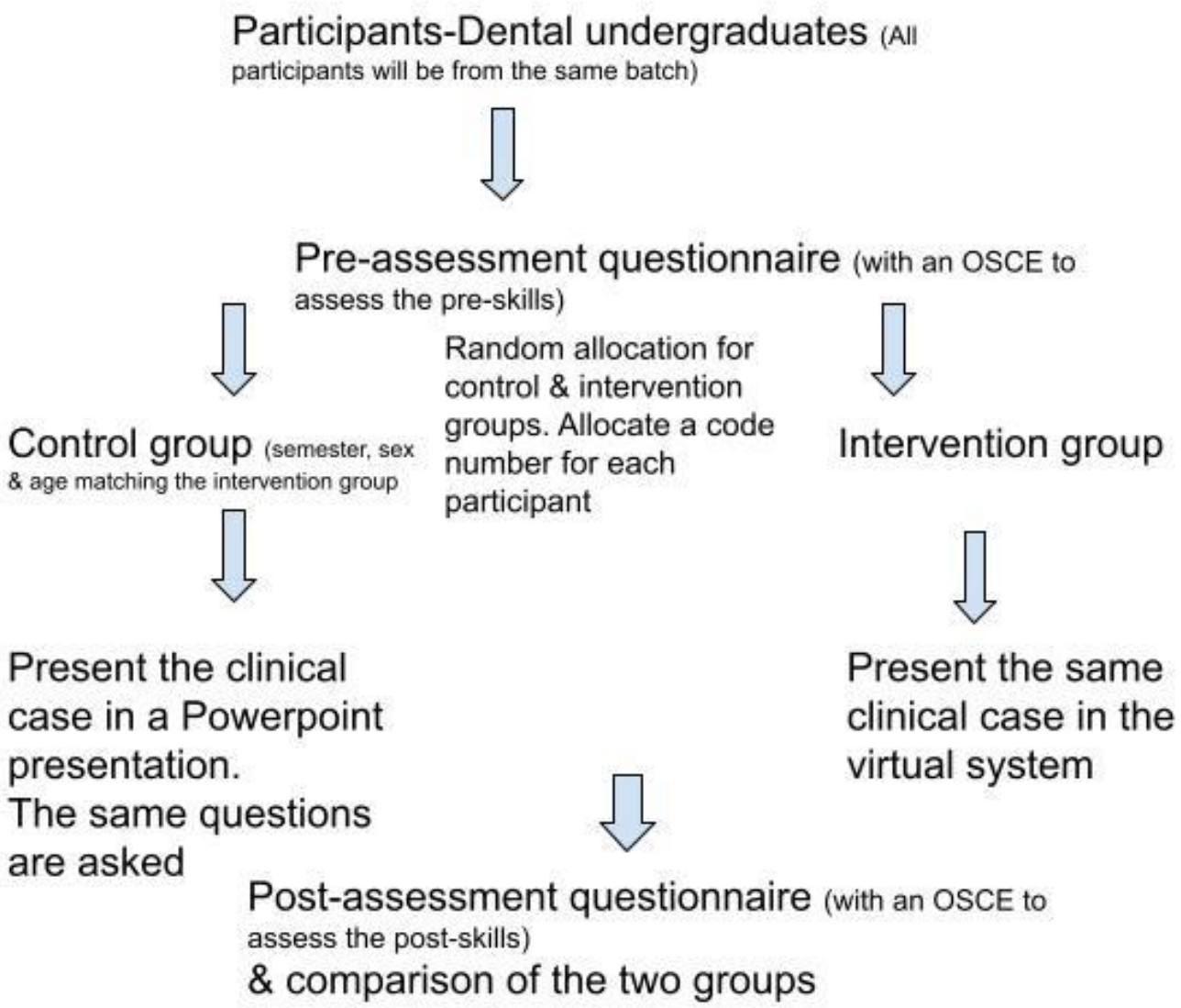
Challenges

	Challenge	Solution
Data Set	Multiple defects in a single x-ray	Multiple diagnosis selection choice for a student
	Inability to provide single x-rays for each tooth	Provide x-ray for the specific tooth
Evaluation 1.History Taking phase	Categorize the questions as relevant/ irrelevant	feedback for question selecting order
	No particular order in a section.	Consider • Critical/Fatal Questions • Not applicable (N/A) groups and questions

