

# Factors Influencing Case Discussions in a Philippine Dental School

Czarina Al H. Nepomuceno-Baloy<sup>1\*</sup>

\*Corresponding author's email address: [anbaloy@gmail.com](mailto:anbaloy@gmail.com)

<sup>1</sup>Florida Institute of Advanced Dental Education, Miami, Florida, USA

## RESEARCH ARTICLE

### Abstract

**Background and Objectives:** Perceptions of today's healthcare students determine the direction of health profession education. This research identified the factors that influenced student learning during case discussions at a Philippine dental school.

**Methodology:** Non-participant observation was conducted on students across year levels and among faculty members from the disciplines of Oral Medicine, Operative Dentistry, and Prosthodontics. Focused Group Discussions (FGD) and Interviews were utilized to triangulate observations. Measures of Central Tendency analyzed student and case discussion profiles while Content Analysis was utilized on field notes and transcripts of case discussions, interviews, and FGDs.

**Results and Conclusion:** The results of this study supplemented the evidence in Boyd [11], Hendricson et al. [8], Alinea [2], and Pineda [6] that successful clinical learning involves skilled facilitators, time-invested encounters utilizing HOTS strategies, provision of adequate waiting time, and timely feedback - all performed in a non-threatening environment for both student and facilitator. Understaffed clinical learning environments resulted in case discussions with multiple interruptions, decreased faculty-student interactions, and an overworked faculty. Clinical learning was hindered by inconsistent feedback, preconceived inadequacies, and incongruent expectations. Since case discussions are central to clinical teaching, the value of effective facilitating and the maintenance of a non-threatening environment are integral.

**Keywords:** *clinical education, critical thinking, dental students, teaching methods, dental education*

## Introduction

Clinical teaching puts into context all learning acquired by a student. Clinical learning accomplishes the direct application of cognitive knowledge towards patient care [1]. A student gains mastery of knowledge and expertise in different skills because of the various experiences provided in a clinical setting [1,2]. Clinical case discussion, a small or large group teaching method that uses a case either as part of or as a central focus of the curriculum, can be used on different class sizes, settings, student levels, complexity, and depth. It has great potential for stimulating High Order Thinking Skills (HOTS) but is considered time consuming and requires a well-trained facilitator [3].

The case discussions at a Philippine dental school are unique as these are one-on-one clinical encounters focused on a particular case increasing their value as

opportunities for learning. During these encounters, student cognitive ability is assessed while enhancing HOTS. The encounter includes discussion of clinical history and data gathered, diagnosis, and a proposed treatment plan.

Critical thinking is imperative for formulating treatment plans and is where students integrate context-based information and multidisciplinary knowledge to come up with strategies for comprehensive treatment care [4]. Mastery of Lower Order Thinking Skills (LOTS) is a prerequisite for HOTS and critical thinkers must draw upon this knowledge to engage in activities that require synthesis and evaluation, such as treatment planning [2,4,5].

This study sought to determine the factors that influenced these discussions. Such findings can provide guidance in improving clinical teaching methods, faculty and curricular development.

## Methodology

The research protocol described in this article was reviewed and approved by the Research Ethics Board Review Panel on April 29, 2013.

A total of 100 students enrolled in clinical dentistry who have completed the majority of pre-clinical requirements and 25 faculty members who hold case discussions were invited to participate in the study. Consenting to the study were 94 students (70 females and 24 males) and 23 faculty (15 females and 8 males). Thirty subjects completing thirty five case discussions achieved data saturation disregarding the need for further subject inclusion. All case discussions and character players involved in the activity became the key respondents and purposive samples.

The primary method of data collection was direct, non-participant observation of actual case discussion sessions. The observer was in an inconspicuous location. The use of the word discussion was replaced with preceptorship or teaching-learning sessions to account for observer effect. The data collection phase lasted five weeks to accustom the participants to the presence of the observer, as well as the video/audio equipment further minimizing the Hawthorne phenomenon.

An observational tool was used to gather field notes during case discussions (Figure 1). The observation tool contained HOTS techniques, which were drawn from the studies of Pineda [6], Alinea [2], King et al. [7], Hendricson et al. [8], Clasen and Borik [9], Boyd [11], and Behar-Horenstein and Mitchel [10], which examined effective

