ORIGINAL ARTICLE

# Perceptions of Phase I MBBS Students and Faculty on Using Quizizz as a Formative Assessment Tool Compared to the Traditional Method in the Biochemistry Department

Jyotsna Volturi[1],*
[1]Department of Biochemistry, Government Medical College, Nagarkurnool, Telangana, India
*Government Medical College, Uyyalawada, village, Nagarkurnool, Telangana- 509209, India
Tel: +91 9959662783
Email: drjyotsna.mdgmc@gmail.com

**Background:** The new competency-based medical education (CBME) curriculum focuses more on formative assessments, which help identify strengths and weaknesses and improve the student's overall performance by providing constructive feedback. However, many challenges are faced due to faculty shortages and resources, which online assessments like Quizizz can somewhat overcome. The purpose of this study was to evaluate the perceptions of Phase I MBBS students and faculty on using Quizizz as an online formative assessment tool in the Biochemistry department compared to the traditional method.

**Method:** It is a mixed-method approach carried out in the Department of Biochemistry, Government Medical College. Phase I MBBS students (250) were randomized into 2 groups of A and B, and assessments were conducted using Quizizz and a traditional approach alternatively by crossover. A separate Google form-based questionnaire including closed and open-ended questions was given, and feedback was collected from students and faculty. Quantitative data using the Likert scale and narratives were analyzed.

**Results:** More than 80% of students agreed that Quizizz was interesting, fun-based, enjoyable, and created a competitive atmosphere and that they cannot cheat with this type of assessment and hence preferred Quizizz over the traditional method. The Biochemistry faculty felt that Quizizz positively impacted teaching, student engagement and feedback. Immediate results helped in planning remedial strategies. Online mode, auto evaluation and easy accessibility relieved them from stress and anxiety.

**Conclusion:** Using Quizizz can improve student engagement and performance due to immediate feedback and allow smooth conduction and hassle-free evaluation of formative assessments by the faculty.

**Keywords:** Formative, Assessments, Quizizz, Feedback

# تصورات طلاب المرحلة الأولى في الطب والجراحة وأعضاء هيئة التدريس حول استخدام Quizizz كأداة تقييم تكويني مقارنة بالطريقة التقليدية في قسم الكيمياء الحيوية

**الخلفية:** يُركز منهج التعليم الطبي القائم على الكفاءة (CBME) الجديد بشكل أكبر على التقييمات التكوينية، التي تُساعد على تحديد نقاط القوة والضعف وتحسين الأداء العام للطالب من خلال تقديم ملاحظات بناءة. ومع ذلك، تُواجه الكلية العديد من التحديات بسبب نقص أعضاء هيئة التدريس والموارد، والتي يُمكن للتقييمات الإلكترونية مثل Quizizz التغلب عليها إلى حد ما. هدفت هذه الدراسة إلى تقييم آراء طلاب وأعضاء هيئة التدريس في المرحلة الأولى من برنامج بكالوريوس الطب والجراحة حول استخدام Quizizz كأداة تقييم تكوينية إلكترونية في قسم الكيمياء الحيوية مقارنةً بالطريقة التقليدية.

**الطريقة:** هي نهج مُختلط الأساليب، طُبّق في قسم الكيمياء الحيوية بكلية الطب الحكومية. قُسّم طلاب المرحلة الأولى من برنامج بكالوريوس الطب والجراحة (٢٥٠ طالبًا) عشوائيًا إلى مجموعتين (أ) و(ب)، وأُجريت التقييمات باستخدام Quizizz والنهج التقليدي، أو بالتناوب عن طريق التقاطع. قُدّم استبيان منفصل قائم على نموذج جوجل، يتضمن أسئلة مغلقة ومفتوحة، وجُمعت ملاحظات من الطلاب وأعضاء هيئة التدريس. حُللت البيانات الكمية باستخدام مقياس ليكرت والسرديات.

**النتائج:** اتفق أكثر من ٨٠٪ من الطلاب على أن Quizizz شيق وممتع، ويخلق جوًا تنافسيًا، وأنهم لا يستطيعون الغش في هذا النوع من التقييم، ولذلك فضلوه على الطريقة التقليدية. رأى أعضاء هيئة تدريس الكيمياء الحيوية أن Quizizz أثر إيجابيًا على التدريس، وتفاعل الطلاب، وردود الفعل. ساعدت النتائج الفورية في تخطيط استراتيجيات علاجية. كما أن الوضع الإلكتروني، والتقييم التلقائي، وسهولة الوصول، خففت عنهم التوتر والقلق.