System Implementation

Study Design for Feedback Evaluation




Participants-Dental undergraduates (All participants will be from the same batch)
Pre-assessment questionnaire (with an OSCE to assess the pre-skills)
Random allocation for control & intervention groups. Allocate a code number for each participant
Control group (semester, sex & age matching the intervention group
Intervention group
Present the clinical case in a Powerpoint presentation.
The same questions are asked
Present the same clinical case in the virtual system
Post-assessment questionnaire (with an OSCE to assess the post-skills)
& comparison of the two groups

Results of the Feedback Evaluation

		Mean	Standard Deviation
Pre questionnaire	Control	44.64	9.896441807
	VP	44.21	13.77025356
Post questionnaire	Control	58.93	9.64336588
	VP	58.95	11.85314625

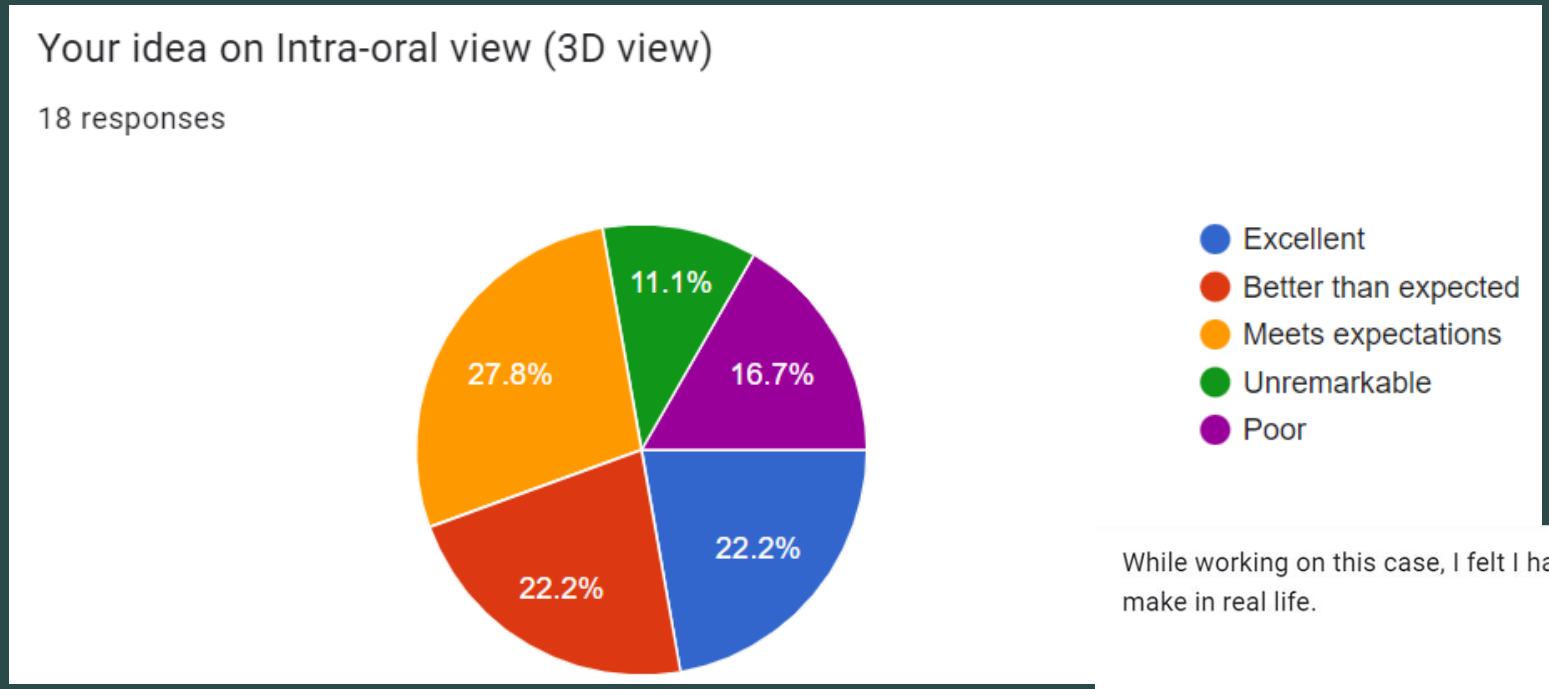
	P-value
Pre questionnaire	0.818235
Post questionnaire	0.666375