OBSERVATION TOOL																																																			
Student Code	Sections		Start Time		Teacher Code		Age		Gender																																										
Clinic Level	No. of Previous Discussions		End Time				Expertise		Additional Training																																										
Topic			Total Time Spent				Number of years in Practice		Number of years as a clinical teacher																																										
MATERIALS PRESENTED BY STUDENT										METHODS USED TO ELICIT THINKING SKILLS WITH KIND FREQUENCY AND QUALITY/TYPE																																									
PxC	PA	DxC	TxP	Ph	WR	Dr	PT	LO	I	S	OA	Ex	M	Fb	Ad	Env	Q	WT	A																																
LEGEND										<b>NOTES:</b> <ul style="list-style-type: none"> <li>• Observe case discussion milieu</li> <li>• Observe technique</li> <li>• Observe difficulties</li> <li>• Upraise student's actual HOTS level</li> </ul>																																									
<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">PxC</td> <td>Patient's Chart</td> </tr> <tr> <td>PA</td> <td>Periapical Radiograph</td> </tr> <tr> <td>DxC</td> <td>Diagnostic Chart</td> </tr> <tr> <td>TxP</td> <td>Treatment Plan</td> </tr> <tr> <td>Ph</td> <td>Intra/Extraoral Photos</td> </tr> <tr> <td>WR</td> <td>Witness Report</td> </tr> <tr> <td>Dr</td> <td>Drawing</td> </tr> <tr> <td>PT</td> <td>Problem Tree</td> </tr> <tr> <td colspan="2"> </td> </tr> <tr> <td>LO</td> <td>Learning Objectives Aligned and Known</td> </tr> <tr> <td>I</td> <td>Giving Instructions</td> </tr> <tr> <td>S</td> <td>Scaffolding</td> </tr> <tr> <td>OA</td> <td>Organizing Learning Activities</td> </tr> <tr> <td>Ex</td> <td>Explaining</td> </tr> <tr> <td>M</td> <td>Modeling of Thinking Skills / Examples</td> </tr> <tr> <td>Fb</td> <td>Feedback</td> </tr> <tr> <td>Ad</td> <td>Adaption to Level of Student</td> </tr> <tr> <td>Env</td> <td>Good Environment</td> </tr> <tr> <td>Q</td> <td>Questioning</td> </tr> <tr> <td>WT</td> <td>Waiting Time</td> </tr> <tr> <td>A</td> <td>Assessment is known by the student</td> </tr> </table>																				PxC	Patient's Chart	PA	Periapical Radiograph	DxC	Diagnostic Chart	TxP	Treatment Plan	Ph	Intra/Extraoral Photos	WR	Witness Report	Dr	Drawing	PT	Problem Tree			LO	Learning Objectives Aligned and Known	I	Giving Instructions	S	Scaffolding	OA	Organizing Learning Activities	Ex	Explaining	M	Modeling of Thinking Skills / Examples	Fb	Feedback
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Figure 1. Observation Tool

methods in critical thinking promotion during clinical teaching. An open section allowed for the flexibility and addition of factors not within the scope of the instrument.

During a case discussion, the following are observed:

1. The over-all clinical environment during the actual case discussion which includes lighting, ambient noise, and climate
2. Participants during the discussions which include the student, the faculty chosen to hold the discussion, and other incidental participants
3. Characteristics of the participants which include student year level, student cognitive level displayed, subject of the case discussion, faculty expertise and designation
4. Location of the case discussion which includes position of the case discussion site relative to the other faculty members or students and clinical facility
5. Notable distractions during the actual discussion
6. Number and nature of interruptions
7. Length of the case discussion
8. Flow of the case discussion
9. Materials utilized during the case discussion
10. Type, quality, and frequency of used HOTS technique which may include any of the following:
  - a. Learning objectives that are known and aligned
  - b. Giving instructions
  - c. Scaffolding
  - d. Organizing learning activities
  - e. Explaining
  - f. Modeling of thinking skills / giving examples
  - g. Giving timely and appropriate feedback
  - h. Adaptation to the level of the student
  - i. Providing a conducive environment for discussion which may include voice tone, over-all demeanor
  - j. Appropriate level of questioning
  - k. Providing appropriate waiting time
  - l. Assessment that is known to the student
11. Unique occurrences during the case discussion

In addition to direct observation, video and audio recordings were done. The video framing included the student, clinical instructor/faculty, and an overview of the case discussion location. These recordings aided the researcher to further probe the encounter and corroborate the findings in the observed data. Any written report or diagnostic tool used during the discussion were collected as secondary data and appraised by the primary researcher

and content expert. Focused group discussions (FGD) and post-discussion interviews were conducted on the students and faculty to clarify some incidences during the discussion. All these sources of data ensured triangulation.

Data analysis consisted of identifying means and frequencies on student and case discussion profiles which included diagnostic tools and strategies employed during case discussions. Two blinded copies of all audio recording transcripts were independently scored by the primary observer and content expert using Brown's Interaction Analysis System or BIAS. The BIAS analyzed the frequency and types of interaction between the teacher and student. Content analysis of the transcripts of the 35 case discussions, FGDs, and interviews were done to generate factors that influence case discussions. Collaborative interpretation of the identified factors were done by a lead researcher and a content expert to reduce observer bias and ensure that the data were approached from broad perspectives.

## Results

### *Nature of Case Discussions*

Prior to the actual case discussions, each discipline would have a list of required tools to be completed by a clinician (Table 1). The average preparation time for a case discussion was one to two weeks. This involved completion of diagnostic tools, preparation of a written report, scheduling with chosen faculty, and studying for the discussion. These required materials were used as learning tools and served as concrete evidences of the breadth and depth of the clinician's competency and understanding of the case.