**الخلاصة:** يمكن أن يُحسّن استخدام Quizizz من تفاعل الطلاب وأدائهم بفضل التغذية الراجعة الفورية، ويسمح بإجراء سلس وتقييم سلس للتقييمات التكوينية من قبل أعضاء هيئة التدريس.

**الكلمات المفتاحية:** تكويني، تقييمات، Quizizz، ردود فعل

# برداشت دانشجویان و اساتید رشته پزشکی عمومی (MBBS) فاز اول از استفاده از آزمون کوییزیز به عنوان یک ابزار ارزیابی تکوینی در مقایسه با آزمون های سنتی در بخش بیوشیمی

**زمینه و هدف:** برنامه درسی جدید آموزش پزشکی مبتنی بر شایستگی بر ارزیابی‌های تکوینی تمرکز دارد که به شناسایی نقاط قوت و ضعف و بهبود عملکرد کلی دانشجو از طریق ارائه بازخورد سازنده کمک می‌کند. به دلیل کمبود اساتید و منابع، چالش‌های زیادی وجود دارد که پلتفرم های ارزیابی‌های آنلاین مانند کوییزیز می‌تواند تا حدودی بر آنها غلبه کند. هدف از این مطالعه، ارزیابی برداشت دانشجویان و اساتید پزشکی عمومی در مورد استفاده از پلتفرم کوییزیز به عنوان یک ابزار ارزیابی تکوینی آنلاین در بخش بیوشیمی در مقایسه با روش آزمون سنتی است.

**روش:** این مطالعه یک رویکرد ترکیبی است که در بخش بیوشیمی کالج پزشکی دولتی هندوستان انجام شد. دانشجویان پزشکی عمومی (۲۵۰ نفر) به صورت تصادفی به دو گروه A و B تقسیم شدند و ارزیابی‌ها با استفاده از پلتفرم کوییزیز و یک روش سنتی به صورت متقاطع انجام شد. پرسشنامه جداگانه مبتنی بر فرم گوگل شامل سوالات بسته و باز ارائه شد و بازخورد از دانشجویان و اساتید جمع‌آوری شد. داده‌های کمی با استفاده از مقیاس لیکرت و روایت‌ها تجزیه و تحلیل شدند.

**یافته‌ها:** بیش از ۸۰ درصد دانشجویان موافق بودند که کوییزیز جالب، سرگرم‌کننده و لذت‌بخش است، فضای رقابتی ایجاد می‌کند، نمی‌توانند در این نوع ارزیابی تقلب کنند و کوییزیز را به روش سنتی ترجیح دادند. برداشت اساتید بیوشیمی این بود که کوییزیز تأثیر مثبتی بر تدریس، مشارکت و بازخورد دانشجویان دارد. ارائه نتایج فوری در این روش به برنامه‌ریزی استراتژی‌های اصلاحی کمک کرد. حالت آنلاین، ارزیابی خودکار و دسترسی آسان، دانشجویان را از استرس و اضطراب رهایی بخشید.

**نتیجه گیری:** استفاده از پلتفرم کوییزیز به دلیل بازخورد فوری، می تواند مشارکت و عملکرد دانشجویان را بهبود ببخشد و امکان انجام آسان و بدون دردسر ارزیابی‌های تکوینی توسط اساتید را فراهم می کند.

**واژه های کلیدی:** تکوینی، ارزیابی‌ها، کوییزیز، بازخورد

# بائیو کیمسٹری ڈیپارٹمنٹ میں روایتی طریقہ کے مقابلے میں فیز I کے ایم بی بی ایس کے طلباء اور کوئزز کو فارمیٹو اسسمنٹ ٹول کے طور پر استعمال کرنے کے بارے میں فیکلٹی کے تاثرات

**پس منظر:** قابلیت پر مبنی طبی تعلیم (CBME) کا نیا نصاب تشکیلاتی جائزوں پر زیادہ توجہ مرکوز کرتا ہے، جو قوتوں اور کمزوریوں کی نشاندہی کرنے اور تعمیری تاثرات فراہم کرکے طالب علم کی مجموعی کارکردگی کو بہتر بنانے میں مدد کرتا ہے۔ تاہم، فیکلٹی کی کمی اور وسائل کی وجہ سے بہت سے چیلنجز کا سامنا ہے، جن پر کوئزز جیسی آن لائن تشخیص کسی حد تک قابو پا سکتی ہے۔ اس مطالعہ کا مقصد روایتی طریقہ کے مقابلے بائیو کیمسٹری ڈیپارٹمنٹ میں کوئزز کو آن لائن فارمیٹو اسسمنٹ ٹول کے طور پر استعمال کرنے کے بارے میں فیز MBBS I کے طلباء اور فیکلٹی کے تاثرات کا جائزہ لینا تھا۔

