

# Practice of Pecha Kucha as a Teaching Strategy in the Learning of Undergraduate Dental Students: Perceptions of Undergraduate Students - A Qualitative Study

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## Abstract

**Introduction:** Dental education relies on traditional lecture-based methods and many other techniques are also applied. Some of these methods may not always stimulate active learning and engagement. Undergraduate dental education is undergoing rapid and a period of significant transformation, driven by advancements in technology, evolving patient needs, and a growing emphasis on evidence-based practice. The objective of this study was to assess how Pecha Kucha is practiced as a teaching strategy in the learning of undergraduate dental students.

**Methodology:** A qualitative study was designed and conducted at Rawal General and Dental Hospital, RIHS, Islamabad. The study proposal was approved by ethical review board before initiation of study. A written consent was taken from all students before start of the Focused Group Discussion (FGD). A total of 4 FGDs were conducted. In each FGD there were 8-12 undergraduate dental student participants. The data collected were transcribed and then managed using NVIVO software and manual entries. The thematic analysis was conducted based on codes generated from the discussion, themes and sub themes.

**Results:** This study found a mix of responses from students. Though majority of the respondents accepted the Pecha Kucha teaching strategy and were satisfied with it, however, a few had opinions, otherwise. They mentioned that this method enhanced their engagement. Some of the students liked the time management and teaching skills while few others could not cope with presentation speed and thus, could not understand. They suggested that the time gap of a slide should be 30 seconds at least in place of 20 seconds. The key responses in favor of the Pecha Kucha pedagogy were that “it is good revision tool”. Moreover, they suggested that preparation before the session should be more systematic. Few stated that the pictorial material used for presentation should be more detailed, easy and engaging.

**Conclusions:** The format is excellent for summarizing and clarifying big concepts but loses its luster when applied to more complex or theoretical topics that require much more debate and analysis.

**Keywords:** Dental Education, Pecha Kucha, Engagement, Cognition, Communication

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## Introduction

Generally, dental education relies on traditional lecture-based methods. Pecha

Kucha, with its concise format and emphasis on visual storytelling, offers a potential alternative to enhance student engagement and learning.<sup>1</sup>

Undergraduate dental education is undergoing rapid and a period of significant transformation, driven by advancements in technology, evolving patient needs, and a growing emphasis on evidence-based

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practice.<sup>2</sup> While traditional methods, such as lectures and clinical rotations, remain essential components of dental education, there is a growing recognition of the need for innovative approaches to enhance student learning and prepare graduates for the complexities of modern dentistry.

One notable trend is the increasing integration of technology into dental education.<sup>2</sup> Artificial intelligence and virtual reality as well as augmented reality simulations are being used to provide students with immersive learning experiences, allowing them to practice procedures in a safe and controlled environment.<sup>3</sup>

Additionally, the widespread adoption of digital dental records and electronic health records has transformed the way dental information is collected, analyzed, and shared, providing students with valuable exposure to real-world clinical practice.<sup>4</sup>

Undergrad students delve into the intricacies of oral health, disease prevention, and treatment.<sup>5</sup> Pecha Kucha pedagogy, which is a presentation style emphasizing concisely on visually telling a story, could be a valuable teaching strategy for the dental curriculum.<sup>6</sup> By requiring students to present their research, clinical experiences, or case studies in a succinct and visually engaging manner, Pecha Kucha can enhance their communication skills, critical thinking abilities, and understanding of complex dental concepts. In dental practices, the dentists work along numerous other specialties and sub-specialties so that patients can be provided comprehensive oral healthcare.<sup>7</sup>

Despite the positive developments, challenges remain in undergraduate dental education. The need to balance academic demands with clinical training can be challenging. To address these issues, dental schools are exploring ways to improve student support services, reduce the overall length of dental education programs, and promote work-life

balance.<sup>8</sup> So now, the dental schools are therefore emphasizing the importance of teamwork, communication, and patient-centered care in their curricula.

