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Ideation and stakeholder need analysis - Intermediate Review

Stakeholder Identification and needs analysis

For my project, the main stakeholders and the related challenges are:

1. **Students:** They need engaging and interactive tools to practice learning. They want quiz based applications that are simple to use and competitive as well as fun.

Challenges: Many students find traditional study methods boring, (ex. Canvas quiz) and there seem no such platform which supports on the go

2. **Teachers/Faculty:** They need digital tools to test students quickly and especially on the go where student need not to spend specific time for quiz (students can appear for quiz while travelling etc.), track performance, and make learning more interactive.

Challenges: Quiz platforms often lack the quality of maintainability of quizzes and questions. Platforms are containing heavy infrastructure and not so easy to set up. Also, students tend to dislike the quiz platform which are used by teachers.

3. **Peers/Friends:** Apart from classrooms and peers, quizzes are also played casually among friends for entertainment.

Challenges: Here, the need is quick setup, multiplayer options, and smooth connectivity. Which cannot be seen among many quiz platforms.

4. **Institutions:** Schools and colleges look for low cost solutions that can improve student engagement without requiring expensive infrastructure. They also want platforms that are safe, reliable, and scalable. Also, the institutions usually prefer platforms which also aligns with student choices and likes.

Challenges: Sometimes smaller institutions cannot afford paid subscriptions and high end internet infrastructure to facilitate.

Analysis on existing scenarios

Current scenario worldwide:

As per recent data, the Online Quiz Platform Market stood at USD 3.5 billion in 2024 and is projected to attain USD 8.1 billion by 2033, with a steady CAGR of 10.1% from 2026-2033.

The use of online quiz platforms is growing quickly because of the rise in e-learning, gamified learning, and the need for tools in education and corporate training. Many of these platforms

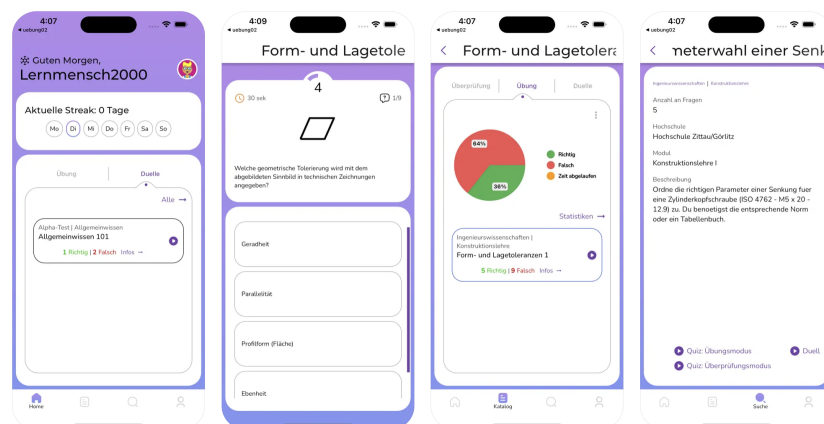
are now focusing on mobile access and using data analytics to improve the experience. At the same time, there are some clear challenges such as keeping user data secure, dealing with the digital divide, and ensuring the fairness of online tests. Even with these issues, the overall demand and future potential of quiz platforms remain very strong across both education and corporate sectors.



References: [Market research intellect](#)

Gamified learning app evaluation (StudiSQ):

The StudiSQ app uses gamification elements like badges, leaderboards, and duels to boost student motivation by letting them practice course content through quizzes. In a study with about 60 students, usability (65.8/100) and user experience (4.1/7) were rated as average, partly because the app was still in a prototype stage and had bugs. For learning outcomes, all students scored lower in the second test, but those who used StudiSQ showed a slightly smaller decline compared to those who studied with traditional methods. About 80% of participants said they would use the app, showing overall interest, though improvements in usability and user experience are needed for regular adoption by teachers and students.



