IMPACT OF COVID- 19 ON DIFFERENT TEACHING METHODS

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ABSTRACT

The purpose of this study is to determine the dental student preferences for the following teaching methods: podcast, in person or zoom. During COVID- 19 classes were held remotely, necessitating changes from usual teaching. Our aim is to see which of these three teaching methods was preferred by the students.

KEYWORDS

Dental Education, Teaching Method, COVID-19, Zoom, Podcast

1. INTRODUCTION

The global pandemic of COVID- 19 resulted in vast disruption of all aspects of life. For those in education the need for social distancing resulted in replacing traditional in person learning with online formats. Dental faculty needed to switch to virtual lectures and students had to adjust their learning to this. This study evaluates the students' preferences of these different formats.

2. METHODS

The study was approved by the Institutional Review Board (IRB) of New York University College of Dentistry with exempt status. A ten-question survey was distributed through Surveys (Qualtrics) to the second, third- and fourth-year dental students (D2, D3 and D4) at New York University College of Dentistry (NYUCD). The survey asked the students what year of dental school they were in and their gender. They were given three choices, podcast, in person, or zoom to see what type of lecture they preferred to attend, what type of lecture was more effective in learning and what type of lecture was more effective in retaining material. Next students were asked what time zone they were in, what operating system they used and which browser they used. The survey was anonymous and voluntary.

A total of 144 students responded to the survey. Each class has a total of over 300 students.
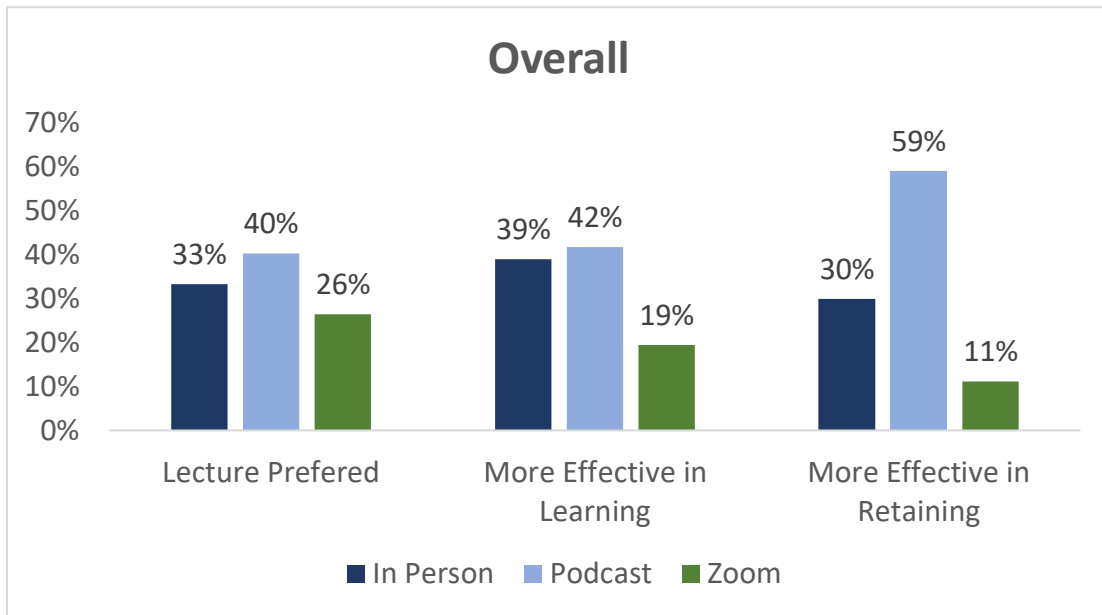
3. RESULTS

