



CENTRAL TEACHING INNOVATION FUND

FINAL REPORT

**Gamification of Learning Process to Enhance Student
Engagement and Knowledge Retention, Server-side Web
Programming & Lab**

COURSE REPRESENTATIVES (CR)

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Academic Development Center

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A. Title Page

Title of Proposal : Gamification of Learning Process to Enhance Student Engagement and Knowledge Retention, Server-side Web Programming & Lab

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The Prominence Office Tower, Tangerang

Date: 26 May 2025

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1. PROJECT SUMMARY

This project aims to transform the overall learning process of a subject into an engaging, interactive, and student-centered learning experience. By utilizing gamification principles into the overall learning process, the main aspiration is to create a dynamic learning environment where students are motivated to actively participate and achieve mastery.

The objectives of this project are listed as follows:

- a. **Enhancing Student Engagement:** To increase student involvement in digital learning by introducing gamified elements that encourage active participation
- b. **Improving Knowledge Retention:** To implement strategies that reinforce learning through interactive and repetitive engagement, ensuring better comprehension and recall
- c. **Advancing Pedagogical Expertise:** To gain expertise in the integration of gamification within instructional design, aligning with modern educational trends
- d. **Promoting Inclusive Learning:** To create a gamified platform that caters to diverse learning styles and abilities, ensuring no student is left behind

The key activities that are involved in this project are:

- a. **Use of Quizizz:** Quizizz are used at the end of every class in the project timeline so that an increased retention of student knowledge, as well as to promote inclusive learning, can be achieved. Follow-up exercises are also provided so that students can practice more outside of classes
- b. **Hand-written Quiz:** A conventional hand-written quiz is done to track student knowledge retention
- c. **Track Student Satisfaction:** Conduct surveys post-implementation and aim to report increased satisfaction with learning methods, citing gamification as a key factor in their experience

The outcomes of this project are listed as follows:

- a. **Metrics to measure outcomes:** Participation rate, frequency of interaction, and quiz scores
- b. **Methods for collecting data:** Post project survey via Google form
- c. **Plans for monitoring and refining the innovation based on evaluation results:** Ongoing data collection throughout the project period, ask opinions of the students, use of feedback to make adjustments to the gamified elements

2. TEACHING INNOVATION IMPLEMENTATION

2.1 Project Activities

- Week 1: Planning, setup, and platform configuration
- Week 2 - 3: Pilot testing with selected students, as well as making adjustments

and refinements (if required)

- Week 4 - 6: Full use of gamification platforms for increasing student engagement, followed up with in-class quiz or assignments
- Week 7: Data collection and analysis

2.2 Challenges & Solutions

- **Initial phase of using Quizizz:** As the Course Representative (CR) have never used Quizizz or any other learning gamification platform, it took some time for the CR to understand the configurations that are available in the quiz. **Solution:** More time was allocated to understand and try the configurations of the Quizizz platform itself

3. OUTCOMES

The outcomes of this teaching innovation will be listed and explained in their respective sections as follows;

- Quizizz results after a theoretical class, as well as a conventional written quiz combining these two topics
- Summary of survey results

3.1 Quizizz and Written Quiz Results

Please find attached in Table 3.1 the results of the two topics reviewed with Quizizz after class, as well as their written quiz results combining these two topics. The first Quizizz has 20 questions, the second Quizizz has 17 questions, while the written quiz has a total of 25 questions, combining the two previous Quizizz topics. Results written in dash sign (-) means that the student is absent during the after-class Quizizz session.

Table 3.1: Results of Quizizz and Written Quiz

No.	Student Name	Quizizz Topic 1 - PHP Basics and Forms	Quizizz Topic 2 - Sessions and Cookies	Written Quiz
1	Anass Imad Salem	55	-	38
2	Arthur Matthew Gozali	75	76	96
3	Aurelius Donovan	55	82	92
4	Chintya Puspita Dewi Sam Marie	65	47	88

5	Fabio Nicholas Kho	55	82	96
6	Farrany Sucitra Kusumahadi	35	71	92
7	Glenn Marvelino Amadeus	45	100	84
8	James Christian Gautama	75	100	100
9	Jethro Johansson	65	88	68
10	Junichiro Nakaya	60	88	76
11	Justin Sutedja	35	-	92
12	Khaylilo Adimas Putra Suroso	60	71	90
13	Lindsay Calantha Rusly	75	88	68
14	Michael David Kristianto	55	-	88
15	Muhammad Akram Haritz Thedy	45	59	64
16	Muhammad Naufal Ramadhan	75	76	80
17	Novia Angie	-	88	96
18	Orlean Wesley	40	82	82
19	Raditya Rahmansyah Wibawa	60	88	96
20	Sean Tyrone Halim	35	76	68
21	Troy Alexius	55	94	88
22	Xaverio Rafael Chung	50	94	92

The results, as shown in Table 3.1, shows that most students have an increase in their written quiz score compared to the Quizizz results. This is mainly caused by the use of Quizizz to review class materials, which increases their confidence in the theoretical points for the topics taught in the subject. The survey results, which will be shown in Subchapter 3.2, will show their opinions about the use of Quizizz in this regard.

