

# Gamification Design to Build Engagement in Accounting Master Students University of Surabaya

**Ikhwanul Arga Dentya Faresqi**

University of Surabaya, Indonesia

[ikhwanulargadf@gmail.com](mailto:ikhwanulargadf@gmail.com)

## Abstract

*This study aims to provide a new way to increase student motivation in participating in the lecture process. The current condition is that students feel tired due to lecture activities which feel like they are just routinely doing assignments after a day of work. Therefore, the researchers tried to apply the gamification concept design to present fresh and fun lecture activities without compromising the essence of the lecture process. The goal is that students are able to enjoy the lecture process without being burdened so that they can bring out their true potential.*

## Keywords

college motivation;  
gamification; education



## I. Introduction

In recent years gamification has begun to be applied in many fields, including Health (Kostenius et al, 2018; Pesare et all, 2016), Tourism (Xu et all, 2016), Banking (Baptista et all, 2017), Marketing (Dietrich et all, 2018; Fakhroddin et all, 2019), Engineering (Garcia, 2017; Pedreira, 2014), Tourism (Garcia et all, 2018), Talent development (Tansley, 2016), and Education (Urh et al, 2015; Huang and Hew, 2018). Gamification has begun to be applied at various levels of education, including high school (Su and Cheng, 2015) and also universities (Deif, 2017).

According to Khaleel et al (2016), gamification is the use of game elements outside of the game context. In-game activities are usually goal-oriented, wrapped in several events, quests/missions, and several other challenges in achieving these goals. Based on this, games have the same basic nature as learning. Players or learners are directed to perform tasks to achieve the desired result, move to the next level and mission in the case of a game, or complete understanding of a complex topic in the case of education (Scepanovic et all, 2015).

Simoes et al (2012) stated that the use of gamification in education provides direct feedback on developments in the classroom and acknowledgment of the completion of assigned tasks, thereby increasing participant participation. Gamification is not an activity of playing educational games on a computer or the use of words in a game, but rather something that restructures the classroom (Harrold, 2015). It can be said that gamification is able to have a positive impact in the field of education. Gamification is able to increase student motivation to attend class, download subject matter, participate in online discussions and do additional assignments (Scepanovic et al, 2015).

The purpose of national education is so noble, because with the achievement of these goals, all social problems can be overcome including students as the next generation of the nation. Physical education, sports and health is one of the entry points, because it develops; physical fitness, movement skills, critical thinking, social, reasoning, emotional stability, moral actions, aspects of a healthy lifestyle and the introduction of a clean environment

through physical activities can be formed by young people who have quality human resources. (Asrul, M. et al. 2021)

Based on the data that has been presented in the description above, the researcher wants to try how to use game elements in a non-game context which will later be applied to the lecture process for Master of Accounting students at the University of Surabaya. The researcher found that some of the students felt that they had less time to study, do assignments and even have to work because most of the students were employees. Some students also experience a lack of motivation which makes doing assignments just to get grades without understanding the material given.

## **II. Review of Literature**

The term gamification is used to describe the features of interactive systems that aim to motivate and engage end users through the use of game elements and mechanics (Seaborn & Fels, 2015). Paharia (2013) defines gamification as the use of motivation used by game developers to stimulate the motivation of players and is used in non-game contexts. Gamification is a concept about the application of game mechanics so as to motivate users and then increase engagement, as well as controlling and monitoring.

Engagement is a sense of emotional attachment between work and the individual that makes the individual give his best and provides benefits to the organization and the individual (MacLeod, 2009). The ultimate goal of gamification is to create engagement so that everyone is more motivated and gives their best. Gamification offers an attractive concept of control not only for individuals but also for organizations. Gamification has a fun concept by offering win-win solution for both parties. But basically gamification was created to control individual behavior but in a fun way. Like in a game, the concept of gamification is a network system that has various information that can be used to determine the ultimate goal of its application.

In compiling gamification there are 2 main important elements, namely game mechanics and game dynamics (Bunchball, 2010). Game mechanics consist of points, levels, challenges, virtual goods and spaces, leaderboard, and competition. Game dynamics consist of reward, status, achievement, self-expression, competition and altruism.

## **III. Research Method**

Paradigm is a general framework in viewing a theory and research when looking at the basic assumptions, main topics, and methods in answering research questions (Neuman, 2011). This research uses an interpretive approach. The researcher will explain the problems that occur based on the data and facts obtained and then identify them according to the existing theory. Data analysis was carried out qualitatively, with a case study paradigm based on data and facts in the social environment where this research was conducted. The explanation in this study was built from the results of direct investigations by researchers with participants so as to form information about the condition of the lecture system at UNIVERSITAS SURABAYA which can then be used to make gamification designs.