StudiSQ app interface

References: [Diamond scientific publishing](#)

- Students often complain that existing quiz apps are either too gamey (like Kahoot!) or too formal (like Moodle/QuizUp). There is no balance between fun and simple learning.
- In surveys and industry reports (IEEE and ACM papers on gamification in education, 2021–2024), gamified tools are shown to increase student focus and recall.
- Case studies (McKinsey, 2023) on digital learning tools highlight the problem of over-complexity and subscription costs, which is a barrier for smaller institutions as discussed before.

From these insights, the clear needs are:

1. Real-time 1v1 play for students/learners, specifically on the go quizzes.
2. Simple, responsive design without unnecessary distractions.
3. Minimal cost and easy deployment for institutions.
4. No/minimum dependencies on advanced hardware and infrastructure.

Problem Statement

Current quiz applications are mostly entertainment focused (like QuizUp 2, with avatars, gifts, events). There is no lightweight quiz tool that supports real time 1v1 competitive play without needing advanced hardware. Students and teachers lack an accessible, distraction-free platform for instant knowledge based competitions as well.

Solution Ideation

1. **1v1 Quiz platform with LAN(temporary basis)**
 - Students can connect instantly over a shared WiFi/LAN for friendly matches.
 - The same system can later be scaled to cloud for broader use.
 - Meets the need for instant, low cost accessibility on the go mode.
2. **Leaderboard and analytics**
 - After each quiz, results and rankings are shown and score can be compared with opponent.
 - Teachers can track student performance.
3. **Lightweight and distractionless UI**
 - Focus only on quizzes and results.
 - Unlike QuizUp (avatars, gifts, spins), the design will keep it simple and learning-oriented.
4. **Quiz and questions management**
 - Store quizzes in a structured manner, differentiated by their respective categories and subcategories.
 - Efficient question bank which stores all relevant questions according to their respective categories and subcategories.
5. **Quiz builder**
 - Admin/faculty can create relevant quizzes and questions can be added from excel file, question bank and manually as well.
 - Admin can set time, difficulty and points per each unique question.

Relevance to ICT Domain

The project is closely related to ICT because it brings together multiple areas:

- **Web Development:** In relevance to Internet and web technology (IWT) and Advanced web technology (AWT) subject where the basics to advanced of web development are taught, is implemented for the website implementation of this application.
- Which includes frontend development, backend development, hosting of the web application.
- **Networking Concepts:** WebSockets for real-time gameplay and REST APIs for other services to make website easier to implement.
- **Mobile app Development:** In relevance to Cross platform mobile application development (CPMAD) subject, where the basics of mobile application development is taught, is implemented for the mobile side of this application
- **Database:** In relevance to Database Management System (DBMS) subject, the database schema design, management and deployment falls under this category.
- **Human centric approach:** In relevance to Human centered design (HCD) subject, developers of this application are encouraged to propose a Human centric solution which not only solves the problem but also engages the audience with application / solution in a positive way.
- **Creativity, problem solving and innovation:** In relevance to the CPSI subject, developers of this application are also encouraged to think and propose solution creatively and innovatively which not only distinguishes their solution from other conventional approaches but also makes their approach stand out among others.
- **Cloud development:** The fundamentals of AWS and cloud will be beneficial for the developers to containerize the application using Docker as well, where the external dependencies and downloads need not to be done.
- **Object oriented programming:** Concepts of object oriented programming have been explicitly and implicitly used. In sequelize ORM, the concepts are explicitly used while in coding, the class – object methodology have been thoughtfully implemented.

Potential impact on stakeholders and the ICT field

- **Students and Learners:** By applying concepts from subjects like IWT, AWT, DBMS, and HCD, the project can help students experience how classroom learning can lead towards a real product. For end users, it will be an engaging, real time quiz platform that makes learning more interactive and enjoyable.
- **Educators and Institutions:** Faculties can use the platform as a tool for quick assessments, and competitions as well. The human centric design makes sure that the app is not only functional but also easy to use.