Fig 1: Overall Preferences

Overall 40 % of the D2, D3 and D4 students preferred podcasts, 42% found podcasts more effective in learning, and 59% found podcasts more effective in retaining lecture material.
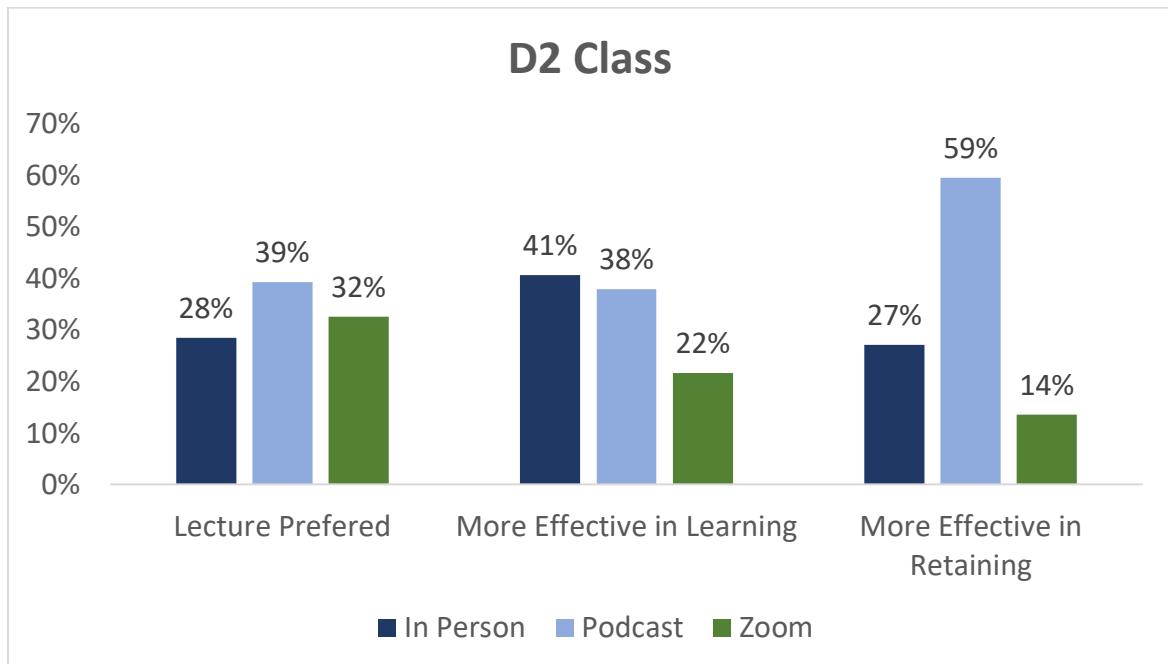

Fig 2: D2 Class Preferences

41% of the D2 class found in person lectures to be more effective in learning.
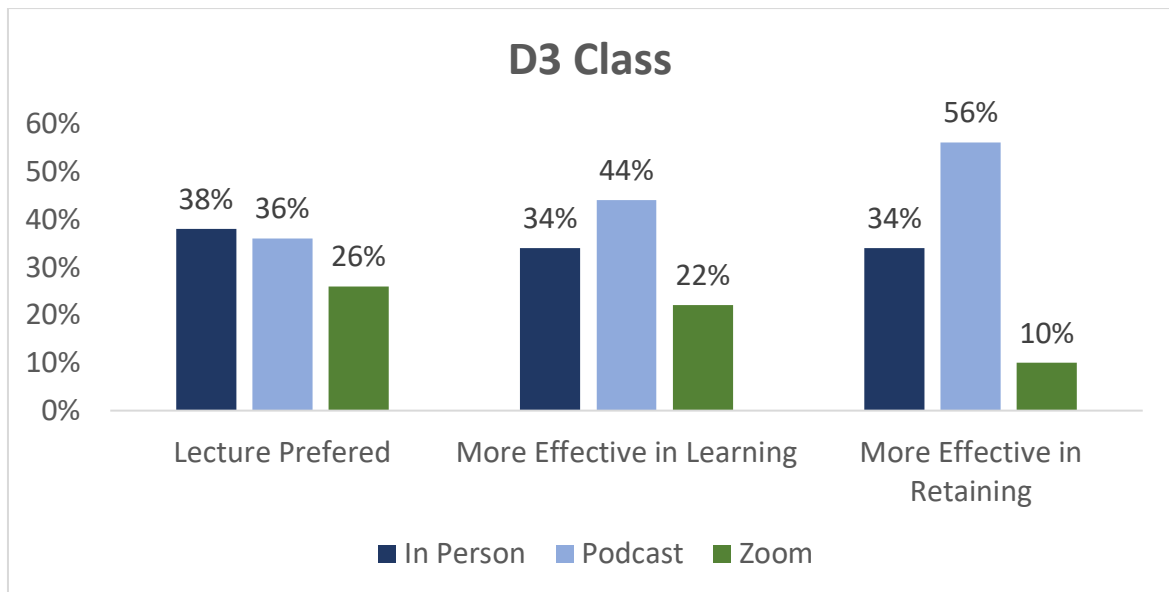
D3 Class

38% 36% 26% (Lecture Prefered — In Person, Podcast, Zoom)
34% 44% 22% (More Effective in Learning — In Person, Podcast, Zoom)
34% 56% 10% (More Effective in Retaining — In Person, Podcast, Zoom)

Fig 3: D3 Class Preferences

56% of the D3 students found podcasts more effective in retaining the material.