A total of 35 case discussions were observed and each one was conducted in a combination of English and Filipino languages with Filipino being predominant. Results showed that an average case discussion lasted 1 hour and 11 minutes (70.69 min) (Table 2). A typical case discussion followed the patient work-up form as a general outline. Case discussions commenced with the submission of the diagnostic tools particular to each discipline after which, the faculty chosen by the clinician for the discussion got acquainted with the peculiarities of the case. Oration of the patient's personal information, chief complaint, history of preset illness, past medical, social, family, and dental history was done. Extraoral and intraoral findings were shown as well as other diagnostic aids made (Figure 2). Several questions regarding the findings or treatment options were raised by the faculty and the

**Table 1.** Summary of required tools per discipline

Discipline	ASC	DSC	R	DxC	DxW	MP	Ph	WR	DM	D	TxP FC	n
<b>PEDO</b>												5
<b>FPD</b>												8
<b>PERIO</b>												4
<b>OS</b>												5
<b>ENDO</b>												4
<b>RPD</b>												6
<b>CD</b>												5

**Legend**

<b>ASC</b>	AS Chart	<b>DxC</b>	Diagnostic Cast	<b>Ph</b>	Intra/Extraoral Photos	<b>TxP FC</b>	Treatment Plan Flow Chart
<b>DSC</b>	Discipline Specific Chart	<b>MP</b>	Mock Preparation	<b>WR</b>	Written Report		
<b>R</b>	Radiograph	<b>DxW</b>	Diagnostic Wax-up	<b>DM</b>	Decision Map		

student was expected to answer correctly. A clinical instructor waited approximately three to four seconds before interjecting or start answering the question (Table 2). Common to all case discussions observed was an environment filled with ambient noise and distractions from other faculty or students. Using the results from the BIAS, the following were revealed:

- Six to seven interruptions occur due to institutional and non-institutional tasks being attended to by the faculty.
- Commonly used strategies during case discussions were questioning at the LOTS level, explaining, modelling of thinking skills, and cueing (Table 3).

Any ambiguous or incorrect answer resulted in correction of concepts or discontinuation of the discussion in favor of library work to help the student find the correct answers (Figure 2).

Findings from the direct observation, FGDS, and post-discussion interviews revealed the factors that influenced case discussions. The following were key factors that positively influence student learning:

*Skilled Facilitator*

Effective facilitators were observed to use a variety of HOTS techniques, such as scaffolding, adequate questions

leveled to the student's competence, explaining, immediate feedback, modelling of thinking skills, giving cues or prompting, and establishing a discussion outline. During discussions, it was observed that when students deviated from the established outline, these facilitators tactfully redirected the discussion. These faculty provided a non-threatening environment through positive feedback, constructive criticism, calm demeanor, and use of a neutral voice tone and facial expression. These facilitators adjusted to the level of the student through their HOTS techniques and, yet, continued to conduct discussions with adequate breadth and depth. During the FGD, the student consensus was that the faculty who simplified concepts were favored as discussion facilitators leading to an increased confidence in the student's competency. The students disclosed that case discussions became collaborative and favorable when treatment planning allowed the student to weigh in alternatives and make judgments.

An example of this is typified by one discussion done in the Endodontics Section. Case discussion #33 had several question and answer series. There were attempts to pose questions at the HOTS level but the clinician was unable to satisfactorily answer which resulted in chunking of concepts into smaller ideas and reverting to recall questions serving as leading questions until the major concept was understood.

**Table 2.** Discipline, duration, number of interruptions, and waiting time of case discussions

Case Discussion	Discipline	Duration (minutes)	No. of Interruptions	Waiting Time (seconds)
1	RPD 32	30	5	3-5
2	RPD 32	59	9	5
3	RPD 32	74	7	5-10
4	CD 32	100	2	3-5
5	CD 40	60	3	3-5
6	CD 40	61	17	3-5
7	SD/RPD 40	102	17	3-5
8	RPD 40	60	12	4-9
9	ENDO 40	105	18	0
10	ENDO 40	90	13	0
11	PERIO 40	60	1	0
12	PERIO 40	540	45	0
13	PEDO 32	20	3	600 <sup>‡</sup>
14	PEDO 40	20	0	0
15	PEDO 40	25	1	5-10
16	FPD 32	20	2	0
17	FPD 40	50	7	0
18	FPD 40	30	4	0
19	FPD 40	20	too many to count	0
20	OS 40	22	0	10
21	PEDO 40	45	2	0
22	CD 40	75	24	2-3
23	FPD 32/40	122	8	2-10
24	ENDO 40	30	0	3-5
25	ENDO 40	34	0	3-5
26	RPD 40	60	0	3-5
27	ENDO 32	40	2	3-5
28	CD 32	45	3	3-5
29	PERIO 40	30	0	5-10
30	PERIO 40	120	8	3-5
31	OS 40	60	11	3-5
32	FPD 40	120	2	3-5
33	PERIO 40	90	2	0-120 <sup>^</sup>
34	FPD 40	25	0	10
35	ENDO 40	30	4	5
<b>AVERAGE</b>		<b>70.69</b>	<b>6.82</b>	<b>3.62</b>

