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Improving IT Team Motivation in Using IT Helpdesk

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Abstract

Information Technology and Information Systems are important in supporting operations in a company. The organization's ability to manage IT affects the quality of its information technology services, especially in the use of the IT Helpdesk. The IT Helpdesk acts as a good service provider for request fulfillment and problem management in the company and aims for the IT support team to monitor the status of work on problems faced by users and can analyze lead times from the emergence of these problems to their completion. The IT Helpdesk in a company engaged in the garment and textile industry has not been used optimally, for example, e-ticketing has not reached the target time specified in the Standard Operating Procedures (SOP) at the company due to a lack of enthusiasm and lack of motivation by the IT team towards the use of IT Helpdesk. Therefore, the researcher designed a prototype of the application of gamification with the Mechanics-Dynamics-Aesthetics (MDA) framework at the IT Helpdesk as a strategy used to increase the motivation and enthusiasm of the IT team that is useful for improving the performance of each IT team.

Keywords: Gamification, MDA Framework, IT Helpdesk, Performance, Motivation

1. INTRODUCTION

In this era of globalization with a highly competitive level, economic growth has progressed very rapidly. To achieve the goals set by the company, the company must be able to operate smoothly and be able to optimize all existing resources, to achieve optimal results and profit levels for the company. Information Technology (IT) and Information Systems (IS) are important in supporting operations in a company. The utilization of information technology at every level of the company is a pioneer in implementing a company's business strategy.

An organization's ability to manage IT affects the quality of its information technology services, especially the use of the IT Helpdesk. The IT Helpdesk aims to ensure that all complaints from service users can be resolved on time according to the initial agreement and that no problems or complaints are missed [1]. The IT Helpdesk also acts as a good service provider for request fulfillment and problem management in the company and aims for the IT support team to monitor the work status on problems faced by users and to be able to analyze the lead time

from the emergence of these problems to solutions made by the IT team. IT Helpdesk is also responsible for ensuring that all complaints from service users can be resolved on time in accordance with the initial agreement and no issues or complaints are missed [1]. In addition, it can also help top management monitoring staff performance and provide solutions to problems faced by users [2].

One of the Standard Operating Procedures (SOP) in terms of serving the IT department team to users is to take the e-ticketing that has been created by the user on the IT Helpdesk web application within a maximum of three hours during working hours since the e-ticketing was made by the user. This SOP has been implemented by the IT support team, but the specified time target has not been achieved. Often the e-ticketing is taken by the IT support team beyond the determined time, indeed e-ticketing can be assigned the next day.

Based on that, the researcher conducted observations and interviews with the IT support team and concluded that the IT team was less enthusiastic and less motivated to use the IT Helpdesk, so the IT Helpdesk had not been used optimally. Motivation has an important role and benefits for the continuity and success of learning and or work carried out by everyone. The greater the motivation of everyone, the greater the achievements and results to be achieved. Elements that affect a person's motivation include aspirations, skills, conditions, and environmental atmosphere [3]. Motivation within an employee as well as from the work environment, will greatly help improve employee performance [4]. If an employee has positive motivation, then the employee will show enthusiasm, show interest, have more attention, and a sense of wanting to participate in a task or activity [5].

In this research, the IT team prefers the WhatsApp application as a means of conveying problems to the user. This has several lacks, such as a list of problems and how to solve them not being neatly documented, there is a possibility that problems faced by users are missed so that they are not resolved on time, and the data for these problems is not centralized.

Table 1. Statistical Data for E-Ticketing in 2021

Month	Not Achieve
January	40.09%
February	50.39%
March	60.44%
April	56.45%
May	69.70%
June	63.79%
July	50.00%
August	52.63%

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September	45.19%
October	68.69%
November	59.70%
December	66.67%

Table 1 is the percentage of the target time for assigning e-ticketing per month in 2021. May is the highest percentage of not achieving the target for assigning the e-ticketing.