According to Soeherman (2019), qualitative research to obtain data prioritizes descriptive data obtained from several data acquisition techniques such as interviews, observations, and document studies, so that there is a direct interaction with the object and subject to be studied. In carrying out data acquisition must be holistic (whole).

Interviews were conducted to obtain direct information about how the participants felt. The method used is semi structured. Previously, the researcher would first prepare questions

or important points to be asked. Questions will develop in line with interviews conducted based on improvisation from the researcher.

Observations were made to see how the participants behaved based on the information obtained during the interview. Soeherman (2019) explained that technically, observation can be categorized into two, namely active observation and passive observation. Active observation means that the researcher is directly involved and interacts with the activity of the object of research, while passive observation means that the researcher does not participate or interact directly with the object of research.

Document analysis is an activity that begins with the collection of various documents on the research site (Soeherman, 2019). Documents can be in the form of writing, film, sound or even objects. Document analysis is an unobtrusive method, which is a method that does not require researchers to interact with the object being studied (Sekaran, 2016). Document analysis is done by collecting literature in accordance with the direction of the research.

#### **IV. Results and Discussion**

Before making a gamification design, researchers need to know the lecture experience of Master of Accounting Students at the UNIVERSITY of SURABAYA by conducting interviews with several students in order to get their views during the Masters education path. The results of the interviews that have been conducted are as follows:

- According to respondent A after undergoing the learning process while at UNIVERSITY SURABAYA, A said that the learning process was quite interesting for several lecturers and friends who were quite helpful for him who was not from the accounting department.
- According to respondent B after undergoing lectures, UNIVERSITY SURABAYA is a place to develop his inner potential because when he was undergraduate he took a different major from the current major.
- According to respondent C, after undergoing lecture activities, he was able to increase competence because of the many concentration options offered and the learning process that was packaged in quite an interesting and interactive way.
- According to respondent D, after undergoing lecture activities, UNIVERSITY SURABAYA has lecturers who are experts in their fields and are friendly to students.
- According to respondent E, after undergoing lecture activities, the learning provided by the lecturers is quite in-depth and the additional learning from guest lecturers and also several seminars that are often held are able to provide new perspectives that are quite fresh because they can directly learn from practitioners in the field.
- According to respondent F, after undergoing lecture activities, the learning provided was very useful. He also feels that studying at UNIVERSITAS SURABAYA is able to provide soft skill development which is very useful for the world of work.

In addition to knowing the college experience of each student, the researcher tried to ask further questions related to the difficulties or obstacles felt by the students.

- According to respondent A, the obstacle he feels is time. Respondent A is already working so that it becomes a burden because he has to divide the available time and sometimes feels less capable in terms of time management.
- According to respondent B, the obstacle he feels is time management. According to him, studying or doing assignments can only be done after work, while when you have finished work sometimes you have to do other things. He has also tried to study during office hours, but due to the large amount of material, he sometimes finds it difficult and can also break his concentration because there is work to be done.

- According to respondent C, the obstacle he feels is that he has given too many tasks. The assignments given also made it difficult for him to divide his time between work and college. It is not uncommon for him to choose to sacrifice one because it is very difficult to divide his time. He also said that when he has free time, he sometimes gets distracted by things like watching Netflix and also hanging out with friends.
- According to respondent D, the obstacle he felt was that at the beginning of the lecture he was surprised by the piles of assignments and presentations. This makes timing a little difficult because it can only work on weekends. Meanwhile, weekends are usually filled with family events or playing with friends.
- According to respondent E, the obstacle he feels is that his current major, namely Accounting, is a new thing because when he was undergraduate he took a different major. It is important for him to learn fundamental things related to accounting in order to provide more depth. However, he found it difficult to learn it alone.
- According to respondent F, the obstacle he felt was a lack of motivation in him. He said that he still often feels lazy to do assignments and read materials and use his spare time to have fun because he feels very tired because he has to work and study.

After understanding how the experiences and obstacles felt by students, the next researcher will make a gamification design according to the results obtained. In building and analyzing games, a tool called the MDA Framework is used. The MDA Framework consists of 3 elements, namely Mechanics, Dynamics and Aesthetics (Ruhi, 2015). In gamification, we usually define game mechanics, and game dynamics as the main components that make up gamification. Bunchball (2010) in Simoes (2013) explains “game mechanics are the mechanisms used to "gamify" an activity”. Individuals are motivated by game mechanics because of game dynamics. Each individual has needs and desires such as reward, status, achievement, self-expression, competition, and altruism among others (Bunchball, 2010).