‡ one instance where the faculty asked for the student to come back after 10 minutes to study and eventually answer the question

^ The faculty gave considerable amount of time for the student to read her reference

**Legend**

**32**  
**PEDO**  
**PERIO**

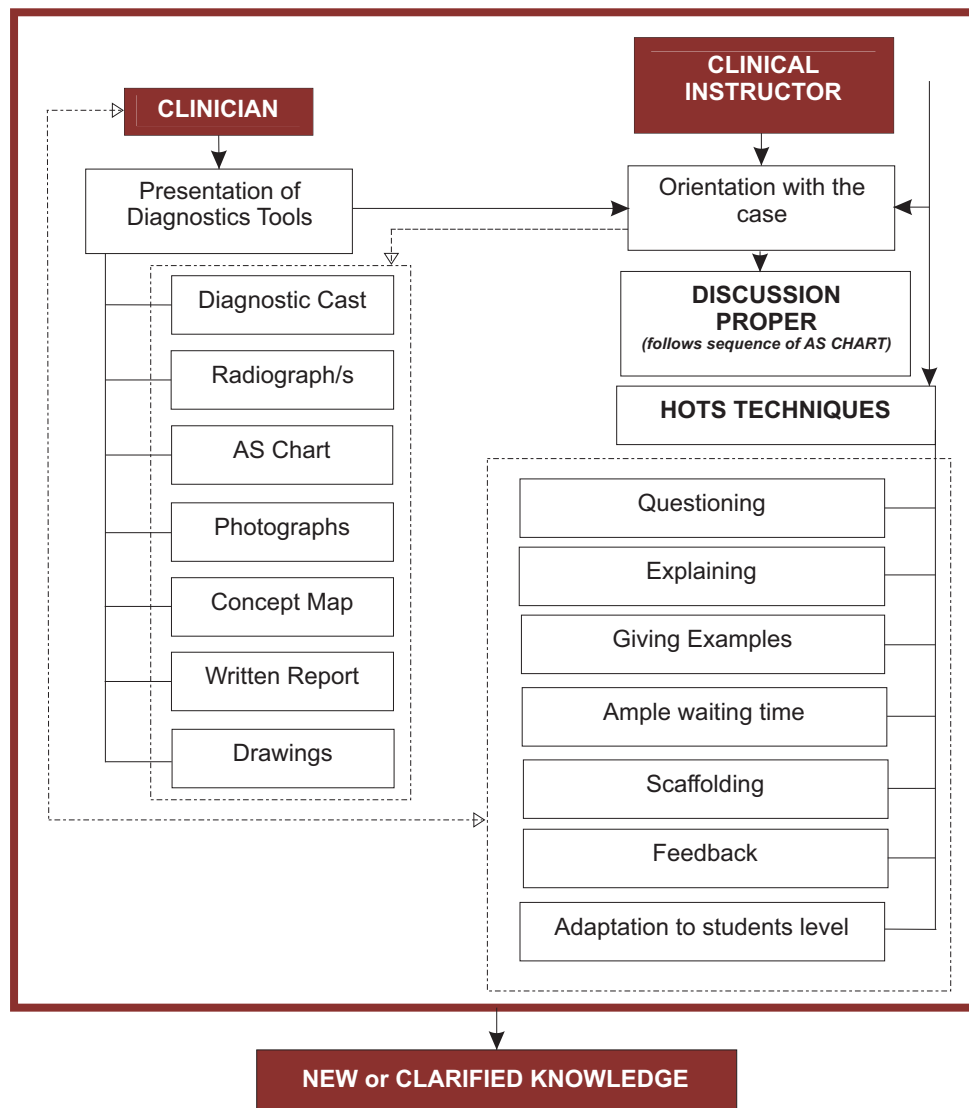
junior case  
Pediatric Dentistry  
Periodontics

**40**  
**OS**  
**CD**

senior/resident case  
Oral Surgery  
Complete Denture

**FPD**  
**ENDO**  
**RPD**

Intra/Extraoral Photos  
Written Report  
Decision Map



**Figure 2.** Schematic diagram of a case discussion

Below is an excerpt of the interaction between an effective facilitator and a student.

Clinician #0038: *"Ma'am, kasi ano eto po. Base sa nabasa ko, pwede syang mag-react dahil sa thermal expansion of gases kasi nagdidilate po sya ng blood vessels di ba?"* (Ma'am, the thing is, based on what I have read, it will elicit a reaction due to thermal expansion of gases because it can dilate blood vessels.)

CI #1003: *"So, in the early part, the cold stimulus would provoke more pain reaction. Then when it's starting to die, will it interact more to cold or hot? Sa nabasa*

*mo? What do hot and cold do to the blood vessels?"* (So, in the early part, the cold stimulus would provoke more pain reaction. Then when it's starting to die, will it react more to cold or hot? According to what you have read? What do hot and cold do to the blood vessels?)

Clinician #0038: "Constrict and dilate."