Gamification is the use of game mechanics to provide practical solutions by building user engagement [6]. Gamification does not always aim to make a game, but only takes some aspects of the game so that it can help companies or organizations overcome problems that arise and can increase motivation for every user, namely employees because basically a game has great benefits enough impact to be able to change the mindset and behavior of users. Gamification is one of the topics that is often discussed as a method used to manage human resources in a company or organization to increase motivation, creativity, and teamwork that is useful for improving performance. Nowadays, gamification is often used in the fields of non-game, entertainment, business, and education. Gamification is used to attract attention and motivate users to use the product, or it is also used to influence user behavior. Gamification can be seen in three major parts, such as the implementation of motivation, the resulting psychology, and the habits that are passed on [7].

Therefore, the researcher assumes that the strategy that can be used to increase the motivation and enthusiasm of the IT team that is useful for improving the performance of each IT team is to apply the gamification method to the IT Helpdesk. Evaluating and appreciating employee performance is a general performance appraisal. The work target that has been achieved by an employee in completing the responsibilities and tasks assigned is an understanding of performance. The results of this work can be achieved individually or in groups [8]. By improving the quality of employees, it is also expected to improve employee performance. All companies strive to improve the performance of their employees in the hope of achieving company goals and employee goals as well [5].

In addition, it is hoped that with the increased service performance of the IT team, the company's operations can also run smoothly, and e-ticketing (response time) is taken according to the applicable SOP. The research question based on the background is how to create a gamification model that aims to increase the motivation of the IT team which is useful for improving the performance of each IT team. The researcher wants to prove that the use of the gamification model can improve the performance of the IT team using the IT Helpdesk.

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2. METHODS

The process flow of the framework process in this research begins with identifying the problems that occur in one of the manufacturing companies in Indonesia. Problem identification is carried out as a first step to find out what problems occur in the IT division, especially those related to the IT Helpdesk.

As a reference in conducting research, the researcher creates a research framework:

1) Problem Identification
   Problem identification is carried out as a first step to find out what problems occur in the IT division, especially those related to the IT Helpdesk.
2) Background and Problem Formulation
   After the problem is identified, the next step is to formulate the problem and the background of the problem.
3) Literature Study and Data Collection
   Literature study was conducted to find theories related to gamification, Helpdesk system, Mechanics-Dynamics-Aesthetics (MDA), motivation, performance, and several other things that can support the research and problem solving. This phase also aims to obtain references and related research that will be the basis for applying the method used.
4) Gamification Design and Prototype Making
   At this phase, the design for the prototype is carried out based on user needs obtained in the previous process. The researcher will use Figma to create a prototype design and will be tested on users.
5) Simulation and Evaluation
   The simulation process for the gamification design system is to conduct interviews with users. In this process, users will try the IT Helpdesk that has been designed by applying gamification and will be given several questions about the prototype. This phase aims to obtain feedback as a design evaluation.
6) Conclusions and Suggestions
   This last phase aims to summarize the entire previous process into a conclusion and suggestions for the research.

2.1. Data Collection Method

The data collection method which is used in this research is a qualitative method by interviews. The purpose of this interview is to seek in-depth information on solving the problem formulation, to know more about the activities of the IT team in terms of using the IT Helpdesk, and to assist researcher in determining the user persona and context of using the IT Helpdesk.

Table 2. Interview Question Points

Category	Question Points
General	Name Position Job Description
Demographic	Age Gender Location
Personality	Activity in Free Time Hobby
IT Helpdesk	The Function Motivation Level of Difficulty
Gamification	Type of Game Game Activity Game Element

2.2. Design Method

The method for designing gamification in the IT Helpdesk will use the Mechanics-Dynamics-Aesthetics (MDA) Framework. The design method will be based on user personas. MDA is a framework for understanding games that attempts to link the disciplines of game design, development, critique, and game research. MDA suggests that game components can be divided into mechanics, which describes the processes and actions accessible in play, dynamics, which describe how actions respond to one another in play, and aesthetics, which describes emotional reactions. generated by the player [9].

This study used MDA as an analysis framework because gamification elements are made based on these three things, namely Mechanics, Dynamics, and Aesthetics [10]. The MDA framework can create factors related to the learning process, namely challenges, curiosity, fantasy, and control [11], and it can also help develop a game to see from the point of view of game developers or people who will play the game later because the MDA framework is a framework in game design that can help analyze games that will be built later [12]. After the gamification design was completed, the researcher tested the prototype to the IT team and the test results were analyzed and evaluated.