D4 Class

40% 55% 5% (Lecture Prefered — In Person, Podcast, Zoom)
45% 50% 5% (More Effective in Learning — In Person, Podcast, Zoom)
30% 65% 5% (More Effective in Retaining — In Person, Podcast, Zoom)
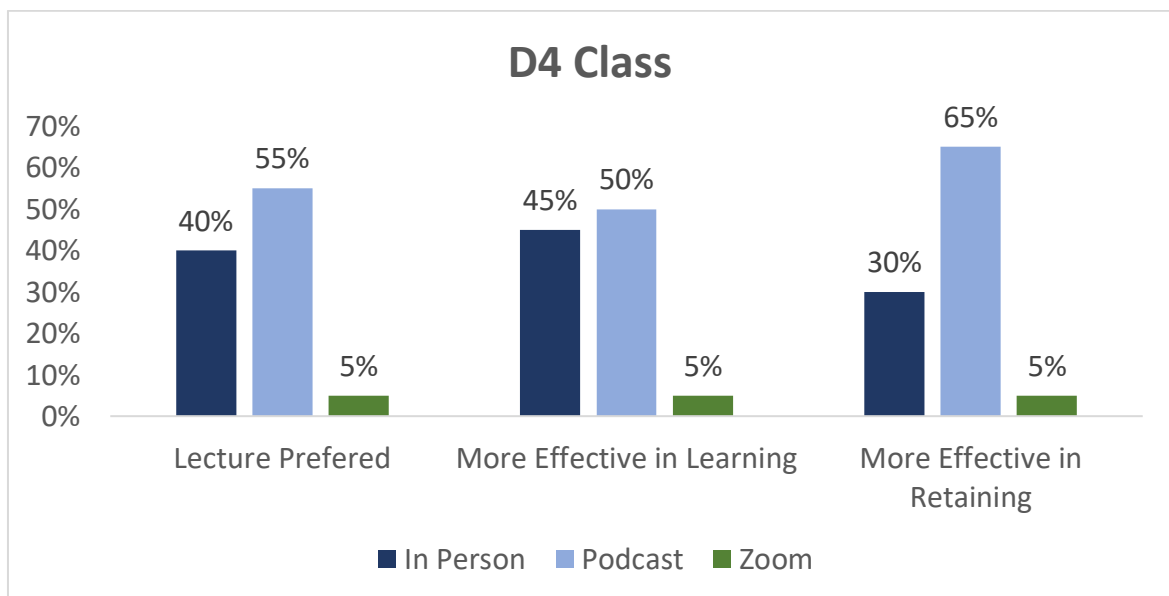
Fig 4: D4 Class Preferences

65% of the D4 students found podcasts more effective in retaining the material.

Most students (90%) were in the Eastern Time zone in the United States. A small percentage were in other time zones. Mac computers were the most popular computer device used (74%).

4. DISCUSSION

Because of COVID- 19 it was necessary to implement other teaching methods in order to maintain social distancing. In person lectures occur with students attending lectures as faculty

are teaching. Zoom lectures occur with students attending virtually. Zoom provides software for live video conferencing which can replace attendance at an in person lecture. With podcasts students view lectures during their own time after the lecture has occurred. Podcasts are available for listening by downloading from the internet.

Most NYUCD students chose podcasts over solely in-person lectures and live zoom lectures. Overall 40% of the students preferred podcasts for their lectures. Podcasts were found to be more effective in learning the material by 42% of students and 59% found podcasts more effective in retaining the lecture material. Since podcasts are usually recorded live-lectures, it gives students the feel of an in-person lecture. As mentioned in the study by a group in Brazil, students preferred recorded lectures over live interaction because it allowed them "freedom to choose the best time to study" [1]. Students had more freedom to focus on their health and also relieve their anxiety about exams and finishing tasks quickly.

Podcasts offer the most flexibility for students. It allows the students to access lecture material at any time. Also multiple viewing platforms including smartphones, tablets as well as computers can be used to view the podcasts [2]. These videos may be played at different speeds (e.g., 1.5x or 2x real time speed) and students may replay and pause segments. A 2011 study sampling a class of D2 students found that the majority (60%) of younger students <24 years old and students with better computer skills (66.6% of students with excellent and 55.1% of students with good computer skills) listened to podcasts at accelerated speeds [3].

The study by Kalludi et al [4] found that first year dental students benefited from having podcasts for review as a supplemental learning aid and the students found that repeated listening of lectures was useful.

With in person lectures students may miss parts of the material. Being able to pause and replay segments allow students to take detailed notes and retain information at their own pace. Students have many other commitments and podcasts allow flexibility in time management of their busy schedules. This may be especially relevant for the D3 and D4 class who have clinical rotations in addition to lectures.