Pecha Kucha is a presentation style that involves a strict format: 20 slides, each shown for 20 seconds, resulting in a 6-minute, 40-second presentation. This unique approach has gained popularity in various fields, including education. This study aims to investigate the impact of Pecha Kucha as a teaching strategy on the learning of undergraduate dental students.<sup>9</sup>

By exploring the practice of Pecha Kucha in dental education, the findings may provide valuable insights for educators seeking to improve student learning outcomes and create more engaging educational experiences. Especially, in the context of dental education as not much have been explored in this field using the Pecha Kucha pedagogy.

## Methodology

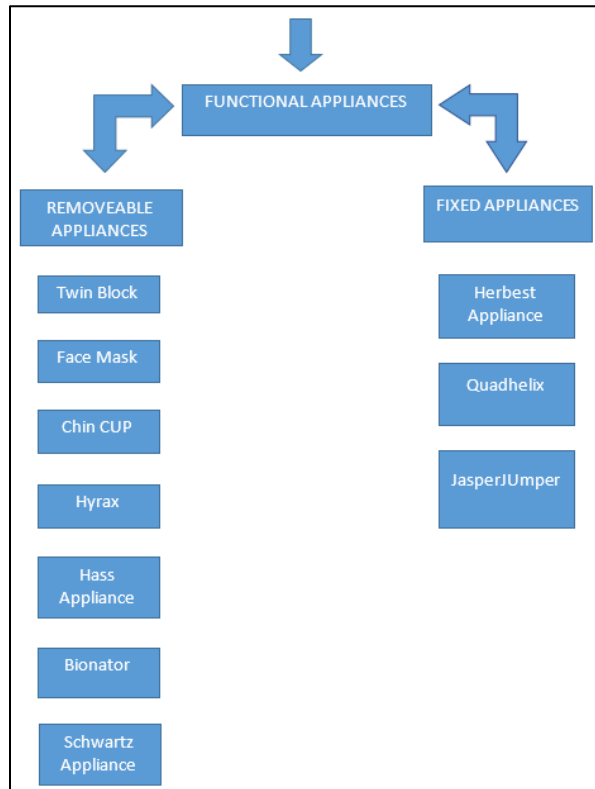
This was a qualitative study. Pecha Kucha as a teaching tool that provided a detailed description of the experiences and events without delving too far into complex explanations. Semi-structured open-ended questions were used in focus group discussions to gather detailed and complete information. This method ensured that the findings accurately reflect the thoughts of the participants while allowing researchers to maintain close access to the data. Focus groups till saturation were conducted. Each focus group has 6 participants.

Prior to the 10 Pecha Kucha sessions for the final-year dental students studying orthodontics, the faculty received hands-on training by team of trained faculty members using Pecha Kucha presentation format in their presentations. Key elements of Pecha Kucha include creativity, critical thinking, time management, and effective

communication, which the presenter discusses with faculty members.

### Pecha Kucha Intervention

Every 10 session included a 6-minute, 40-second presentation, followed by a 30-minute discussion to reinforce learning.



**Fig. I: Teaching Content of Pecha Kucha Sessions**

The interview guide was developed based on the literature review and it was validated by the experts and senior colleagues. The flow of the questions during the focus group discussion was to explore the in-depth insights of the respondents regarding the Pecha Kucha teaching strategy (Annexed).

### Statistical Analysis

The data collected were transcribed and then managed using NVIVO software and manual entries. The thematic analysis was conducted based on codes generated from the discussion, themes and sub themes were highlighted and described accordingly.

## Result

A total of 4 FGDs were conducted in this study. Some interesting observations have been found in analyzing conversations of focus groups on Pecha Kucha presentations in undergraduate dental education. Instead of by conversation, these findings were grouped by themes of all the focus groups. To describe the experiences and ideas of the participants in this instruction strategy, findings were narrated.

Themes and Sub-Themes has been discussed in detail with narration in Table-I.

### Theme: Basic understanding and familiarity with Pecha Kucha

The first and foremost task of the group was to develop understanding of basics of this teaching strategy. Using the Pecha Kucha presentation technique, 10 lectures of orthodontic dentistry were conducted. The undergraduate dental students of the final year attended these classes.

