Evaluating Medical Students' Preferred Method of Lecture Delivery in the 21st Century Post Covid-19 Pandemic

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ABSTRACT

Background: The 21st century ushered in a new era in education and the current system must adjust to cope with this rapid change. After the Covid-19 pandemic of 2020, the need for this educational shift became more apparent. This study was carried out to determine the areas requiring change from the students' own perspective. **Objectives:** This study was designed to find out students' preferences today with reference to teaching and learning. **Materials and Methods:** Online and physical questionnaires were used. The online questionnaires targeted students' Whatsapp groups in the College of Medicine and Health sciences of Nnamdi Azikiwe University. The physical questionnaires were randomly given to available students of the college. **Results:** The result showed that 87.6% of students still preferred the traditional physical lecture to online classes and 55% showed preference for lectures with power point while 36% preferred lectures with notes. Some 64.2% prefer 1 hour lectures and 27.7% are okay with 2 hours of lectures. Majority (88.1%) preferred lectures in the morning hours to any other time of the day and 94.6% preferred lectures on week days instead of weekends. About 88.1% of students preferred lectures in the morning hours to any other time of the day while 52.3% of students believe that the lecture venues are not conducive for lectures. **Conclusion:** This work has shown that continuous use of many of the old methods of teaching will not be effective today in the tertiary institutions and attention should be paid to students' preferences going forward.

Keywords: College of Medicine; Covid-19; Lecture delivery; Pandemic; Teaching method.

INTRODUCTION

The wave of COVID-19 pandemic has left its indelible mark on education around the world. Higher education has experienced unprecedented challenges occasioned by the pandemic, especially inability of students and teachers to meet, limited time for crowd gathering where it is allowed at all, the need to limit class sizes to forestall spread, the need to wear nose mask during lectures and exams etc. This means the old methods which used to work effectively cannot be relied on so much anymore, without proper assessment of its present impacts on students. [1]

Teaching is only effective when carried out under an environment in which deep learning outcomes for students are made possible, where high quality student

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learning is promoted and where superficial approaches to learning are discouraged. [2] The purpose of measuring teaching effectiveness is not only to evaluate the lecturer's performance, but the evidence produced is important for major decisions about the future in academic and improvement of teaching quality. [2]

Lectures have been the most common form of teaching and learning since ancient times. [3] In recent years, undergraduate training in universities has been transformed with the introduction and adoption of new teaching methods including use of power point presentations and field works. Garg [4] reported that students want their teachers to include audiovisual aids during lectures, but it is not certain whether it increases their understanding or performance in examinations. [5]

Traditional lectures, also known as didactic lectures, are still the primary methods of instruction in medical and higher education, particularly for large class sizes. [6] However, several studies on comparing the effectiveness of didactic lectures with those of interactive, or effective teaching styles (e.g. case reports, technology-assisted, problem-based, and open discussion) showed that student satisfaction, learning outcomes, deeper approach to learning, and knowledge retention is better following interactive lectures. [7] Therefore, because of these criticisms of didactic lectures, increasing efforts are being made to transform didactic lectures into effective lectures. [8] Capturing and maintaining the attention of students, active participation of students, instructor-student questioning, discussion, and formative quizzes with immediate feedback characterize effective lectures. [9] Student centered teaching methods have gained prominence among teaching methods as it addresses the specific need of students in the design and delivery of instructions to pass on knowledge.

Differentiated instruction (Low Tech) following the 1975 Individuals with Disabilities Education Act (IDEA) was enacted to among others ensure equal access to public education for all children, and the practice of developing an understanding of how each student learns best, and then tailoring instruction to meet students' individual needs. [10] Teachers therefore use differentiated instruction to connect with all types of learners by offering options on how students access content, the types of activities they do to master a concept, how student learning is assessed and even how the classroom is set up. [10] In Enquiry-Based Learning teachers offer support and guidance as students work on projects that depend on them taking on a more active and participatory role in their own learning. [10] Different students might participate in different projects, developing their own questions and then conducting research often using online resources and then demonstrate the results of their work through self-made videos, web pages or formal presentations. [10] Universal Design for Learning (UDL) incorporates both student-centered learning and the "multiple intelligences theory," which holds that different learners are wired to learn most effectively in different ways (visual-spatial, logical-mathematical, bodily-kinesthetic, linguistic, musical, etc.). [10] In practice, this could mean that some students might be working on a writing project while others would be more engaged if they created a play or a movie. UDL emphasizes the idea of teaching to every student, special needs students included, in the general education classroom, creating community and building knowledge through multiple means. [10]