In this framework, the researcher tend to look from Mechanics to Dynamics to Aesthetics, while players tend to look from Aesthetics to Dynamics to Mechanics [13].

1. Mechanics: to analyze what components or elements will be used in gamification. Mechanics is a collection of game behaviors, actions and controls performed by players when playing a game [14]. This section also describes certain elements in the gamification design that will be made.

2. Dynamics: to determine the mechanical interaction with player interaction. Dynamics is part of the player's interaction with mechanics in the game [14]. The dynamics also determine what happens next in the game the player plays when the mechanics work.
3. Aesthetics: to determine how the game can affect the player's feelings [14]. Aesthetics is also the result of the interaction of mechanics and dynamics which can eventually create an emotion such as getting a badge or reward.

3. RESULTS AND DISCUSSION

This research begins by conducting interviews with the IT team. This interview was conducted with six IT support people in the MIS division consisting of one woman and five men. The interviews were conducted face-to-face and lasted about 10 minutes. From the results of the interview, several important points were obtained that could be included in the affinity diagram. The conclusions obtained after the results of the interview are entered into the affinity diagram and get the top three orders, namely as follows:

1. Appreciation (reward) if IT Team reaches the target that set in the IT Helpdesk SOP.
2. There are interesting missions related to e-ticketing so that when doing work, it can be like playing at the same time.
3. Rewards obtained must be attractive and can be used in the company environment.

Based on the results of the interviews that have been conducted, the researcher created a user persona consisting of several parts, namely:

1. Name
2. Picture
3. General Information
4. Activity in Free Time or Hobby
5. Learning Goal
6. Learning Pain
7. Game

Based on Table 2, General and Demographic categories are used to generate the Name and General Information sections of the user persona. While the Personality category is used for the Activity in Free Time or Hobby section, the IT Helpdesk category is used for the Goal and Pain sections, and finally the Gamification category is used for the Game section of the user persona. Therefore, the researcher grouped the results of the interviews into two user personas.

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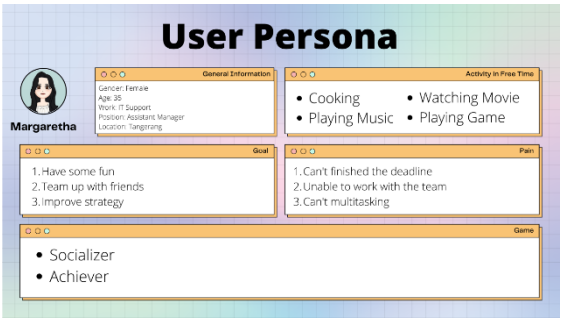

Figure 1. User Persona (Woman)

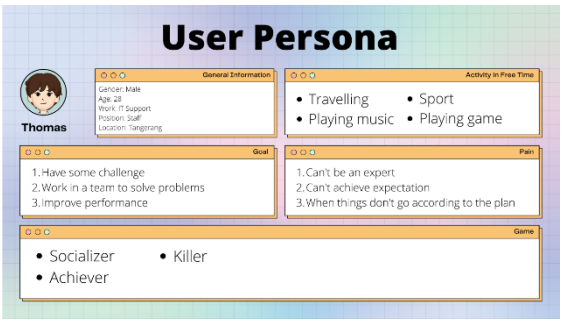

Figure 2. User Persona (Man)

3.1. Mechanics

In the results of the user persona that has been created, three types of IT support are obtained, namely Socializer, Achiever, and Killer. Then the mechanics of gamification are made according to these characteristics.