3.2 Survey Results

The survey was hosted via Google Forms, and all of the students have participated in the survey. Table 3.2 shows the list of questions asked in the survey, as well as the options to answer these survey questions.

Table 3.2: Survey Questions Regarding the Use of Quizizz

No.	Question	Answer Type	Answer Options
1	Name	Short Answer Text	-
2	How often do you use Quizizz or other gamification tool for exercises since semester 1 prior to the usage of Quizizz in our Server-side class?	Multiple Choice	<ul style="list-style-type: none"> ● Never ● Rarely ● Occasionally ● Often ● Almost every class ● Always
3	How enjoyable do you find using Quizizz in the classroom?	Linear Scale	1 - 5 (Not at all enjoyable - Very enjoyable)
4	Does Quizizz make learning more fun compared to traditional methods (e.g., paper quizzes)?	Multiple Choice	<ul style="list-style-type: none"> ● Yes ● No ● Sometimes
5	How motivated are you to participate when a Quizizz game is used in class?	Linear Scale	1 - 5 (Not motivated - Very motivated)
6	Do you prefer using Quizizz over other quiz platforms (e.g., Kahoot, Google Forms)?	Multiple Choice	<ul style="list-style-type: none"> ● Yes ● No ● Maybe
7	Do you feel that using Quizizz helps you remember content better?	Multiple Choice	<ul style="list-style-type: none"> ● Yes ● No ● Maybe
8	How well do you retain information after completing a Quizizz game?	Multiple Choice	<ul style="list-style-type: none"> ● I remember most of the content ● I remember some of the content ● I forget most of it soon after ● Not sure
9	How often do you review the answers after completing a Quizizz quiz?	Multiple Choice	<ul style="list-style-type: none"> ● Always ● Sometimes ● Rarely ● Never
10	Do you feel that your performance in quizzes or tests improved since using Quizizz?	Multiple Choice	<ul style="list-style-type: none"> ● Yes ● No ● Slightly

			<ul style="list-style-type: none"> • Maybe
11	Do you feel competitive during Quizizz games?	Multiple Choice	<ul style="list-style-type: none"> • Yes, and it motivates me • Yes, but it makes me anxious • No, I just focus on learning • Not sure
12	What do you like most about using Quizizz?	Long Answer Text	-
13	What improvements would you suggest for better learning or retention through Quizizz?	Long Answer Text	-
14	Would you recommend using Quizizz in other subjects or classes?	Multiple Choice	<ul style="list-style-type: none"> • Yes • No • Depends

Based on the questions listed in Table 3.2, the answers of the students can be seen in Table 3.3.

Table 3.3: Survey Answers Regarding the Use of Quizizz

No.	Question	Answer
1	Name	Name of each student
2	How often do you use Quizizz or other gamification tool for exercises since semester 1 prior to the usage of Quizizz in our Server-side class?	<ul style="list-style-type: none"> • Never (4 out of 22 - 18.2%) • Rarely (4 out of 22 - 18.2%) • Occasionally (9 out of 22 - 40.9%) • Often (4 out of 22 - 18.2%) • Almost every class (0 out of 22 - 0%) • Always (1 out of 22 - 4.5%)
3	How enjoyable do you find using Quizizz in the classroom?	<ul style="list-style-type: none"> • 1 (0 out of 22 - 0%) • 2 (1 out of 22 - 4.5%) • 3 (2 out of 22 - 9.1%) • 4 (9 out of 22 - 40.9%) • 5 (10 out of 22 - 45.5%)
4	Does Quizizz make learning more fun compared to traditional methods (e.g., paper quizzes)?	<ul style="list-style-type: none"> • Yes (18 out of 22 - 81.8%) • No (0 out of 22 - 0%) • Sometimes (4 out of 22 - 18.2%)