CI #1003: *"Constrict and dilate. So you are testing the vitality, you are testing the blood vessels. If you don't have any reaction to that, it means wala nang blood vessels na magdidilate at magcocontract. So wala*



*na. They are saying, at the early stages of irreversible pulpitis, what would happen?" (Constrict and dilate. So you are testing the vitality, you are testing the blood vessels. If you don't have any reaction to that, it means there are no more blood vessels to dilate or contract. So, they are not there. They are saying, at the early stages of irreversible pulpitis, what would happen?)*

Clinician #0038: *"Give pain. Constrict po."*

CI #1003: *"After, pagkamatay nung tooth, yung sinabi mo kanina." (After the death of the tooth, the one you said a while ago.)*

Clinician #0038: *"Ma'am, mas pwede po siya. Kahit saan daw po. Kahit namatay yung blood vessels niya. Eh may thermal expansion of gases inside. So baka yun yung nararamdaman ng patient hindi dahil buhay pa yung blood vessels. Parang ganun." (Ma'am, it is possible. In any case. Even if the blood vessels had died there is thermal expansion of gases inside. Maybe that is what the patient is feeling. Not because the blood vessels are still alive. Something like that.)*

CI #1003: *"Parang iba yung sinasabi mo." (It seems that what you are saying is different.)*

Clinician #0038: *"Ma'am, yung kasing ano, patient may feel pain daw po dahil yung thermal expansion of gases inside the canal." (Ma'am, because the patient may feel pain since there is thermal expansion of gases inside the canal.)*

CI #1003: *"What's thermal expansion? Thermal could be cold or hot."*

Clinician #0038: *"Parang specifically po heat. Hindi po siya cold." (It is specific to heat and not cold.)*

As this discussion progressed, more misconceptions and learning gaps were discovered which led to more explaining, giving cues, questioning at LOTS level, and redirecting. The clinical instructor delved into the thinking

process of the student to discover the root of the misconception. The faculty did not directly correct the diagnosis but wanted to probe why that particular diagnosis was reached. The encounter is illustrated below.

CI #1003: *"So, so far meron kang blood supply, vital. Tapos nakaramdam pa siya although nag-pulp exposure na siya. Bakit CAP?" (So, so far you have blood supply, vital. Then the patient felt sensitivity although there was a pulp exposure. Why CAP?)*

Clinician #0038: *"Naisip ko po kasi. Uhm. Pwede po ba pulpal lang? Pwede siyang yung diagnosis ko pulpal lang, walang periapical? Kasi yung choice ko within normal limits." (Because I was thinking. Uhm. Is it possible that my diagnosis is just pulpal and no periapical? Because my choice was within normal limits.)*

CI #1003: *"Kaya nga may choice ka na normal eh." (That is why you have normal as choice.)*

Clinician #0038: *"Ma'am, baka kasi mali." (Ma'am, it might be incorrect.)*

CI #1003: *"Kung hindi pwede yun, hindi namin ibibigay na choice." (If it was incorrect, we will not give it as a choice.)*

Clinician #0038: *"Ah. Ma'am, yung ano talaga, within normal limits." (Ah. Ma'am, it is really within normal limits.)*

CI #1003: *"Pwede naman kasing irreversible pulpitis diba? So starting pa lang diba. The pulp is involved, there's no periapical involvement. Bakit mo pipilitin na meron? Bakit CAP yung una mo?" (It is possible to have irreversible pulpitis, right? It is just starting. The pulp is involved, there's no periapical involvement. Why would you insist that there is? Why did you say CAP in your first diagnosis?)*

Clinician #0038: *"Ma'am, kasi ano." (Ma'am, because.)*

CI #1003: *"May iniisip ka siguro. Nabasa mo naman within normal limits eh." (Maybe you were thinking of something. Your readings were within normal limits.)*

**Table 3.** Summary of type and frequency of strategies used in some of the clinical rotations

## A. Fixed Partial Denture Rotation

Case Strategy	Questioning				Explain	Modelling Thinking Skills	Gives Outline	Gives Cues	Feedback
	Outside Topic	Clarify	LOTS	HOTS					
17	6	3	25	21	11	8	2	8	2
18	0	11	13	1	0	0	0	0	0
19	0	3	2	0	0	9	0	0	0
23	15	4	30	25	20	10	5	10	4
N	21	21	70	47	31	27	7	18	6

## B. Endodontics Rotation

Case Strategy	Questioning						Explain	Modelling Thinking Skills	Gives Outline	Gives Cues	Feedback	Summary
	Outside Topic	Clarify	Prod	Vague	LOTS	HOTS						
9	2	8	4	5	50	6	33	0	0	3	1	0
10	8	34	2	9	34	0	34	1	0	2	0	0
24	0	0	0	0	12	6	12	0	0	7	8	0
25	0	2	0	0	9	1	13	0	0	10	4	0
27	0	0	0	0	22	3	17	6	2	8	5	1
33	3	33	3	0	82	4	49	0	1	16	4	0
N	13	77	9	14	209	20	158	7	3	46	10	1

## Legend

**LOTS** lower order thinking skills (Recall, Comprehension, and Application)  
**HOTS** higher order thinking skills (Analysis, Evaluation, and Synthesis)

Clinician #0038: *"Ma'am, kasi ano eh. Baka kapag within normal limits ma-defer siya."* (Ma'am, because if it was within normal limits, the case might be deferred.)