### Theme: Clarity of concepts

The visual focus of Pecha Kucha was well-suited for subjects like dental instruments where images conveyed shape and function effectively. In another FGD, the impact of Pecha Kucha on learning in dental education is subjective based on the subject matter and students' adaptability. Respondent 2 was one among the students who found *"that format is helpful for visually oriented courses such as dental instruments, where images convey shape and function"*.

For deep-learning students highlighted the need for supplementary resources in Pecha Kucha presentations due to its fast-paced nature. Two other participants stated that *"additional resources are needed to ensure that everyone catches one"*

Some students felt that the time was limited for each slide which left gaps in their comprehension of complex subjects. Respondents noted, *"They didn't have enough time to study these topics,"* which emphasizes the need for extended discussions.

### **Theme: Engagement during presentations**

In one of the focus group, the fast pace of Pecha Kucha presentations motivated participation. For Participant 7, *"because of too many slide changes, the format was entertained first"*. The eleventh participant stated that *"the dynamic structure kept the viewer's awake because it was hard to fall asleep"*. Though majority of the students found Pecha Kucha to be engaging but not all participants felt so.

According to some of the respondents, the Pecha Kucha presentations are repetitive, so rewards decrease over time. Participant 8 claimed that *"the presenter's confidence and how they handled their time considerably affected the engagement"*. One respondent complained that the lecturers did not interact with the audience.

### **Theme: Comparison to Traditional Presentations**

The first Pecha Kucha focus group had its pros and cons in contrast to other forms of presentation as perceived by the participants. The participants appreciated the shortness and the focus it brings in comparison to other long, boring formats. The third participant realized that *"this prevented the presenter from filling up slides with too much information, and the fifth participant found it interesting since it was short"*.

### **Theme: Teacher's Role**

One focus group agreed that *"the teachers' input made the Pecha Kucha presentation successful"*. All participants agreed that extra training and more examples of presentations would have been helpful for them.

### **Theme: Challenges and Suggestions for Enhancement**

The Pecha Kucha method presented notable challenges for students particularly concerning time constraints and the difficulty of balancing presentation elements. These issues made the participants to focus only on superficial understanding rather than going in depth learning.

Theme	Sub-Themes	Narrations
Basic understanding and familiarity with Pecha Kucha	<b>Sub-theme 1:</b> Creating Novelty	<i>"Encouraged conciseness and relevance and prompted the participants to focus on essential information, discarding the unnecessary details"</i>
	<b>Sub-theme 2:</b> Delivering Rapid and Specific Outcome	<i>"It was having control of slide transition from slide to slide at 20 seconds"</i>
	<b>Sub-theme 3:</b> Adapting Visual Storytelling	<i>"Presenters have to be much more creative and ready for the format than they think because they can't just text their argument"</i>
	<b>Sub-theme 4:</b> Initial fear and discomfort	<i>"The pace was challenging for students who were accustomed to traditional lectures that provided reams of words and content but later adapted it"</i> .
	<b>Sub-theme 5:</b> Impact of aesthetics	<i>"Novel and gets directly to the point without unnecessarily boring detail"</i>
	<b>Sub-theme 6:</b> Relief from traditional teaching	<i>"Engaging and entertaining"</i>