Under the direct instruction model sometimes described as the "traditional" approach to teaching teachers convey knowledge to their students primarily through lectures and scripted lesson plans, without factoring in student preferences or opportunities for hands-on or other types of learning. [10] This method is also customarily low-tech since it relies on texts and workbooks rather than computers or mobile devices [10].

Lecture method is most convenient and inexpensive method of teaching any subject. It hardly requires the use of scientific apparatus, experiment, and aids materials except for the black board. [11] Lecture method is teacher controlled and information centered approach in which teacher works as a role resource in classroom instruction. In this method, only the teacher does the talking and the student listen. [11] The main emphasis of this strategy is the presentation of the content. [11] In this method teachers plans and controls the whole teaching

learning process. [11] To make the lecture interesting, the teacher can take the help of audio -visual aids. [11] In addition **to** the many philosophical and pedagogical approaches to teaching, classroom educators today employ diverse and sometimes highly creative methods involving specific strategies, prompts and tools that require little explanation. [11]

MATERIALS AND METHODS

Population of Study: The population of study is undergraduate students of the College of Health Sciences (CHS), Nnamdi Azikiwe University, Nnewi Campus, between 2nd year and 5th year, both males and females, between the ages of 16 - 27 years and above.

Sample Size

The population size included 4000 students. Using Slovin's Sample Size formula, a research size of 400 students was derived. Slovin's formula is used to calculate the sample size (n), given the population size (N), and a margin error (e). From the formula, $n = N/(1+Ne^2)$, the population size used was 4000, and a margin error of 0.05 was used, having a confidence level of 95%.

Sampling Technique

The sampling technique used was Simple Random Sampling where the groups of subject are chosen from the population entirely by chance and where each member of the population has an equal chance of being included in the sample.

Location of Study

This research took place at the Anatomy department of the Faculty of Basic Medical Sciences, College of Health Sciences, Nnamdi Azikiwe University, Okofia, Nnewi Campus, Anambra State, Nigeria.

Ethical approval

Ethical approval for this study was obtained from the research ethics committee of the Faculty of Basic Medical Sciences, Nnamdi Azikiwe University, Nnewi campus with the number NAU/CHS/NC/FBMS/215.

Materials

Questionnaire: An online anonymous questionnaire with both open and closed ended questions was designed and used for data collection. The online forms were shared across departments and levels in the college through the WhatsApp media platform, as well as one-on-one distribution. The purpose of the research was clearly captured in the introductory session of the questionnaire and consent is gotten in the participant's willingness to respond. A copy of the questionnaire is attached.

Data Collection and analysis

Data was collected via a spreadsheet that was linked to the online questionnaire form. Data was collected for over a period of one month. Retrieved data were analyzed with simple percentages using the Microsoft excel version 2010. Results were presented with tables.

RESULTS

Table 1 indicates that 360 (87.6%) of students at CHS preferred the physical lecture method compared to 51(12.4%) who preferred online classes.

Table 2 indicates that the use of power point and explanation is the most preferred method for receiving lectures (55%), closely followed by explanation and note dictation method (36%), Explanation only (3.4%), and the least preferred method being note dictation method (1.5%).

Table 3 Shows that lecture note is the preferred material used by students (60.3%) in preparing for exams as against power point (38%); 64.2% (n = 264) of students preferred the 1hour lecture duration, 27.7% (n=114) preferred the 2 hours lecture duration, while 6.8% and 1.0% preferred 30 minutes and 3 hours respectively. Only 0.2% preferred lecture durations exceeding 3 hours.

Table 4 indicates that students prefer weekday lectures (94.6 %) over weekend lectures (5.1%); the morning hour is student's most preferred period of the day for lectures (88.1%), 16 (3.9%) preferred lectures in the afternoon, just two students (0.3%) prefer evening lectures. Surprisingly, 7.5% of students are comfortable having lectures anytime of the day.