**طریقہ:** یہ ایک مخلوط طریقہ کار ہے جسے بائیو کیمسٹری ڈیپارٹمنٹ، گورنمنٹ میڈیکل کالج میں کیا جاتا ہے۔ فیز I کے MBBS طلباء (۲۵۰) کو A اور B کے ۲ گروپوں میں بے ترتیب بنایا گیا تھا، اور کراس اوور کے ذریعے متبادل طور پر کوئزز اور روایتی نقطہ نظر کا استعمال کرتے ہوئے تشخیص کیے گئے تھے۔ ایک علیحدہ گوگل فارم پر مبنی سوالنامہ جس میں بند اور کھلے سوالات شامل تھے، اور طلباء اور فیکلٹی سے فیڈ بیک اکٹھا کیا گیا۔ لیکرٹ اسکیل اور بیانیے کا استعمال کرتے ہوئے مقداری ڈیٹا کا تجزیہ کیا گیا۔

**نتائج:** ۸۰٪ سے زیادہ طلباء نے اس بات پر اتفاق کیا کہ کوئزز دلچسپ، تفریح پر مبنی، پرلطف تھا، اور ایک مسابقتی ماحول بناتا تھا اور یہ کہ وہ اس قسم کی تشخیص کے ساتھ دھوکہ نہیں دے سکتے اور اس لیے روایتی طریقہ پر کوئزز کو ترجیح دی۔ بائیو کیمسٹری فیکلٹی نے محسوس کیا کہ کوئزز نے تدریس، طلباء کی مصروفیت اور تاثرات کو مثبت طور پر متاثر کیا۔ فوری نتائج نے تدارک کی حکمت عملیوں کی منصوبہ بندی میں مدد کی۔ آن لائن موڈ، خودکار تشخیص اور آسان رسائی نے انہیں تناؤ اور پریشانی سے نجات دلائی۔اطمینان کی عکاسی کرتا ہے۔

**نتیجہ:** Quizizz کا استعمال فوری تاثرات کی وجہ سے طالب علم کی مصروفیت اور کارکردگی کو بہتر بنا سکتا ہے اور فیکلٹی کی طرف سے تشکیلاتی جائزوں کی ہموار ترسیل اور پریشانی سے پاک تشخیص کی اجازت دیتا ہے۔

**کلیدی الفاظ:** تشکیلاتی، تشخیص، کوئزز، تاثرات

## INTRODUCTION

Medical education involves teaching and learning to provide knowledge and develop student competencies. To ensure that competencies have been achieved, assessments are essential for measuring student progress. Two primary types of assessments—formative and summative—are commonly employed. Formative assessments provide immediate feedback to both teachers and students, allowing teachers to assess understanding and adjust their teaching strategies, while students receive guidance on areas for improvement. Summative assessments, on the other hand, evaluate overall learning outcomes. Formative assessments can be applied to any subject and should be incorporated at least once within a lesson to support ongoing learning. The main objective of formative assessments is to help students recognize their strengths and weaknesses, and address areas for improvement. These assessments utilize various tools to enhance learning and empower students to take ownership of their progress by focusing on growth and development rather than final grades (1). Formative assessments involve activities such as self-assessment, peer evaluation, or instructor feedback through writing, quizzes, and discussions. These assessments are carried out continuously during a class or course to support student learning and address individual needs for improvement. When used effectively, formative assessments can significantly improve student achievement and enhance teacher effectiveness (2). Moreover, the integration of educational technology in formative assessments enhances the learning experience by boosting student engagement, optimizing time management, fostering equal participation, and promoting a dynamic and interactive learning environment The Covid-19 pandemic has anyhow changed the medical education environment and made the shift to online learning inevitable. Online platforms now offer many opportunities that can be widely used in teaching-learning as well as in assessing students. One such online game-based tool available freely is Quizizz which allows teachers to conduct fun-based formative assessments. This study is grounded in the principles of formative assessment, gamified learning, and student-centered pedagogy, particularly suited to Generation Z learners in a digital academic landscape. The present study intended to investigate the perspectives of students and faculty of the Biochemistry department on using Quizizz as a formative assessment tool.

## METHODS

### Research Design

A descriptive cross-sectional design with a convergent parallel mixed –method was employed. The aim was to explore perceptions of two formative assessment methods—Quizizz (a gamified online platform) and the traditional written method—after participants had experienced both formats in the Biochemistry department. Both quantitative (Likert scale) and qualitative (open-ended feedback) data were collected simultaneously and analyzed independently and later compared to provide a comprehensive understanding of participant perceptions.