Table 3. Mechanics

Type	Purpose	Behavior	Mechanics
Socializer	To communicate and cooperate with co-workers.	1. Helping co-workers when they have trouble. 2. Conduct trials to solve a problem together. 3. Interact with co-workers.	1. Tier 2. Tier, XP 3. Tier
Achiever	To be the first ranked (expert) in the field of work.	1. Actively checking the IT Helpdesk and taking e-ticketing which is the scope of his work. 2. Actively ask questions and learn independently on the problems taken.	1. Progression bar, XP, Tier, Quest, Daily check-in 2. XP, Tier

		3. Always working on problem solving a problem quickly and precisely, and not procrastinating.	3. Progression bar, XP, Tier, Quest
Killer	To compete with co-workers.	Monitor the movement of the amount of XP that must be obtained to get a higher tier level.	Progression bar, XP, Tier, Daily check-in

3.2. Dynamics

These dynamics determine what happens next in the game the player is playing when the mechanic is working.

1. Quest
   The Quest element is an additional feature in the IT Helpdesk that allows the IT team to do the work that has become their respective responsibilities while playing games to collect XP. Quests are missions that must be completed to get additional XP that varies according to the level of difficulty. This quest will be reset every Monday and integrated with e-ticketing in the IT Helpdesk. Some examples of these quests are:
   - Complete 3 e-ticketing made by the user within 5 days until the status is Closed.
   - Completed 5 e-ticketing made by users within 5 days until Closed status.
   - Completed 2 e-ticketing made by the user within 3 days until Closed status.
   - Complete 1 e-ticketing made by the user within 2 days until the status is Closed.
   - Completed 7 e-ticketing made by users within 5 days until Closed status.

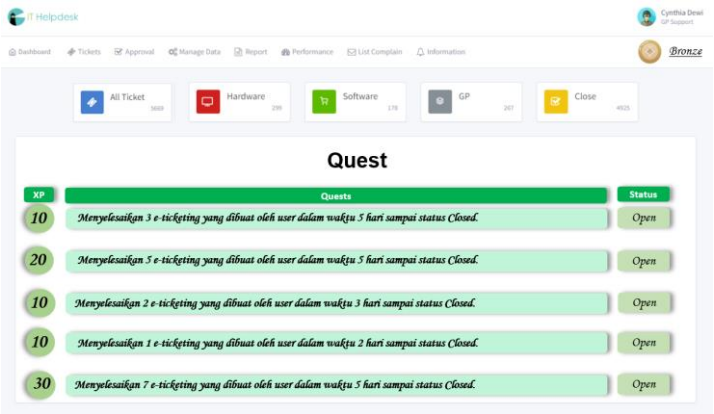

Figure 3. Quest Element

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2. Daily Check-In
   Daily check-in can be done a maximum of 3 times a day with the condition that it can be done on weekdays and every 3 hours starting from working hours, which is 08.30. Every time you do a daily check-in, players will get 10 XP per check-in. This Daily check-in element is integrated with the IT Helpdesk in terms of timing the IT Helpdesk. The second check-in can be done after three hours from the first check-in. Likewise, the third check-in can be done three hours from the second check-in.

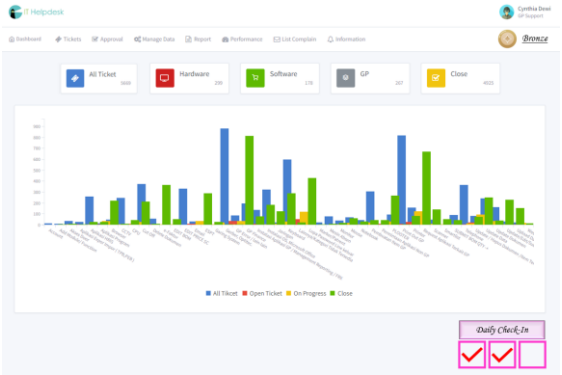

Figure 4. Daily Check-In Element

3. XP
   XP, also known as points, is a basic element of gamification. This XP is used to increase the tier owned by each player. Players will get a reward if they have reached a tier. The addition of XP is obtained from several sources, namely:
   - 40 XP if you complete the e-ticketing that has been taken on time according to the deadline that has been determined when taking the e-ticketing.
   - 60 XP if you complete the e-ticketing that has been taken before the deadline that has been determined when taking the e-ticketing.
   - 10 XP for every daily check-in
   - Complete the quest provided and the XP earned according to the difficulty level of the quest.