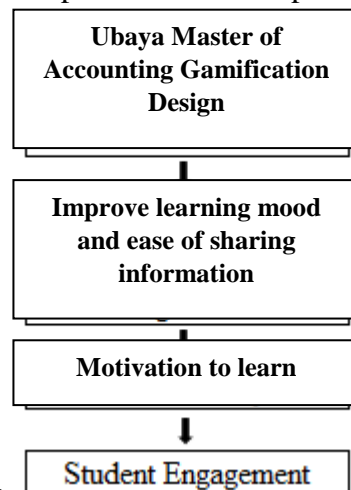
The table below contains the gamification elements that are related to and used in the gamification design for Master of Accounting students at UNIVERSITAS SURABAYA. This gamification element will be continuous with one another. For more details, see the table below:

**Table 1.** The Relationship between Narrative Explanations and Gamification Elements  
(Source: Processed)

No	Explanation in Narrative	Related gamification elements
1	Avatar of each Student	-Self-expression- Virtual Goods -Achievement-Status
2	Avatar Customization	
3	Show badges on profile	
4	Display Title on profile	
5	Earn points for completed Tasks	-Point-Reward- Achievement-Level
6	Earn points from student events	
7	Earn points from completed quiz	
8	Exchange points for virtual items	-Point-Reward- Achievement- Competition
9	Redemption of points with graduation vouchers	
10	Redemption of points for a chance to decide dinner	
11	Leaderboard that resets every semester	-Leaderboards- Competition-

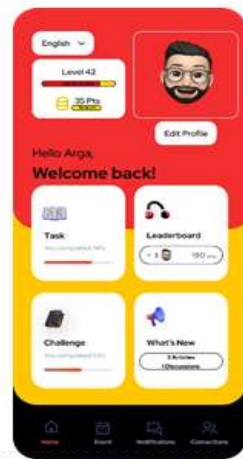
12	Leaderboard sorted from top to bottom	Achievement-Status
13	Obtaining titles from completing certain tasks or events	-Challenge- Achievement-Reward-
14	Earn badges for completing certain tasks or events	Self Expression-Status- Competition

And the following is a description of the concept of gamification made by researchers:



*Figure 1. The concept of gamification*

After determining the elements of gamification and making an overview of how the gamification concept is applied, then the appropriate gamification concept will be made. The following is a gamification design that will be made by researchers to build engagement on master accounting students which is made in the form of an application. The following is a mock-up of the gamification design that will be made in the form of an application:

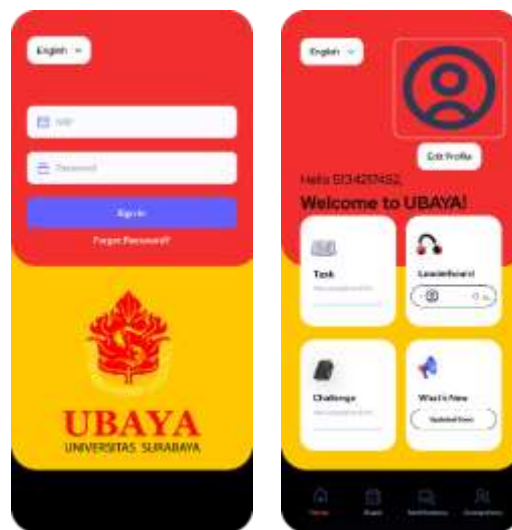


*Figure 2. Home screen*

From the Mock Up design above, each section (Home, event, notification, connections, task, leaderboard, challenge, what's new) shows a different menu that can be accessed in the application, which will be explained in the table below:

**Table 2.** Explanation of the menu on the Gamification Design mock-up

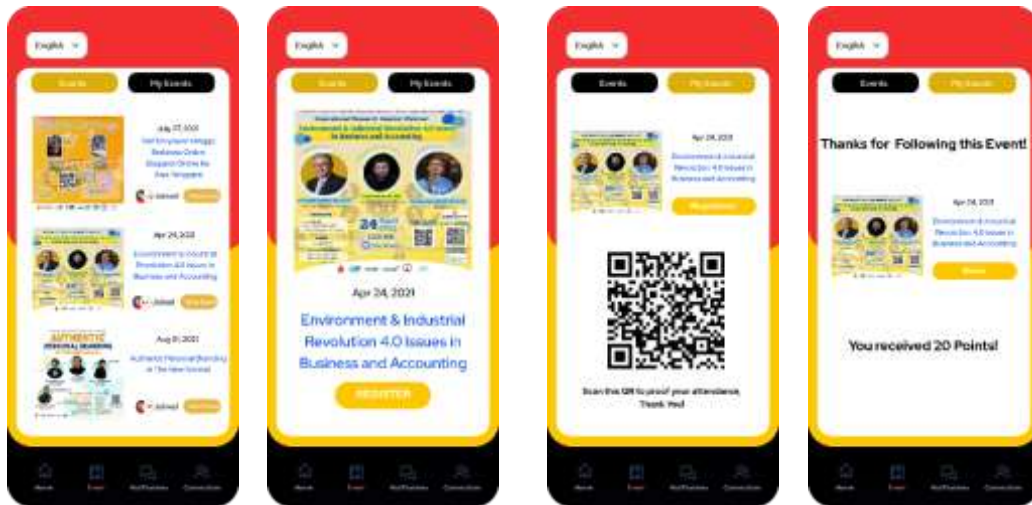
Part	Description
Home	The initial view after logging in, contains a collection of dashboard menus that can be accessed from the application.
Events	Contains a collection of seminars and campus events that students can choose to attend.
Notifications	Notifications as a reminder of assignments, classes that are followed or events that will take place.
Connections	Menu to view other student profiles.
Task	Contains assignments that must be done by each student.
Leaderboard	Provides information about student ranking in the scoreboard.
Challenge	Contains challenges that each student can do to get points.
What's New	Contains provided articles and discussion forums that students can participate in.
Profile (Avatar)	Contains student information such as name, social media, level, badges, and titles obtained by students after completing certain activities.



**Figure 3.** Display when going to login and when initial login

Student must *login* with the NRP and password that has been given. Then do the settings on the profile and can choose an avatar to use. If you have done the settings and followed the activities, the dashboard menu will look like in Figure 2.



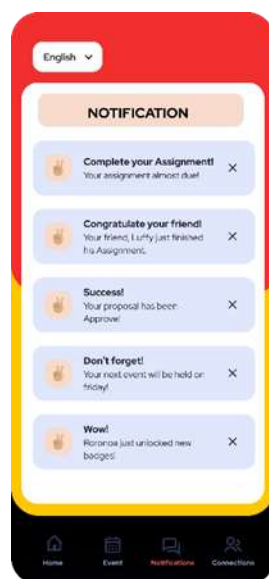


*Figure 4. Display event menu, event details, my events, events that have been completed.*

Students can choose an ongoing event or seminar according to their respective schedules. The selected event will immediately appear on the My Event tab so that students can pay attention to their schedule. After being registered, students will get a QR-Code that will be used when participating in the event. If you have finished participating in a series of events according to the schedule, the event will automatically end and students will get points as an appreciation for participating.

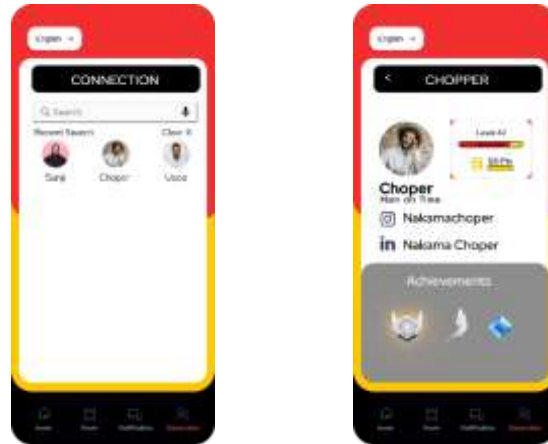
#### 4.1. Gamification design in Notifications

Furthermore, the notification tab contains all kinds of notifications about activities that occur in the application, for example reminding of task deadlines, quiz results, and even achievements from fellow students. This will function like a lecturer who reminds students so that students feel cared for. Notifications have an important role that will build a bond between applications and students because most students will look at their cellphones even during working hours and then feel reminded.



*Figure 5. Notification Menu*

## 4.2. Gamification Design in Connections



*Figure 6. The Connections and Profile menus that are clicked*

In this menu, students can search and view profiles of other students. Thus students can see the progress between themselves compared to other students. It is hoped that it will stimulate students' enthusiasm after seeing the development of other students. For the profile itself displays the name, level, points, title and achievements. Students will feel proud and happy if their achievements can be seen by others because basically humans need recognition of the achievements of others.