*may CAP siya para magkapera ako?"* (It cannot be based on your liking. When you are diagnosing patients, they need to have CAP so you will earn money?)

CI#1003: *"Ngayon since mali yung diagnosis mo, deferred."* (Now, since your diagnosis is wrong, deferred.)

Clinician #0038: *"Ma'am hindi naman ganun."* (Ma'am, that's nothing like that.)

Clinician #0038: *"Aw! Eh Ma'am kawawa naman yung patient."* (Aw! poor patient.)

CI#1003: *"Something like that diba? Kasi kung ano wala siyang diagnosis na mali, madedefer yung patient hindi mo siya maruroot canal. So sa practice mo ganyan din?"* (Something like that, right? If there was nothing wrong with the patient, the case will be deferred

CI#1003: *"Hindi pwedeng in your liking. Dapat ano, ay kapag nagpapasyente ka, ay kailangan*



so you won't be able to do a root canal. In your practice, would it be the same?)

Clinician #0038: "Hindi naman po." (No.)

CI #1003: "Kasi here, you're getting patient to have a case. In real life, why do you get patients?" (Because here, you are getting patients to have a case. In real life, why do you get patients?)

Clinician #0038: "Because they come to you."

CI #1003: "And it's also a business. Siguro when you have zero patients, just because you need a case, ay merong Chronic Periapical Periodontitis 'to para meron akong pambayad ng bills ko. Yung ganun diba." (And it's also a business. Maybe when you have zero patients, just because you need a case, oh this patient has Chronic Periapical Periodontitis so I will have some cash to pay my bills.)

The faculty further reiterated, "Gusto mo kasi magkapatient. Hindi tama un." (You just want to have a patient. That is not right). The student answered, "Ma'am, hindi naman lang dahil dun. Kung ganun eh di dun pa lang sa unang patient ginawa ko na." (Ma'am, it is not just that. If that was the case, I would have done it on the first patient). The faculty replied, "Ngayon lang kasi 4th na 'to, kaya ginawa mo. Pero un na nga..." (It is just now since this is your 4th case but then again...). Then the faculty continued on with explaining diagnostic tests. Even with the discovery of the student's partial motivation behind the diagnosis, the faculty did not show any anger or change in demeanor. The

faculty touched on the affective side of learning by telling the student that diagnosis cannot be influenced by other things except facts based on diagnostic tests done.

### Time Invested Encounters

Discussions involving faculty who took the time to read the reports and analyze the diagnostic tools were favored and perceived as effective. These time invested faculty-student interactions led to a perception of thoroughness and interest in student learning. These facilitators also had the ability to avoid being distracted by ambient noise and were able to set aside non-institutional tasks when conducting case discussions. These faculty valued appropriate waiting time allowing students to respond using their own cognitive skillset.

On the other hand, the following were factors that negatively affected the students' clinical learning:

### Understaffed Sections

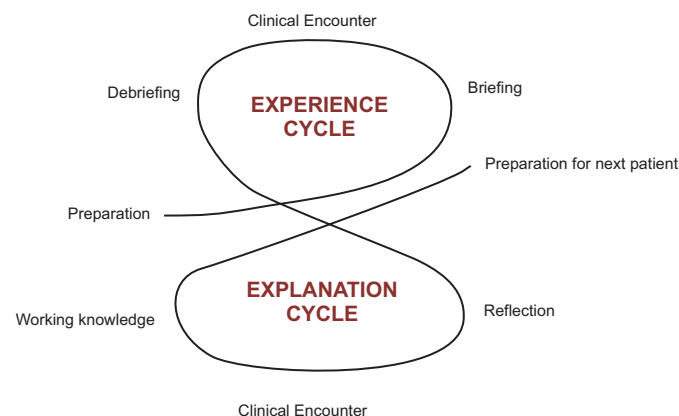
Understaffed sections resulted in haphazard case discussions characterized by many interruptions, shortened faculty-student interaction, leading to overworked faculty and student with unmet expectations. The faculty also identified having difficulties with concentrating on discussions on a fully loaded day.

### Inconsistent Feedback

Though feedback was provided, students expressed that some faculty would give inconsistent feedback which resulted to confusion. The following direct quotes illustrate this theme:

"Kasi po dati ang weird kasi sabi nung prof mag-install muna ako nung appliance before mag-extract kasi ma-trauma yung patient pero pag ginawa ko yun hindi naman kakasya ung appliance kasi nandun pa yung tooth." (Before, I found it weird that one professor asked me to install the appliance before extraction because she said that the patient would feel traumatized. I followed her but the appliance did not fit since the tooth to be extracted was still there).