### Sampling Technique

A total population sampling approach was used. All 250 Phase I MBBS students enrolled in the Biochemistry course during the academic term were included in the study. Prior information was given to the students. Additionally, all 4 Biochemistry faculty members who were actively involved in teaching and assessment were recruited for faculty feedback. The data collected was treated as highly confidential.

### Participants

Two hundred and fifty Phase I MBBS students and 4 faculties of Biochemistry, in a Government Medical College, Telangana state, participated and joined the survey questionnaire.

### Research Procedure

The study involved 250 Phase I MBBS students, divided into 2 pre-existing Groups: A & B.

- In the first phase, Group A was assessed using Quizizz (20 MCQs), and Group B via a traditional paper-based formative test (5 short-answer questions) on the same Biochemistry topic. The test by Quizizz was time-bound (1 minute per question), randomized, and conducted online with anti-cheat settings enabled.
- In the second phase (after a week), the groups switched formats, with Group A doing the traditional test and Group B using Quizizz, on a different topic of comparable difficulty.

This crossover allowed all students to experience both assessment methods, enhancing the reliability of their feedback. After the second phase, a structured Google Form questionnaire (which included Likert scale based and some open ended questions) was distributed to all the students in both groups. Faculty (n=4) who conducted and supervised the assessments, were also surveyed using a separate Likert based form with open-ended

questions to capture teaching related perspectives. The data thus reflect comprehensive perceptions after full exposure to both assessment modalities.

**Ethical Clearance**

The study was approved by Institutional Ethics Committee, Government Medical College. (RC.NO.: IEC/GMC/2024/05/023).

**Statistical analysis**

A Google form-based questionnaire was given separately to students and faculty. Subject experts and colleagues of the department scrutinized, revised, and approved this questionnaire to ensure its validity. Quantitative data were collected using structured Likert-scale questionnaires, while qualitative data were gathered from open-ended student and faculty responses. Both data strands were analyzed independently—descriptive statistics were applied to quantitative data, and thematic analysis was used for qualitative responses. The findings were then integrated during interpretation to triangulate results, identify congruencies, and enrich the understanding of observed trends.

Likert scale included: Strongly Agree (SA); Agree (A); Neutral (N), Disagree (D); and Strongly Disagree (SD). For analyzing the data, scores were given for Likert scale items like: Strongly Agree (SA): 5, Agree (A): 4, Neutral (N): 3, Disagree (D): 2, and Strongly Disagree (SD): 1.

## RESULTS

All 250 Phase I MBBS students participated in both types of formative assessments—Quizizz (online, MCQ-based) and the traditional written method (short-answer based). Feedback was collected after both experiences, enabling comparative reflections on both assessment formats.

Quantitative analysis (Table 1) showed that a large majority (80%) of students found it interesting, engaging, enjoyable, and conducive to a competitive learning environment. While most students appreciated the reduced anxiety and increased flexibility offered by Quizizz, a notable subset (approximately 20%) reported experiencing stress due to connectivity issues. This discrepancy was also reflected in open-ended responses.

“Quizizz was interesting and fun”

- "It was very competitive and flexible. I was very much excited by seeing the immediate results."
- “Quizizz made the test more fun and enjoyable. It also eliminated the unwanted anxiety that I get for written formative exams. But as the professional exams in a medical college is descriptive, I think it's important to learn time management and better presentation skills that come with practice so in future I would like attempting equal share of both quizizz and descriptive exams”.
- "I was stuck in the middle of the test because of a connectivity issue, and I lost valuable time."

Many (88%) highlighted its gamified nature and immediate feedback, supporting concept clarity and gap identification. Most of them (77.5%) felt cheating was difficult on the Quizizz platform due to time constraints, randomization and anti-cheat features.

These findings were further supported by thematic analysis of student comments, which emphasized ease of use, immediate feedback, clearing the concepts and identifying gaps.

- *“Bridging the gaps”*
- *“Since questions are fresh in memory it's easier to review in the app itself”*
- *“Immediate feedback had made my concepts clear”*
- *"The immediate feedback feature is really handy as we can know what mistake we made as soon as the question completes."*
- *"The explanation after each question is very*

**Table 1. Student's perceptions on Quizizz vs traditional method of formative assessment (n=250)**

| Statements | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| 1. Quizizz is interesting and fun. | 34.40% | 50.20% | 13.90% | 1% | 0.50% |
| 2. I enjoy doing the test using Quizizz. | 26.30% | 58.90% | 14.40% | 0% | 0.50% |
| 3. Quizizz feels like a game. | 27.30% | 55.50% | 13.40% | 1.90% | 1.90% |
| 4. Quizizz doesn't make me tense in doing the test. | 15.30% | 34.90% | 29.70% | 16.30% | 3.80% |
| 5. I can't cheat during the test using Quizizz. | 37.30% | 40.20% | 16.70% | 4.80% | 1% |
| 6. Quizizz creates a competitive atmosphere. | 30.60% | 51.70% | 15.80% | 1.40% | 0.50% |
| 7. Quizizz is better than the traditional test. | 34% | 38.80% | 22.50% | 3.30% | 1.40% |
| 8. Quizizz is more flexible & adaptable than traditional test method. | 29.20% | 49.80% | 16.70% | 1.90% | 2.40% |
| 9. Quizizz provides immediate feedback when compared to traditional test method. | 34.40% | 53.60% | 11% | 0% | 1% |