Table 5 indicates that 52.3% of students believe the lecture halls are not conducive for learning. Some 40.6% of the students agree that the venues are conducive while 7.1% are neutral.

Table 1: Result of Preferred mode of lecture

Mode of Teaching	Frequency	Percentage (%)
Physical	360	87.6
Online	51	12.4

Table 2: Result of preferred method of teaching

Teaching Method	Frequency	%
Power point	17	4.1
Note dictation	6	1.5
Just Explanation	14	3.4
Power point and Explanation	226	55.0
Explanation and note dictation	148	36.0

Table 3: Student's preferred lecture duration and lecture material for exam preparation

Subject	Material	Frequency	Percentage
Preferred lecture material	Notes	248	60.3
	Power point	156	38.0
Preferred lecture duration	30 minutes	28	6.8
	1hour	264	64.2
	2hours	114	27.7
	3hours	4	1.0
	>3hr	1	0.2

Table 4: Preferred time of the week and period of the day for lectures

Subject	Period	Frequency	Percentage (%)
Preferred time of the week	Week days	389	94.6
	Week ends	21	5.1
Preferred period of the day	Morning	362	88.1
	Afternoon	16	3.9
	Evening	2	0.5
	Anytime	31	7.5

Table 5: Evaluation of the Conduciveness of the Lecture Venues

Response	Frequency	%
Yes	167	40.6
No	215	52.3
Others	29	7.1

DISCUSSION

This study evaluated student's preferred method and materials for lecture delivery. Physical method of lecturing was found to be the most preferred method for receiving lecture, having a percentage of 87.6%, compared to online method of lecture delivery which had a percentage of 12.4%. Hence, even if the pandemic required that lectures be held online, it was important to have as much physical contact with students as possible, putting covid-19 guidelines in place. A study by Chamoorro-Premuzic and Furnham [12] shows that academic performance was directly affected by the students' approach to learning, hence, lectures must be designed to meet students preferences especially in the light of the difficulties posed by covid-19 pandemic and the consequential global adjustments. An empirical study revealed that students are suffering from stress and anxiety during this pandemic. [13] [14] Chakraborty et al., [15], reported the need for periodic assessment to keep the teaching-learning process on the right track. Empirical studies have found that students feel that they learn better in physical classrooms than through online education. [16] Students miss the help they receive from their peers in classrooms and laboratories and access to library. [17] Nevertheless, students feel that online education helped them to continue their study during the pandemic. [18] Universities are now using innovative strategies to ensure continuity of education for their students. [19] Power point and explanation method according to our study was the most preferred method for delivering lectures with an acceptability of 55%. This made sense because according to Changsri *et al.* [20], learning with visual aids has great impact on students. Also, Power Point slides enhance memory retention and analytical skills. [5] Saville *et al.* [21] recommends combining lectures with audiovisual aids to improve the intellectual skills and to take away the monotony of lectures. Another study by Seth et al. [22] supports this finding, stating that more students scored higher in objective test with audiovisual aided lectures in comparison to the patient oriented problem solving method of teaching. This is because Power Point Slides enhance memory retention and

analytical skills, as compared to a traditional lecture. They also recommended combining lectures with Audiovisual aids to improve the intellectual skills and to take away the monotony of lectures. [21]

Again, one hour according to our study, was the preferred lecture duration of students, with a percentage of 64.2%. In their study, Eze and Misava [23] describes long lecture duration (defined as being beyond two hours), as a risk factor impacting on quality teaching and learning. Based on attention theories, it is clear that human attention span is limited, therefore, long lecture duration is likely not the best for any meaningful teaching/learning plan. [23] Primarily, students and lecturers are likely going to be bored with long lecture sessions and even if they were not, by natural inclination might not have the maximum disposition to concentrate throughout the given period. [23] Science has shown us that effective human attention span last for 10 to 15 minutes at any given time. [24-27] For that reason, long lecture duration is not the best in terms of transmission and retention of knowledge. [23] In the face of long duration of lecture, lecturers and students could develop some adjustment strategies such as arriving late to lecture, adopting a care free attitude, and worse still ending the lecture early, thereby not able to complete the schedule time. [23] Lectures be planned to accommodate the limited human attention span.