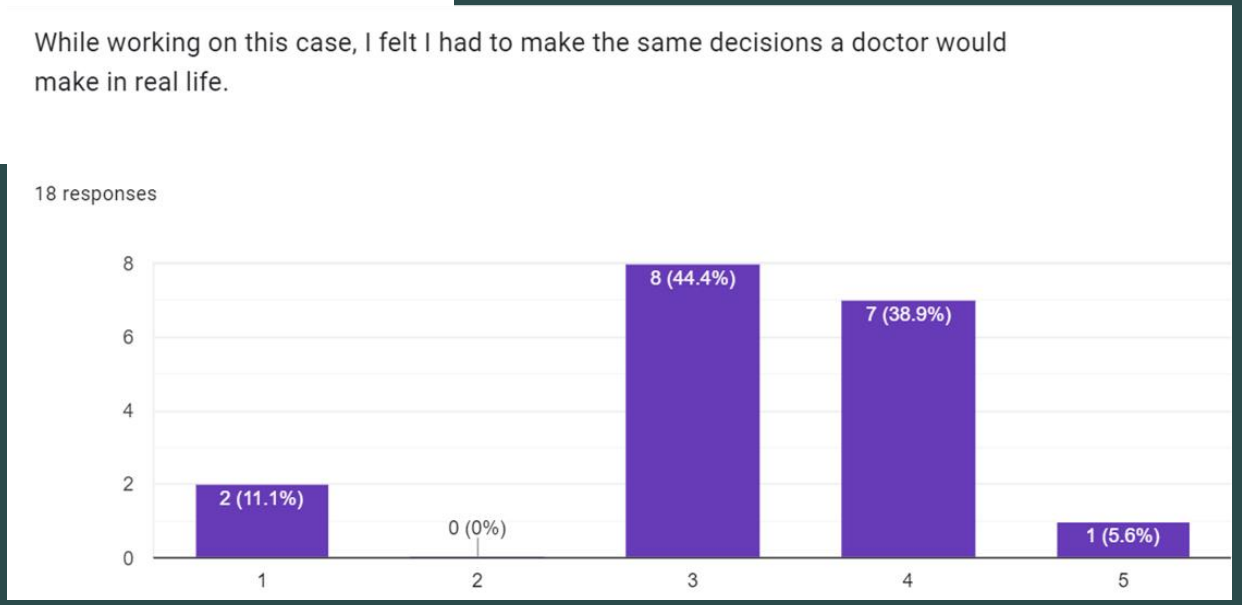
Results of the System Evaluation

System Evaluation

Concept	Mean
Authenticity of patient encounter and the consultation	3.3125
Professional approach in the consultation	3.50
Coaching during consultation	3.857143
Overall judgment of case workup	3.125

Results


Your idea on Intra-oral view (3D view)
18 responses
11.1%
16.7%
27.8%
22.2%
22.2%
Excellent
Better than expected
Meets expectations
Unremarkable
Poor


While working on this case, I felt I had to make the same decisions a doctor would make in real life.
18 responses
8
6
4
2
0
2 (11.1%)
0 (0%)
8 (44.4%)
7 (38.9%)
1 (5.6%)
1
2
3
4
5

Thank You!!