*useful. I could check my mistakes immediately and understand the topic better."*

Figure 1 illustrates the overall preference for Quizizz, by the students favoring it over the traditional format of assessment. Figure 2 shows the average satisfaction score (8.05/10) and accessibility score (7.6/10) attributed to Quizizz.

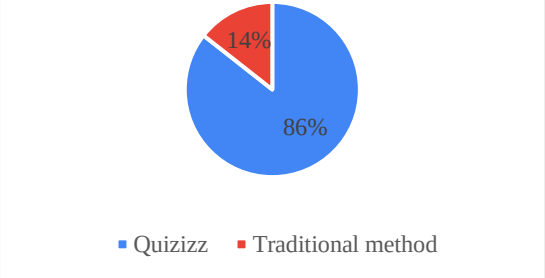


**Figure 1. Overall preference (in percentage) of students for Quizizz vs traditional assessment method (n = 250)**

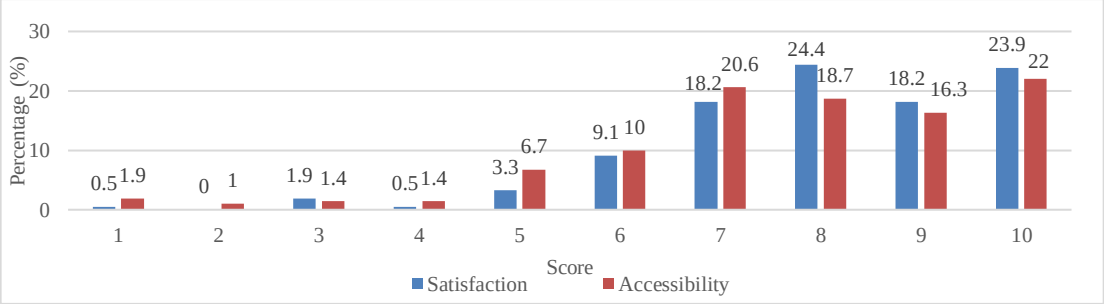


**Figure 2. Satisfaction and accessibility scores given by students (scale: 1–10) on Quizizz**

**Faculty Perceptions**

All four faculty members agreed that Quizizz had a positive impact on teaching and enhanced student engagement (Table 2). They appreciated its efficiency, ease of setup, and ability to engage students while minimizing manual evaluation effort, relieving them from stress and anxiety involved with traditional method. Importantly, the platform's automatic feedback helped faculty identify students' needs for remediation promptly. All the faculty felt easy accessibility and conduction of assessments via Quizizz on a computer, laptop, or mobile and that no/minimal expertise was required for the same reason.

Thematic analysis reinforced these trends.

- *"Quizizz have a positive impact as a teaching tool"*
- *"It is very easy for the teacher to conduct a test and also very exciting for the student to attend the test."*
- *"Quizizz saves time for evaluation and reduces stress."*
- *"Easy, consumes less time, less expertise needed, Time-saving"*

However, faculty echoed network-related limitations:

- *"Connectivity issues were due to exam-related jammers; otherwise, the tool is user-friendly."*

More than half of them (75%) believed cheating was minimal on Quizizz; however, 25% remained neutral, citing student resourcefulness.

- *"less chance of cheating due to randomization and shuffling"*

The average effective ness rating for Quizizz, given by faculty was 9/10 (Figure 3).

Thematic analysis of open-ended feedback corroborated the quantitative trends (Table 3)—students appreciated immediate feedback, ease of use, and engagement. Some concerns about network issues were also noted, aligning with the small percentage who reported tension. Faculty noted Quizizz to be time saving, easy to use, relieved stress, helps provide instant feedback and more engaging for students.

## DISCUSSION

The present study aimed to explore the perceptions of Phase I MBBS students and Biochemistry faculty regarding the use of Quizizz, a gamified online formative assessment tool, in comparison with traditional assessment methods. The findings clearly revealed the preference for Quizizz by both students and faculty. They perceived Quizizz as more engaging, interactive, flexible, and effective for feedback delivery than traditional formative assessments. The platform also minimized cheating, enhanced motivation, and supported remediation strategies.