The D2 class found in person lectures more effective in learning the material but podcasts were better in retaining the lecture material. The D2 class is mainly focused on learning the core curriculum. In person lectures may help to develop interpersonal skills and networking needed for their future clinical interactions [5].

A study of medical education during COVID- 19 [6] reported a majority of the students were dissatisfied with their experiences, but a good portion of the students preferred the mix of online and traditional learning. These students had either online lectures (mostly zoom), in person lectures, recorded lectures, or a mix of online learning with traditional learning. Online learning made it easier for students to be socially distant. However, users complained of having poor technical setup and no direct contact for real clinical access as issues. As a result, the researchers recommended that there should be a competent support system to maintain online teaching [6].

Students at NYUCD were able to interact with the lecturers on zoom via the chat or by unmuting themselves on their mics. However, there were logistical issues that made this method particularly inefficient. For example, students and faculty alike could have internet connectivity issues and difficulty navigating the system. These problems may not be immediately resolved creating frustration for both instructors and students. Other studies have cited similar ideas amongst their surveyed population [7]. In another study comparing teaching

methods, it was found that although participants saw that e-learning was sufficient in learning, it was not as effective in acquiring technical skills [8]. This could be why about a third of the students felt they were not confident enough to take exit exams after live interaction courses [8].

With podcasts the lectures are recorded with little technical problems. Live zoom lectures can have technology related issues that are beyond the control of instructors. An IT team that can immediately resolve problems may not always be available [9].

In the study by Schlenz et al [10] both students and lecturers indicated a predominantly positive perspective on the implementation of online learning, recommending online learning beyond COVID- 19 for the future curriculum.

Podcasts may be a more effective way of learning because students are able to pause, rewind, and replay material. Whereas in a live, in person or zoom lecture, students may become distracted and not completely focus on parts of a lecture and may not retain important points. Podcasts may be a more effective way of retaining material because students are able to replay material. Students can repeatably view the more challenging aspects of a lecture, take detailed notes, or do more research if necessary.

5. CONCLUSION

Overall the students felt that podcasts were the type of lecture they preferred to attend and were most effective in retaining material. Zoom was the least preferred type of lecture to attend and the least effective in learning and retaining material. NYUCD students prefer the convenience of learning at their own pace in recorded podcasts. As the COVID- 19 pandemic changed the way we live our daily lives, it might be important to investigate what seems to be the most effective and preferred learning method for students.

6. REFERENCES

[1] Camargo CP, Tempski PZ, Busnardo FF, et al, (2020) "Online learning and COVID-19: a meta-synthesis analysis." *Clinics (Sao Paulo, Brazil)* vol. 75 e2286.
[2] White JS, Sharma N, Boora P, (2011) "Surgery 101: evaluating the use of podcasting in a general surgery clerkship." *Med Teach*, 33 (11): 941–43.
[3] Allen KL, Katz RV, (2011) "Comparative Use of Podcasts vs. Lecture Transcripts as Learning Aids for Dental Students," *Journal of Dental Education*, vol. 75, no. 6, pp. 817–822.
[4] Kalludi SN, Punja D, Pai KM, et al, (2013) "Efficacy and perceived utility of podcasts as a supplementary teaching aid among first-year dental students." *Australas Med J*, 6 (9): 450-457.
[5] Zandona AF, Kinney J, Seong W, Kumar V, et al, (2016) "Should Lecture Recordings Be Mandated in Dental Schools? Two Viewpoints," *Journal of Dental Education*, vol. 80, no. 12, pp. 1468–1473.
[6] Sindiani AM, Obeidat N, Alshdaifat E, et al, (2020) "Distance education during the COVID-19 outbreak: A cross-sectional study among medical students in North of Jordan." *Ann Med Surg (Lond)*, 59:186-194.
[7] Chinelatto LA, Costa TRD, Medeiros VMB, et al, (2020) "What You Gain and What You Lose in COVID-19: Perception of Medical Students on their Education." *Clinics (Sao Paulo)*, 75:e2133.
[8] Abbasi MS, Ahmed N, Sajjad B, et al, (2020) "E-Learning perception and satisfaction among health sciences students amid the COVID-19 pandemic." *Work*, 67(3):549-556.
[9] Kaup S, Jain R, Shivalli S, et al, (2020) "Sustaining academics during COVID-19 pandemic: The role of online teaching-learning." *Indian J Ophthalmol*, 68 (6): 1220-1221.
[10] Schlenz MA, Schmidt A, Wöstmann B, et al, (2020) "Students' and lecturers' perspective on the implementation of online learning in dental education due to SARS-CoV-2 (COVID-19): a cross-sectional study." *BMC medical education*, 20(1), 354.