"Pangit tingnan sa patient pero pinipilit nya. Nung pina-check ko sa ibang faculty pinabalik dun sa original set-up ko tapos the following day nung nakita na naman nya, pinabalik na naman nya dun sa set-up na gusto nya. Hindi ko na po alam sino susundin" (It did not look aesthetically



**Figure 3.** Clinical Teaching-Learning Cycle (Adapted from Cox [7])

pleasing on the patient but she was so insistent. When I had it checked with a different faculty member, I was asked to reset it to my original set-up. The following day, she saw my case again and she had it reset to the set-up she wanted. I do not know who to follow.).

*Preconceived Inadequacies, Past Experiences, and Incongruent Expectations*

The FGDs revealed that the students engaged in case discussions without set instruction or objectives. The students also feared that they were being judged as incompetent. Students sought advice from other students with past experiences as a coping mechanism. Experiences

among other students were highly influential on their preconceived notion regarding case discussions. Past experiences also played a role in the students' performance and self-esteem. The following direct quotes are examples of this theme.

*"Siguro po kasi hindi po maganda yung experience ko nung pre-clinical kasi lagi po akong nagreremove tapos sasabihin nila 'bakit mo hindi alam yan eh naturo na 'yan', so napapahiya po ako. Feeling ko tuloy lagi akong mali. Nag-aaral naman po ako pero parang kulang pa rin."* (I suppose, my previous pre-clinical experience was not good since I would often do removals (completion exams) then the faculty will say "Why wouldn't you know these, this was

**Table 4.** *Factors in effective clinical teaching*

1. Clinical Teacher [1,6]	
a. Field expert	• Manner of thought processing
b. Role models of the profession	• Professional demeanor • Manner of speaking
c. Good clinical teaching skill [8-10, 17-19, 6]	• Setting objectives and learning outcomes • Providing clear instructions • Limited teacher talk • Recognizing teachable moments • Using appropriate and well-timed teaching strategies such as scaffolding, questioning, organizing activities, explaining, modelling of thinking skills, giving examples of applied thinking, providing reflective activities, giving feedback on student thinking processes, adapting to the diverse student needs, prodding, and paraphrasing. • Providing 5 seconds waiting time [2]
2. Student [13,4,15,11]	
	• Ability to sort information, select key elements within that information, and search for recognized relevant patterns • Ability to integrate context-based information and multidisciplinary knowledge to formulate strategies for comprehensive treatment care • Mastery of Lower Order Thinking Skills (LOTS) • Ability to be self-directed learners
3. Environment [15,16]	
	• Appropriate conditions for learning such as adequate time, physical environment comfortable for teaching, manageable workload

**Table 5.** *Observed factors that influence case discussions*

1. Positive Influences on Effective Learning during Case Discussions	
a. Skilled facilitator	<ul style="list-style-type: none"> <li>• Uses a variety of techniques such as scaffolding, questions congruent to the student's level of competence, explaining, giving immediate feedback, modelling of thinking skills, cueing or prompting, and establishing an outline.</li> <li>• Tactful when correcting or redirecting discussions</li> <li>• Maintains a non-threatening environment through positive feedback, constructive criticism,</li> <li>• Exhibits a calm demeanor and facial expression with the use of neutral voice tones</li> <li>• Adjusts to the level of student competency</li> <li>• Simplifies complex concepts</li> <li>• Engages students in collaborative learning</li> </ul>
b. Time-invested encounters	<ul style="list-style-type: none"> <li>• Spends time analyzing diagnostic tools presented by the student</li> <li>• Focuses on the discussion with minimal distraction</li> <li>• Observes adequate waiting time (~5 s) to allow students to respond using their own cognitive skillset</li> </ul>
2. Negative Influences on Effective Learning during Case Discussions	
a. Understaffed sections	<ul style="list-style-type: none"> <li>• Increases interruptions during case discussions</li> <li>• Shortens faculty-student interaction</li> <li>• Results in overworked faculty</li> <li>• Results in students with unmet expectations</li> </ul>
b. Inconsistent feedback	<ul style="list-style-type: none"> <li>• Inconsistency between known clinical concepts and feedback</li> <li>• Inconsistent feedbacks among faculty members</li> </ul>
c. Preconceived incompetence and incongruent expectations	<ul style="list-style-type: none"> <li>• Results in different coping mechanisms that may or may not encourage learning</li> <li>• Results in emotional distress and lowered self-esteem</li> </ul>

already taught." It was embarrassing. I feel as though I am always wrong. I do study but I feel it is never enough).

*"Natrot trauma po ako. Hindi po ako nakakatulog sa gabi. Minsan gusto ko na pong umuwi sa probinsya. Yung isa ko pong classmate nag-hyperventilate na. Hindi na lang po naming sinasabi kasi magagalit sila."* (I feel traumatized. I cannot sleep at night. There are times that I just want to go back to the province. My other classmate experienced hyperventilation. We did not mention any of these to the faculty since they might get mad).

## Discussion

Clinical teaching is important since it allows students to undergo valuable clinical tasks reflective of their future profession. At the core of clinical teaching is the clinical teacher who must be a field expert and exhibit proper attitudes towards professionalism and teaching [6]. The clinical teacher also prepares the student to undergo the clinical learning cycle, which involves two interrelated cycles (Figure 3) [1]. Case discussions are integral parts of the clinical learning cycle as they serve as the briefing phase of

the experience cycle. Completing the cycles enables the student to have reflective activities and build a working knowledge that the student can utilize for future cases.