Present generation students are more inclined towards gadgets and learn easily if it is unique and entertaining. It is crucial to get to know their needs and styles to achieve effective learning outcomes (3, 4). According to Prensky, to be successful in the 21st century, the education business found new

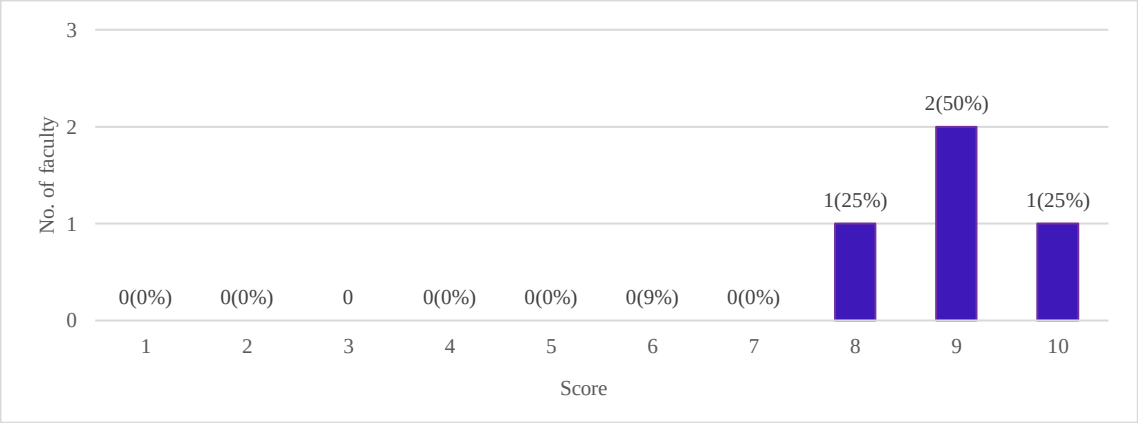


**Figure 3. Faculty effectiveness ratings (scale: 1–10) for Quizizz as a formative assessment tool (n = 4)**

**Table 3. Integrating quantitative data with qualitative themes**

| Quantitative finding | Qualitative theme |
|---|---|
| **Student's perceptions** | |
| 80% enjoyed it. | **'Fun and Competitive'** |
| 88% valued immediate feedback. | "Bridging gaps", "Check mistakes instantly" |
| 79% found it flexible. | "Easy and modern", "Can use mobile anytime" |
| 20% reported anxiety due to network. | "Stuck in test", "Lost time due to connectivity" |
| 77.5% felt cheating was hard. | "Shuffled questions", "Timer focus" |
| **Faculty perceptions** | |
| 100% felt students got engaged. | "very exciting for the student" |
| 100% valued immediate feedback. | "positive impact on student" |
| 100% felt easier and less time consuming. | "saves time", "Easy", "Time saving" |
| 100% felt relieved of stress. | "saves time and reduces stress" |
| 100% felt easy to use and no expertise required. | " easy to conduct a test", "less expertise required" |
| 75% felt cheating not possible. | "due to shuffling and randomization" |

obstacles and needed to be reinvented regarding digital requirements, orientation, and preferences (5). One such digital tool is Quizizz.

Most students reported that Quizizz created a competitive and enjoyable environment, enhanced by its gamified features such as real-time leaderboards, time-bound questions, and immediate feedback. These results align with previous studies, including those by Amalia et al. who explored the use of Quizizz for online assessments in English teaching and learning (6) and Chaiyo et al., who also highlighted increased student motivation and enjoyment with Quizizz-based assessments (7).

Majority of students experienced a competitive atmosphere during the test in the present study which was in accordance with previous studies like Bury et al. who found that 79% students agreed that it was fun to compete against other classmates using Quizizz and Basuki et al., stated that most students like the competitiveness in Quizizz session (8, 9). The leaderboard function likely fostered a competitive spirit, a key element of gamification theory.

Concerns regarding academic integrity were also addressed. Majority of students (77.5%) believed cheating was difficult, aligning with findings from a previous study by Basuki et al., who also had similar results. This is attributed to platform's randomization, shuffling of questions and options, anti-cheat options being enabled, which might had led to minimum chances to cheat.

A significant proportion of students (88%) valued the immediate feedback provided by Quizizz, which helped them identify conceptual gaps and reinforce understanding. This aligns with the fundamental goals of formative assessment—providing timely, actionable feedback to support self-regulation and learning improvement. This is largely due to the platform's ability to offer real-time, detailed insights such as scores, rankings, attempted and unattempted questions, correctly answered questions, wrong answers, time taken per question, and the total time spent on the test.