## 4.3. Gamification design in the Task Section

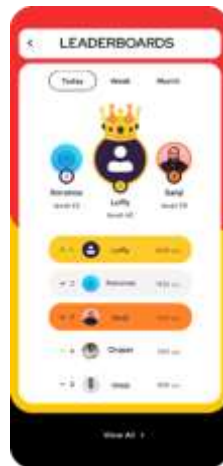


*Figure 7. Task Menu, Task Details, and Task Done*

In the gamification design there is a task menu where tasks are given randomly and pushed later through the notification menu. The assignment given will focus on discussing an article or a topic, where students will be asked to read and write a short summary according to what they have understood. For each task given, points will be given as an initial form of feedback for the appreciation of the student's efforts. Considering that this application is mobile-based, it will be very helpful for every student because almost all of them take the time to look at their smartphone.



#### 4.4. Gamification Design on the Leaderboard Section 4



*Figure 8. Menu leaderboard*

Students who want to know about their ranking information can look at the leaderboards menu. The initial view will display up to 5 top ratings which can be expanded by clicking on the view all button to see other ratings. In addition, for the top 3 rankings, a virtual podium was made as a form of appreciation for being able to be at that rank. The leaderboards menu will display the ranking, name, ranking changes, and the total points that have been collected. The ranking calculation comes from the points that can be collected in the task or challenge section. With the scoreboard, students are expected to feel the spirit of competition which will help students strive to achieve their best potential.

#### 4.5. Gamification design in the Challenge section

Next is the challenge menu which is different from the task. Challenges are challenges that can be taken by students and are not mandatory. However, this challenge can stimulate behavior that can bring out the potential of each student. After selecting the challenge to be carried out, the challenge will enter the My Challenge tab, where students can see how far the progress has been. The challenges in this menu will be general in nature, which means that every student has the same opportunity to take available challenges.



*Figure 9. Challenge Menu*

In addition to getting points, students are also given badges which can be displayed in the achievement column in the profile menu. Some of the activities that can be used as challenges are as follows:

<i>Challenge</i>	<i>Point</i>	<i>Badges</i>
Baca 2 artikel dalam sehari	10	
Baca 2 artikel dalam sehari selama 14 Hari berturut-turut	30	
Baca 2 artikel dalam sehari selama 40 Hari berturut-turut	50	
Mengikuti diskusi	10	
Mengikuti 5 diskusi	30	
Mengikuti 10 diskusi	50	
Datang ke kampus tepat waktu selama 14 Hari berturut-turut	30	
Datang ke kampus tepat waktu selama 30 Hari berturut-turut	75	
Datang ke kampus tepat waktu selama 1 semester	200	
Menulis 1 Artikel ilmiah	75	
Menulis 3 Artikel ilmiah	200	
Menulis 5 Artikel ilmiah	500	

*Figure 10. Activities that are challenging*

#### 4.6. Gamification design in what's New Section

What's new menu will display new articles that can be used as reading material for students, ongoing and ongoing discussions, and upcoming events. The articles provided will open up new insights so as to increase the knowledge they have. In addition, if they still don't understand, students can take part in a general discussion to get answers to their curiosity. And to get new views, students can take part in upcoming events.



*Figure 11. What's new menu display*

#### **4.7. Gamification design in the Redeem section**

Points that have been earned and collected by students can be exchanged for various prizes that have been provided. This is intended to provide an award for participating in a series of activities. This can be done on the redeem menu. Next, students just choose the prize they want and can click on the redeem button, then the prize will automatically go directly to the my reward tab. Students only need to show it to the student body if they want to take prizes.



*Figure 12. Redeem Menu*

## V. Conclusion

Based on the interviews that have been conducted regarding the application of the gamification design, it can be concluded that the gamification design was welcomed positively by the Master of Accounting Students at the University of Surabaya. The application of this gamification helps students in lecture activities. Researchers will try to optimize the positive implications and try to minimize the effects of negative implications. With the application of gamification, researchers hope that students can get a new learning sensation and will create student engagement.

The recommendation in this study is that further understanding is needed on how the application of gamification design is carried out. It is necessary to pay more attention to the selection of game mechanics and game dynamics to suit the characteristics of the accounting master students at UNIVERSITAS SURABAYA. The importance of socialization and continuous evaluation so as not to deviate from the purpose of making gamification designs. There needs to be adjustments so that the gamification design that is made can build an optimal situation so as to foster motivation in students to develop and provide fresh new experiences.

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