Case discussions in this institution are one-on-one teaching encounters between a clinical faculty and a dental clinician. Unlike the usual case discussions in the medical and allied health field that take place in small group settings, these case discussions are a variation of individualized instruction format taking place in the clinical setting. Similar to case discussions in other medical fields, they are very flexible as they can be used in different types of cases, student level, complexity, scope, and depth. However, they are very time consuming and necessitate a skilled facilitator.

Effective clinical teaching methods for skilled facilitation includes provision of clear instructions, scaffolding, questioning, organization of activities, clarity of explanation, modelling of thinking skills, sampling of applied thinking, feedback on student's thinking processes, instructional alignment of objectives and activities, adaptations for diverse student needs, affording waiting time in between questions, and reflective activities (Table 4) [2,8-11,12]. These studies also show that questioning is highly effective in developing critical thinking but the type and level of questions must be congruent with the learning goal desired. However in the clinical environment, questioning and hypothesis generating to foster critical thinking was seldom used [4,13,14].

In the observed case discussions, factors were identified as having positive or negative influences on student learning (Table 5). Two important positive factors cited by the students were: (1) the presence of a skilled facilitator who (2) engages in time invested faculty-student interaction. A skilled facilitator is able to recognize learning gaps, bridge these gaps, and create collaborative and challenging discussions. Challenges must be posted to utilize reasoning abilities, analyze, and synthesize what the student has learned through prodding. The skilled facilitator knows when to redirect the discussion, adjust difficulty, and provide adequate and timely feedback while maintaining a non-threatening environment. The time spent by the faculty orienting themselves with the case showed the students that the faculty had interest in teaching and served as a motivator in itself. Affording adequate waiting times allowed the students to undergo speculative thinking and use their cognitive skillset. This improved their responses and interaction with the faculty.

Factors that had negative influence on student learning were understaffed sections, inconsistent feedback, preconceived incompetence and incongruent expectations. Time constraints, heavy workloads, and the level of environmental comfort were factors which resulted in encounters filled with interruption, silence, and stress. When the feedback was inconsistent with known concepts or was inconsistent between instructors, the students experienced confusion. The students' preconceived incompetence and incongruent expectations resulted in students being less receptive to learning. Emotional difficulties and frustration occur when expectations are unmet. These unmet needs and lack of opportunities to vent personal feelings negatively affect learning and the quality of care they provided their patients. Students reported that they underwent emotional difficulties which exposed them to emotional distress and various coping mechanisms. These experiences hamper the mastery of knowledge, acquisition of skills, and the development of a professional attitude [1]. Teachers are considered role models of the profession and when behaviors exhibited are less than ideal, this creates negative imagery among the students and the profession [6].

Similar to several studies done in other countries and other health professions, clinical teaching scenario in the studied local dental institution exhibited familiar situations, challenges, and student feedback. This implies that clinical teaching is highly dependent on the key players and not the subject matter. The value of the teacher as a case discussion facilitator cannot be dismissed. To succeed, the instructor must recognize and utilize teachable moments [4]. The process in which the student would progress depends greatly on the teacher, the climate established, and strategies employed that should be geared towards motivating the student to learn and think on higher levels [8,15,16]. Students must be afforded multiple learning opportunities to contribute to the desired learning outcomes. Students should be allowed to express their preferences to contribute to the effectiveness of any clinical curriculum [11,17-19]. A common knowledge base of principles and effective teaching skills must be built to enable other faculty members to acquire common educational terms and teaching models at the curriculum level [4].

## Conclusion

Clinical teaching is not only the shaping of knowledge but also the motivation of students to be self-directed

professionals. Findings from this study show that there are several factors that affect student learning. The facilitation skill, time imparted within case discussions, and the conditions for learning directly affect the students' perception of the learning encounter and subsequently their attitude towards future interactions. As main stakeholders of health care education, students perceive that case discussions with skilled facilitators who invest time to analyze, explain, and collaborate with the student have positive effects on their learning. A facilitator exhibiting tact, consistent feedback, a calm demeanor with neutral voice tones and facial expression is considered non-threatening and favored learning. A faculty that dismisses interruptions to focus on the case and tools presented by students is perceived to be thorough and has a keen interest in teaching. Observing an adequate wait time allows the student to think and imparts to the student that the facilitator is interested in the student's answer.

Case discussions are not only avenues to promote critical thinking but also provide feedback on student learning and effective instructional technique. As primary players in the process of clinical teaching and learning, both students and teachers must be given opportunities to express their opinions and ideas regarding faculty and curricular development.

## Acknowledgments

Acknowledgement goes to the following: Dr. Bagamano, who acted as the content expert; Drs. Siriban, Villaseñor, and Pengson, and Claire Pastor who aided the researcher as research assistants; and my husband, Dr. Kirby Baloy, PT, MS, DPT who served as a reading critic.

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