Lecture notes according to the study, was the preferred kind of material used in understanding the courses and preparing for exams. Hence, even if they preferred power point slides and the lecturer's explanation in receiving lectures, they still needed lecture notes to adequately understand their courses and prepare for their exams.

Furthermore, our study interrogated how conducive the lecture environments were for the students, and based on our study, it was found out that lecture environment for the students were not conducive, 52.3% of the students stating so. Comments such as 'It's always crowded and there's no fan or air-conditioner', 'non-conducive due to large number of students and lack of Public Address System most times', 'the classroom is only conducive when there is power supply', among others were recorded. According to Osaikhiuwu [28], analysis of the data using descriptive statistics revealed that the interruption of electricity supply, overcrowded lecture rooms, unfavorable learning environment, incessant strike and closure of school as well as method of collating results were found to affect students' performance. As Gibbs [29] suggested, students should be provided with a learning climate that is safe and supportive.

Morning Period, having a frequency of 88.1%, was the preferred period of the day for lectures according to this study. Students found this period of the day most preferable for them for assimilating knowledge. The summary of the study done by Humble, [30], validates this by showing that morning lecture had the strongest effect then the evening lecture which has moderate effect and afternoon lecture with weak effects on academic performance.

Previous studies have shown that learning outcomes are also affected by multiple factors that influence the teaching-learning environment which includes students' approaches to learning, motivation, self-regulation and conceptions of learning and teaching [31-33]. This means, students' preferences are important in lecture delivery as well as their understanding and academic performance.

CONCLUSION

The findings of this research should be harnessed in order to improve the quality of lecture delivery in College of Health Sciences, Nnamdi Azikiwe University, Nnewi Campus.

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Author Contribution

Aguwa conceived and supervised the work and did the final draft of the manuscript, Icheke designed the questionnaire, Icheke and Tobe distributed and retrieved questionnaire (physical copy), David sorted out the questionnaires, Matthew wrote the first draft of manuscript.

Data Availability

The data to support the findings of this study are available from the site publicly.

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REFERENCES

1. Saville BK, Zinn TE, Elliott MP. Interteaching versus traditional methods of instruction: A preliminary analysis. Teaching of Psychology. 2005 Aug 1;32(3):161-3.
2. Richardson D. Student perceptions and learning outcomes of computer-assisted versus traditional instruction in physiology. Advances in Physiology Education. 1997 Dec;273(6):S55.
3. Ghazali AR, Ishak I, Saat NZ, Arifin RA, Hamid A, Rosli Y, Mohammed Z, Othman MS, Kamarulzaman F. Students' perception on lecture delivery effectiveness among the Faculty of Health Sciences lecturers. Procedia-Social and Behavioral Sciences. 2012 Oct 17;60:67-72.
4. Garg M. Peeping into the learning world of secondary teacher trainees: Can their academic success be predicted?. Australian Journal of Teacher Education (Online). 2011 Jan;36(12):97-116.
5. Ali E. Effects of virtual learning on students health (Doctoral dissertation, The British University in Dubai (BUiD)).
6. Richardson D. Student perceptions and learning outcomes of computer-assisted versus traditional instruction in physiology. Advances in Physiology Education. 1997 Dec;273(6):S55.
7. Scheele N, Wessels A, Effelsberg W, Hofer M, Fries S. Experiences with interactive lecturesconsiderations from the perspective of Educational Psychology and Computer Science.
8. Ghosh S. Combination of didactic lectures and case-oriented problem-solving tutorials toward better learning: perceptions of students from a conventional medical curriculum. Advances in Physiology Education. 2007 Jun;31(2):193-7.
9. Teferra D, Altbachl PG. African higher education: Challenges for the 21st century. Higher education. 2004 Jan;47(1):21-50.
10. Bojović Ž, Bojović PD, Vujošević D, Šuh J. Education in times of crisis: Rapid transition to distance learning. Computer Applications in Engineering Education. 2020 Nov;28(6):1467-89.
11. Vella F. Medical education: Capitalizing on the lecture method. The FASEB Journal. 1992 Feb;6(3):811-2.
12. Chamorro-Premuzic T, Furnham A. Personality, intelligence and approaches to learning as predictors of academic performance. Personality and individual differences. 2008 May 1;44(7):1596-603.
13. Arora A, Chakraborty P, Bhatia MP, Mittal P. Role of emotion in excessive use of Twitter during COVID-19 imposed lockdown in India. Journal of Technology in Behavioral Science. 2021 Jun;6(2):370-7.
14. Berk RA. Survey of 12 strategies to measure teaching effectiveness. International journal of teaching and learning in higher education. 2005 Jan 28;17(1):48-62.
15. Chakraborty P, Mittal P, Gupta MS, Yadav S, Arora A. Opinion of students on online education during the COVID-19 pandemic. Human Behavior and Emerging Technologies. 2021 Jul;3(3):357-65.
16. Lammers WJ, Murphy JJ. A profile of teaching techniques used in the university classroom: A descriptive profile of a US public university. Active learning in higher education. 2002 Mar;3(1):54-67.
17. Zorzal R, Lorenzo O. Teacherstudent physical contact as an approach for teaching guitar in the master class context. Psychology of Music. 2019 Jan;47(1):69-82.
18. Mahmood S. Instructional strategies for online teaching in COVID-19 pandemic. Human behavior and emerging technologies. 2021 Jan;3(1):199-203.
19. Malik RS. Educational challenges in 21st century and sustainable development. Journal of Sustainable Development Education and