Figure 5. XP Element

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4. Progression Bar
   This element is the progress of each player. This progress can show an update of the target amount of XP that players must collect to get to the next tier. This progression bar can also motivate players about the results obtained for the work that has been done. It also motivates them to reach the next tier as soon as possible. This Progression bar can be viewed by clicking on Tier under the account name.

Figure 6. Progression Bar

5. Tier
   The tier in this gamification design is divided into four and each tier has a different reward. The four tiers are:
   - Bronze (0 XP)
     The initial tier that each player has.
   - Silver (5,000 XP)
     The first tier achieved after Bronze with the condition that the player has met the target of 5,000 XP.
   - Gold (15,000 XP)
     To be able to reach the Gold tier, players must collect 10,000 XP counting from the Silver tier because this Gold tier requires 15,000 XP.
   - Diamonds (30,000 XP)
     Diamond is the last and highest tier that requires 30,000 XP.

Figure 7. Tier Element

6. Rewards
   Rewards are a form of appreciation to players (in this research, the IT team) for the results that have been done. Reward is an important element in

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gamification because this element can strengthen the relationship between players with gamification. In this gamification design, rewards will be obtained every time you reach a certain tier.

- Bronze:
  At this base tier, no rewards will be given.
- Silver:
  One quota of compensation for late work arrivals and one XP reduction protection.
- Gold: Two quotas for compensation for late arrivals for work and two XP reduction protection.
- Diamonds: Three quotas for compensation for late arrivals for work, three XP reduction protection, and one additional leave quota

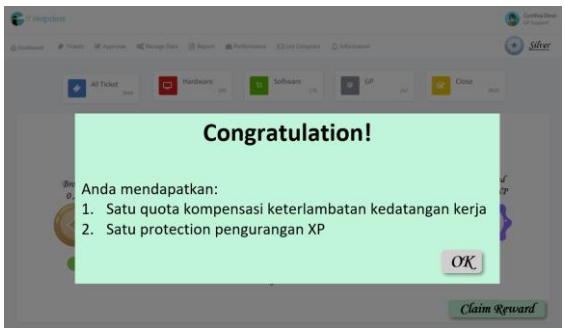

Figure 8. Rewards

7. Punishments
   In each gamification, there is also punishment given to players under several conditions. In this design, the following are some of the punishments set:
   - XP deduction by 20 XP if the completion of e-ticketing exceeds the specified deadline.
   - XP is reduced by 5 XP if you collect e-ticketing more than three hours after the e-ticketing is made by the user. This XP reduction is based on the category roles that exist in each IT support.
   - Tier reduction if the player continues to get deducted points which causes the progression bar to decrease and cannot reach the next tier.
   - Rewards for each tier can only be taken once. If a player's tier goes down and then rises again, then the rewards on that tier cannot be retrieved.
   - Reward validity period is one year. Tier and rewards will be reset at the beginning of each year.

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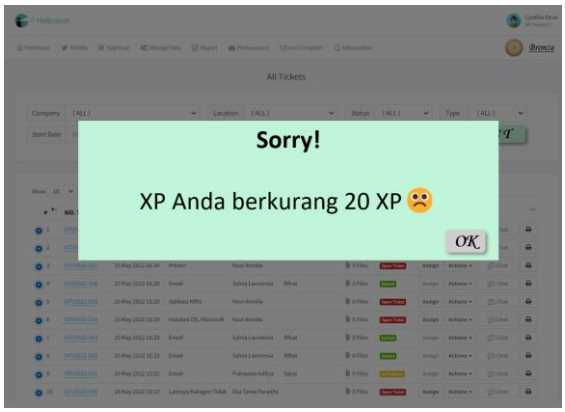

Figure 9. Punishement

3.3. Aesthetics

Aesthetics arising from the mechanics and dynamics that have been described previously are as follows:

Table 4. Gamification Elements with MDA Framework

Mechanics	Dynamics	Aesthetics
Quest	Gain additional XP for completing quests. XP earned varies according to the difficulty level of the quest.	Range 20 - 40 XP
Daily Check-In	Done every working day.	A maximum of three check-ins and a time spans every three hours starting from 08.30
XP	To raise the tier that is owned by each player.	Obtained from completing e-ticketing and quests as well as from daily check-in
Progression bar	Visualization of XP owned and earned.	The amount of XP that must be collected to reach the next tier
Tier	The tiers of each tier can be achieved by accumulating a certain amount of XP.	Bronze, Silver, Gold, Diamond
Reward	Appreciation in the form of rewards will be given to players every tier increase.	Rewards given in the form of additional quota for late arrival compensation, XP protection, and additional annual leave quota

Punishment	The penalty is a deduction of XP with some conditions.	Continuous deduction of XP can result in tier reduction, rewards can be collected only once per tier, and the reward period is one year

3.4. Results

The next phase is to test the user interface to the IT team who have been interviewed before. This trial aims to get feedback in the form of criticism and suggestions regarding the design of gamification in IT Helpdesk. This feedback is expected to be used for further development. The table below displays the findings.

Table 5. Evaluation Summary

Number	Point	Description	Status
1	Teamwork mission	Added quests involving two or more people with more XP.	Need to be improved
2	Rewards	Reward offers still need to be added.	Need to be improved
3	Gamification Elements	It would be great if a leaderboard was added.	Need to be improved
4	Explanation of how to play	The explanation of how to play on the IT Helpdesk is clear.	Good
5	Attractiveness	The design is interesting and can inspire the IT team.	Good
6	Additional XP	The addition of XP outside the routine is good and interesting.	Good
7	IT Helpdesk Changes	Overall, changes to the IT Helpdesk can help increase the motivation of the IT team.	Good

3.5. Evaluation

At the evaluation phase, the researcher will describe the changes that existed before and after the IT Helpdesk was integrated with gamification.

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Table 6. Comparison Before and After Application of Gamification

Before	After
The appearance of the IT Helpdesk is less attractive and monotonous.	After adding gamification elements, IT Helpdesk becomes more attractive.
There is no appreciation obtained by the IT team if e-ticketing has been completed routinely.	There is appreciation in the form of giving rewards that can be used in the corporate environment.
The use of the IT Helpdesk is number two and prioritizes the WhatsApp chat feature to deal with a problem.	The use of the IT Helpdesk is prioritized.
Lack of motivation and enthusiasm of the IT team towards the use of the IT Helpdesk.	Increased motivation and enthusiasm of the IT team to use the IT Helpdesk more often.
The response time for taking e-ticketing exceeds the time limit specified in the SOP, which is three hours.	The decrease in the number of e-ticketing taken more than three hours after the e-ticketing is made by the user.

4. CONCLUSION

In this research, the researcher proposes and makes a gamification design that is integrated with the IT Helpdesk system which is owned by a company engaged in the garment and textile industry. IT Helpdesk is needed for companies to support business processes or company operations. IT Helpdesk is a web application that connects users with the IT team to solve a problem and is also a management system to help manage user needs related to questions, services, technical support, or complaints about an organization's services using a numbering system (request ticket). which aims to facilitate tracking of actions on problem solving.

The application of gamification in the IT Helpdesk is carried out because the use of the IT Helpdesk is not maximized, for example the response time of the IT team to retrieve the e-ticketing that has been made by the user has not reached the response time specified in the applicable SOP, which is a maximum of three hours. The application of this gamification is expected to increase the motivation and enthusiasm of the IT team in using the IT Helpdesk which will also affect the improvement of the IT team's service performance.

The design of this gamification uses the Mechanics-Dynamics-Aesthetics (MDA) framework. The gamification elements used are Quest, Daily check-in, XP, Progression bar, Tier, Reward, and Punishment. The results of this design were also tested on the same sources as the initial interview. The results and responses obtained by the researcher were quite good with several improvements such as adding a list of quests that could involve teamwork, adding rewards, and adding

leaderboard elements. In addition to these things, this design has been able to attract interest and increase the motivation of the IT team to prioritize the use of the IT Helpdesk and achieve the target e-ticketing response time in accordance with the applicable SOP, which leads to an increase in the service performance of the IT team in the company.

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