Most of the students didn't feel tense during the test

via Quizizz which was in accordance with the findings by Mohammad et al. who concluded in their study that Quizizz reduced learning anxiety among distant post-graduate students (10). Even Basuki et al., study stated that most students felt positive when playing Quizizz.

In this study, many students reported that Quizizz was more flexible and adaptable than traditional methods, a finding consistent with previous research, such as Bury et al., They also noted that Quizizz offers interactive learning environments that cater to diverse learning styles. Features like the review section, the option to retake tests, and AI-generated customized questions for the same topic further enhance Quizizz's effectiveness in delivering targeted and personalized assessment experiences (11).

Interestingly, some students recommended integrating Quizizz sessions regularly into the academic schedule, highlighting its value as a supplementary learning tool. This aligns with a previous study by Bury (2017), where 79% of students indicated a desire for more frequent use of Quizizz testing as gamification is generally favored by the younger generation.

Nevertheless, a few expressed a continued preference for traditional written assessments, citing the relevance of descriptive formats in university exams. This underscores the need for a balanced assessment strategy—one that incorporates both MCQ-based tools like Quizizz and traditional descriptive formats, especially in light of CBME's allowance for MCQs in summative evaluations.

Apparently, more than 85% of the students preferred Quizizz over traditional method of testing, with a pretty good satisfaction score (8.05 on a scale of 1-10) and accessibility score (7.6 on a scale of 1-10) which is in concordance with Chaiyo et al.'s study where 70% of the participants were satisfied with Quizizz.

All the faculty members agreed that Quizizz positively impacted teaching practices and student engagement due to its gamified version. Similar findings were seen in Bell, 2014; Buckley & Doyle, 2016; Hamari & Koivisto, 2014 studies and also suggested that 'gamification', which has been shown to boost learner motivation and engagement, be adopted as a new approach to the educational system (12-14).

Auto-scoring, ease of reuse, and accessibility across devices were cited as major advantages. These findings are consistent with a study by Harahap et al., where teachers reported that Quizizz was easy to use, allowing them to create quizzes and check student scores conveniently from a mobile phone (15). Faculty perceptions mirrored those of students in terms of giving immediate feedback to the students as it helped in student remediation strategies being applied without delay.

Quizizz sighed relief to the faculty in evaluating the assessments as it involved auto-evaluation and saved a lot of time while relieving them from the stress and anxiety involved with the traditional method. This was in concordance with a study done by Harahap et al., who found that Quizizz was very helpful for teachers and effective in the teaching-learning process and saved time for the teacher to check student's answers because Quizizz can do that automatically (15).

Similar to students, faculty also believed that Quizizz effectively prevented cheating during tests. A similar point was stated in the Darmawan et al.'s study (16). A minority of faculty, however, remained cautious, acknowledging that students might still devise ways to circumvent these controls.

Despite the overall positive perception, a common concern shared by some students and faculty was related to network issues which caused glitches during the use of Quizizz., because of which few students reported increased anxiety—a limitation similarly noted by Ningrum (2022) who highlighted the platform's reliance on a stable internet connection (17).

Faculty found Quizizz to be effective with a good score (9 out of 10), consistent with the findings of Chaiyo et al., who evaluated Quizizz's impact on student engagement, concentration, enjoyment, motivation, satisfaction, etc.

The findings of this study align well with the principles of formative assessment and learner-centered pedagogy, which emphasize timely feedback, self-monitoring, and active engagement. Moreover, the gamified elements of Quizizz—competition, point scoring, instant ranking—reflect core principles of gamification theory, which posit that motivation and engagement improve when learners experience enjoyment and challenge simultaneously.

Importantly, the preference for Quizizz among most participants supports the learning style preferences of present generation learners, who are characterized by digital fluency, multitasking, and preference for interactive technology-enhanced environments. As Prensky described in his digital natives theory, these learners are more responsive to visual, dynamic, and feedback-rich platforms (5).

In summary, Quizizz offers an effective, student-friendly, and faculty-efficient solution for formative assessments. While infrastructural limitations like internet stability remain a challenge, the platform's educational benefits are substantial. Thus, integrating Quizizz into formative assessments aligns with the evolving needs of medical learners and supports the shift toward competency-based and student-driven learning approaches outlined in the CBME framework.

Limitations of the study include conduction of the study within a single department and not being

extended to other subjects or departments, small faculty sample size, possible response bias (students rating a novel tool higher due to novelty effect), and technical constraints like network issues which affected engagement and feedback. The study assessed perceptions only, without correlating them to performance metrics or learning outcomes, which could have provided more robust evidence of effectiveness.