Research. 2018 May;2(1):9-20.
20. Changsri N, Inprasitha M, Pattanajak A, Changtong K. A study of teachers' perceived beliefs regarding teaching practice. Psychology. 2012 Apr 17;3(04):346.
21. Saville BK, Zinn TE, Elliott MP. Interteaching versus traditional methods of instruction: A preliminary analysis. Teaching of Psychology. 2005 Aug 1;32(3):161-3.
22. Seth V, Upadhyaya P, Ahmad M, Kumar V. Impact of various lecture delivery methods in pharmacology. EXCLI journal. 2010;9:96.
23. Eze C, Misava E. Lecture duration: A risk factor for quality teaching and learning in Higher Education. Integrity Journal of Education and Training. 2017;1:1.
24. Ganyaupfu EM. Teaching methods and students' academic performance. International Journal of Humanities and Social Science Invention. 2013 Sep;2(9):29-35.
25. Singh H, Aggarwal AD, Kushwaha V, Sandhu SS. Role of Interactive methods in Large Group Teaching. Journal of Forensic Medicine and Toxicology. 2015;32(2):20-3.
26. Balloo K, Pauli R, Worrell M. Undergraduates' personal circumstances, expectations and reasons for attending university. Studies in Higher Education. 2017 Aug 3;42(8):1373-84.
27. Sandhu S, Afifi TO, Amara FM. Theories and practical steps for delivering effective lectures. J Community Med Health Educ. 2012;2(6):158.
28. Osaikhiuwu OC. Institutional factors affecting the academic performance of public administration students in a Nigerian University. Public Administration Research. 2014 Oct 29;3(2):171-7.
29. Gibbs G. Learning by doing: A guide to teaching and learning methods. Further Education Unit. 1988.
30. David S. Effects of Guided-Discovery and Problem-Solving Teaching Methods on Students' Academic Performance in Financial Accounting in Colleges of Education, North Central, Nigeria (Doctoral dissertation, Kwara State University (Nigeria)).
31. Coker OM. Influence of Teaching Techniques on Academics Performance of Students in Econometrics as a Course of Study in Lagos State University, Ojo.
32. Ghazali AR, Ishak I, Saat NZ, Arifin RA, Hamid A, Rosli Y, Mohammed Z, Othman MS, Kamarulzaman F. Students' perception on lecture delivery effectiveness among the Faculty of Health Sciences lecturers. Procedia-Social and Behavioral Sciences. 2012 Oct 17;60:67-72.
33. Bonitz VS. Student evaluation of teaching: Individual differences and bias effects. Iowa State University; 2011.