	methods	
	<b>Sub-theme 7:</b> Increase in familiarity overtime	<i>"Participants were able to improve their knowledge"</i>
Clarity of concepts	<b>Sub-theme 1:</b> Creativity	<i>"It helped presenters clarify their topic"</i>
	<b>Sub-theme 2:</b> Energetic Delivery	<i>"A real-time discussion would have helped illuminate the presentations"</i>
	<b>Sub-theme 3:</b> Imagery and interactive pictures	<i>"Visual images of dental instruments made it easier to remember than text-intense slides"</i>
	<b>Sub-theme 4:</b> Time Enrichment	<i>"Slide time should be increased to 30 second from 20 second gap"</i>
Engagement During Presentations	<b>Sub-theme 1:</b> 20x20	<i>"Each presentation was simple and easy to remember"</i>
	<b>Sub-theme 2:</b> Compelling Visuals	<i>"It was a way forward to a confident, clear speakers and in retaining attention"</i>
	<b>Sub-theme 3:</b> Concise and Comprehensive	<i>"The mode kept her interested but rushed over the material, especially with abstract concepts"</i>
Comparison to Traditional Presentations	<b>Sub-theme 1:</b> Innovative	<i>"The constraint of the time limit did not allow spontaneity and interaction; therefore, it became hard to involve the audience"</i>
	<b>Sub-theme 2:</b> Fast Pace	<i>"Slide time should be increased to 30 second from 20 second gap"</i>
	<b>Sub-theme 3:</b> Engaging Delivery	<i>"Delivery of presentation was pacey so was very engaging"</i>
Teacher's Role	<b>Sub-theme 1:</b> Time management	<i>"Designing slides and time management"</i>
	<b>Sub-theme 2:</b> Interpersonal skills of moderators	<i>"It would have helped the students better if some exemplary Pecha Kucha presentations had been made available for reference"</i>
Challenges and Suggestions for Enhancement	<b>Sub-theme 1:</b> Challenges	<i>"Focuses only on superficial understanding rather than going in depth learning"</i>
	<b>Sub-theme 2:</b> Interpersonal skills of moderators	<i>"Slide length should be increased to 30 seconds"</i>
	<b>Sub-theme 3:</b> Suggestions for Enhancement	<i>"Should be flexible and favorable to in-depth study for complex subjects"</i>
	<b>Sub-theme 4:</b> Suitable for revisions	<i>"Effective for summarizing and reviewing essential material but less suitable for introducing new or challenging concepts"</i>
	<b>Sub-theme 5:</b> Slide timing	<i>"The slide changing gap should be 30 seconds in place of currently applying 20 seconds"</i>
	<b>Sub-theme 6:</b> Better summary tool	<i>"Good for revision and review purposes"</i>

Table-I: Themes and sub-themes

## Discussion

This study reveals how Pecha Kucha has impacted undergraduate dental education through focus group discussions. The merits, cons, and growth potential of this innovative

teaching approach has been discussed in detail with the participants. The improved student engagement and learning are outcomes of the quick pace and visual storytelling of Pecha Kucha. As witnessed

earlier, the current study has validated this perception about Pecha Kucha pedagogy.<sup>10</sup> This aligns with the findings of the study by Gupta et al who witnessed that short-term attention spans in medical education as complex topics can be increased with brevity.<sup>11</sup>

Students learned that picture-based slides make visually oriented material easier to recall from memory, supporting the cognitive view that pictures improve retention.<sup>1</sup> This was especially evident in abstract or complex topics that were discussed with the need for further analysis and clarification.<sup>12</sup> Some Students struggled with complex topics like orthodontic biomechanics due to rapid delivery.<sup>13</sup> The presenters would always simplify or omit some critical aspects due to time factors, thus leaving the audience to find additional resources that would make them understand what was discussed.<sup>14</sup> The Pecha Kucha format also enhanced the communication between the moderator and students.<sup>15</sup>

Time limits forced the participants to be well-prepared, which increased their ability to prioritize, manage their time and integrate the visuals with the spoken content. Another research by Jones et al emphasizes that time-restricted formats foster prioritization and clarity in presentations.<sup>16</sup> The integration of visuals in Pecha Kucha presentations was praised for aiding memory recall particularly for abstract materials or visually dependent material like orthodontic appliance. This aligns with Dual Coding Theory, which suggests that combining visual and verbal elements strengthens learning outcomes.<sup>17</sup> Clear and concise communication is of paramount importance in any academic and professional environment, but these skills would have increased stress and worries.<sup>6</sup> Many students, especially those with less confidence in public speaking, found challenging to meet the tight deadline in balancing other tasks. It was common in focus

groups to discuss teachers' responsibilities in promoting Pecha Kucha sessions.<sup>13, 15</sup>

This is an echo of the educational innovation notion of scaffolding and more explicit expectations to help new forms of teaching take hold.<sup>6</sup> Learners may feel anxious and confused as they move over to a new format when no guidance is given to them. Comparing Pecha Kucha to other presentation forms shows its pros and cons.<sup>18</sup> Traditional approaches were praised for their participatory and customizable structure and compared to Pecha Kucha's visual appeal and quick pace. Traditional presentations can include audience questions, real-time conversations, and deeper discussions of complex topics than Pecha Kucha sessions.<sup>10</sup> This constraint was especially obvious in theoretical sessions, as students wanted more time to think and discuss the topic.