5	How motivated are you to participate when a Quizizz game is used in class?	<ul style="list-style-type: none"> ● 1 (0 out of 22 - 0%) ● 2 (0 out of 22 - 0%) ● 3 (3 out of 22 - 13.6%) ● 4 (11 out of 22 - 50%) ● 5 (8 out of 22 - 36.4%)
6	Do you prefer using Quizizz over other quiz platforms (e.g., Kahoot, Google Forms)?	<ul style="list-style-type: none"> ● Yes (12 out of 22 - 54.5%) ● No (3 out of 22 - 13.6%) ● Maybe (7 out of 22 - 31.8%)
7	Do you feel that using Quizizz helps you remember content better?	<ul style="list-style-type: none"> ● Yes (16 out of 22 - 72.7%) ● No (0 out of 22 - 0%) ● Maybe (6 out of 22 - 27.3%)
8	How well do you retain information after completing a Quizizz game?	<ul style="list-style-type: none"> ● I remember most of the content (10 out of 22 - 45.5%) ● I remember some of the content (11 out of 22 - 50%) ● I forget most of it soon after (1 out of 22 - 4.5%) ● Not sure (0 out of 22 - 0%)
9	How often do you review the answers after completing a Quizizz quiz?	<ul style="list-style-type: none"> ● Always (7 out of 22 - 31.8%) ● Sometimes (11 out of 22 - 50%) ● Rarely (3 out of 22 - 13.6%) ● Never (1 out of 22 - 4.5%)
10	Do you feel that your performance in quizzes or tests improved since using Quizizz?	<ul style="list-style-type: none"> ● Yes (14 out of 22 - 63.6%) ● No (0 out of 22 - 0%) ● Slightly (3 out of 22 - 13.6%) ● Maybe (5 out of 22 - 22.7%)
11	Do you feel competitive during Quizizz games?	<ul style="list-style-type: none"> ● Yes, and it motivates me (12 out of 22 - 54.5%) ● Yes, but it makes me anxious (4 out of 22 - 18.2%) ● No, I just focus on learning (6 out of 22 - 27.3%) ● Not sure (0 out of 22 - 0%)
12	What do you like most about using Quizizz?	<ul style="list-style-type: none"> - that i can always retake the quiz so i can learn from my mistakes - have power ups - It's very fun to compete with each other! I believe that it makes for an active environment whilst reinforcing the knowledge which we were taught. - power up - The flashcard review feature at the end.

		<ul style="list-style-type: none"> - It's fun. Really fun and funny. - The notes or summary after I answer the question. - all of it i like it - Can maybe customize my name - Can redo it whenever i want so i can understand more - More fun than a paper based game and allows you to compete with others - - - It's fun - Fun and simplicity. - - - simple - It's fun and easy to remember - easy than written - I like that it makes learning interactive and competitive, that create a sense of challenge that motivates me to pay more attention and do my best. - You can review your mistakes easily even if it's been days since you took the quiz - Able to use them as repeated exercise, quick and easy - they can explain the correct answers which provide more context
13	<p>What improvements would you suggest for better learning or retention through Quizizz?</p>	<ul style="list-style-type: none"> - - - after every chapter give a quizzes link so students can also study from there - i dont know - None that I'm aware of, no. - give redemption tries - Not in quizziz it self but after a lesson where new topics are taught put a quizziz at the end to act as a review + flashcards for the students. Try to do it at the end of every learning class. This way its easier to gauge who's paying attention and who isn't. - I don't know yet - More questions that relates to the material - gaada ko - More competition - make a temptation or second chance for the question that is wrongly answered - Make it a bit more competitive

		<ul style="list-style-type: none"> - More Quizizz - This is just the new better method that i just found to study not only for playing. - I guess playtest it more to prevent the errors of the first Quizizz - gave more exercise with the subject material in quizizz - no idea - i think quizizz already good - send a docx file with all the questions and the answer separated or written in invisible color at the end of the question so we can review it easily even if we don't have internet connection. - More Quiziz covering different topics which we can do repeatedly - none for now
14	Would you recommend using Quizizz in other subjects or classes?	<ul style="list-style-type: none"> ● Yes (15 out of 22 - 68.2%) ● No (0 out of 22 - 0%) ● Depends (7 out of 22 - 31.8%)

As can be seen from the answers in Table 3.3, it can be concluded that most students find the use of Quizizz very entertaining. It also helps them to be more confident in what they are learning by having an interactive gamification tool which allows them to learn outside of the classroom.

4. BUDGET REALIZATION (if applicable)

This programme does not involve the use of any budget

5. SEMESTER LEARNING PLAN

- SLP (Semester Learning Plan) should be attached to the final report
- Find the SLP Template [HERE](#) (THIS SLP TEMPLATE IS FOR CTIF REPORT USE ONLY)

Appendices

Please attach supporting data or documents if necessary