## CONCLUSION

This study highlights the positive perceptions of Phase I MBBS students and Biochemistry faculty toward Quizizz as a formative assessment tool. The majority of participants found Quizizz to be engaging, interactive, and more flexible than traditional assessments. Key features such as immediate feedback, randomized questions, and automated scoring contributed to reduced faculty workload and enhanced student motivation while enabling teachers to conduct formative assessments in an innovative and convenient manner. These findings reinforce the relevance of gamification and digital feedback tools as aligned with formative assessment theory and modern medical learner needs. Quizizz not only supported student engagement and self-assessment but also enabled faculty to provide timely remediation strategies. Although technical challenges and sample limitations exist, the overall results suggest that Quizizz is a valuable, feasible, and learner-centric alternative for formative assessment in medical education. Its integration alongside traditional assessment methods could help strike a balance between gamified engagement and preparation for descriptive, high-stakes examinations. Future research should explore its impact on academic performance, long-term retention, and scalability across disciplines and institutions.

**Ethical Considerations:**

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors.

## ACKNOWLEDGMENTS

I am grateful to all the students and faculty who participated in the study and helped in successful completion.

**Financial Support:** None.

**Conflict of Interest:** The author declares that there were no competing interests.

## REFERENCES

1. Trumbull E, Lash A. Understanding Formative Assessment: Insights from Learning Theory and Measurement Theory. 2013. Available from: https://www.wested.org/online_pubs/resource1307.pdf

2. Brookhart S. Five Formative Assessment Strategies to Improve Distance Learning Outcomes for Students with Disabilities. NCEO Brief. Number 20. National Center on Educational Outcomes. 2020 May.

3. Arabaci IB, Polat M. Dijital yerliler, dijital gocmenler ve sinif yonetimi. Elektronik Sosyal Bilimler Dergisi. 2013;11-20. Turkish.

4. Burke B, Campell AA. Gartner enterprise architecture summit 2011. 2011; Available from: http:/./www.gartner.com/newsroom/id/1629214

5. Prensky M. Digital natives, digital immigrants: Part 1. On the Horizon. 2001;9(5):1-6. https://doi.org/10.1108/10748120110424816

6. Amalia D. Quizizz Website as an Online Assessment for English Teaching and Learning: Students' Perspectives. Jo-ELT (Journal of English Language Teaching) [Internet]. 2020;7(1):1-8. Available from: https://doi.org/10.33394/jo-elt.v7i1.2638

7. Chaiyo Y, Nokham R. The effect of Kahoot, Quizizz, and Google Forms on students' perception in the classroom response system. Proc Int Conf Digit Arts Media Technol; 2017:178-82.

8. Bury B. Testing goes mobile - Web 2.0 formative assessment tools. International Conference ICT for Language Learning; 2017. Available from: https://conference.pixel-online.net/ICT4LL/files/ict4ll/ed0010/FP/4060-ETL2655-FP-ICT4LL10.pdf

9. Basuki Y, Hidayati YN. Kahoot! or Quizizz: the students' perspectives. English Language and Literature International Conference. 2019. doi: 10.4108/eai.27-4-2019.228533.

10. Mohamad M, Fatin Kamilia MA, Bity SA, Melor Md Y. Online game-based formative assessment: distant learners postgraduate students' challenges towards Quizizz. Int J Adv Sci Technol. 2020;9(4):994-1002.

11. Rahayu I, Purnawarman P. The use of Quizizz in improving students' grammar understanding through self-assessment. In: Proceedings of the International Conference on Applied Linguistics (CONAPLIN 2018). 2019. doi: 10.2991/conaplin-18.2019.235.

12. Bell KR. Online 3.0 the rise of the gamer educator: the potential role of gamification in online [unpublished doctoral thesis]. Philadelphia: University of Pennsylvania; 2014.

13. Buckley P, Doyle E. Gamification and student motivation. Interact Learn Environ. 2016;24(6):1162-75. https://doi.org/10.1080/10494820.2014.964263

14. Hamari J, Koivisto J. Measuring flow in gamification: Dispositional Flow Scale-2. Comput Human Behav. 2014;40:133-43. https://doi.org/10.1016/j.chb.2014.07.048

15. Harahap S, Kembaren F. Teachers' perceptions of utilizing Quizizz application in ELT for young learners. Scope J Engl Lang Teach. 2023;7:278. https://doi.org/10.30998/scope.v7i2.16224

16. Darmawan M, Daeni F, Listiaji P. The use of Quizizz as an online assessment application for science learning in the pandemic era. Unnes Sci Educ J. 2020;9:144-50. https://doi.org/10.15294/usej.v9i3.41541.

17. Ningrum DW. The utilization of Quizizz application in online learning. Eltin J Engl Lang Teach Indones. 2022;10(1):55-64.