However, Pecha Kucha's structured format and strict time constraints kept the audience's interest and presented ideas succinctly.<sup>18</sup> This comparison emphasizes the connection of pedagogy in alignment with curriculum and student learning goals. The critics loved the format as short and attention-grabbingly quick for the presentation of key points but at a pace that did not facilitate deeper cognitive processing, and hence, the students were unable to absorb and retain most of the information.<sup>19</sup> Learning is made more difficult, according to cognitive load theory, when too much knowledge is supplied at too rapid a pace.<sup>1</sup> Students suggested to enhance the length of the slides during presentation to 30 seconds and add Q&A or follow-up lectures for clarity.

The format that works best for Pecha Kucha is through integrating other educational methods. It is most functional among the students for revisions, overviews, or as a refresher about the previous topic.<sup>6</sup> This view is further needed in order to blend up the Pecha Kucha method with a framework that provides a better learning technique and

minimizes its less beneficial aspects for an improved learning experience.<sup>20</sup> Many respondents suggested better presentations, lengthier slides, and interactive features like Q&A sessions.<sup>10,21</sup>

Sessions with lectures or follow-up discussions with Pecha Kucha were suggested to increase comprehension and recall. This research supports earlier studies that suggest adding follow-up discussions or Q&A sessions can address the depth limitations of Pecha Kucha. Studies corroborated this showing that post-presentation interaction enhances comprehension and retention.<sup>22</sup> The innovative teaching techniques boost students' participation and performance.<sup>23</sup> Just as in Pecha Kucha's graphical narrative and speedy communication, education is slowly drifting toward active learning and student-centered techniques.<sup>24</sup> Caution, however, needs to be taken into account when designing and implementing such systems since this research has established issues.<sup>14</sup> Education approaches have to be designed with students' preferences and requirements in mind to make new concepts relevant and effective.

Finally, Pecha Kucha presentations have been shown to have potential for dental education.<sup>25</sup> Supplementing follow-up activities to traditional methods is required to help facilitate deep learning and complex topics.<sup>26</sup> Lessons from this study are essential as educators seek innovative teaching methods.<sup>27</sup> One need to balance creativity and practicality so that new methods boost learning rather than worsen it.<sup>18</sup>

As this was a single center-based study, it is important to acknowledge the institutional perspective which is another limitation of the study. Future research after suggestive improvements by the respondents could enhance the utilization of the Pecha Kucha pedagogy.

So in brief, Pecha Kucha pedagogy has been accepted by all students, however, there were

certain suggestions for improvement as well. Some students mentioned that the time of 20 seconds should be enhanced to at least 30 seconds. Research in blended learning frameworks supports these suggestions, showing that combining multiple teaching methods can lead to better comprehension and retention.<sup>27</sup> Secondly, some participants mentioned it as a good revision tool. They claimed that Pecha Kucha could be used as a fast and timely presentation tool for revising certain topics during preparations and routine studies.

## Conclusion

This study discussed and found that pecha kucha can enhance classroom learning. The format is excellent for summarizing and clarifying big concepts but loses its luster when applied to more complex or theoretical topics that require much more debate and analysis. The strict 20-second time limit improved time management, prioritization, and a combination of verbal and visual knowledge.

Majority of participants suggested that the duration of each slide should be changed from 20- to 30-second time limit in the presentations; students said they needed extra time to organize and learn the material. Some students suggested that interactive features may increase participation. Many students wanted Pecha Kucha to be more engaging and understandable. Some of the respondents recommended combining Pecha Kucha with traditional style to deepen the discussion.

## Ethical Approval

The study was approved by the Ethical Review Board of Rawal College of Dentistry (No. RIHS/IRB/D/24/020)

## Disclaimer

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## Conflict of Interest

It is declared that the authors don't have any conflict of interest.

## Authors' Contribution

**KA:** Conceptualization, study design, manuscript writing

**SM:** Statistical analysis

**TS:** Literature review, data interpretation

**SA:** Manuscript editing, proof reading

**TW:** Data analysis

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