

## Competency Assessment Reinvented: Gamification Method

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— *Review of* —  
**Integrative  
Business &  
Economics**  
— *Research* —

### ABSTRACT

For a company, periodically assessing employee competency is essential. However, the conventional approach can no longer show an expected outcome. This research tries to implement gamification concept in assessing employee competencies by creating a new way to do competency assessment. The result of this gamified assessment then will be compared to employee real performance indicated by the job description and Key Performance Indicator. Coffee shops are one of the emerging business in Indonesia, and most of the employee in this sector are millennials. In line with the growth of the business, many coffee shops already need a proper competency assessment for their employee. There are many positions in coffee shops that require specific competencies such as barista, finance and accounting, stock manager, etc. This research will focus on stock manager competency assessment since this position have a high impact on coffee shops overall performance. The initial result shows that there is a high similarity between competency assessment results with past individual employee performance. The assessment results then will also compared with the future employee performance to improve its robustness. These comparison will conclude how accurate the gamification competency assessment.

Keywords: Gamification, Performance management, Competency Assessment, Millennials Generation.

### 1. INTRODUCTION

In the workplace the Generation of Millennials is often referred as a collaborator generation. Millennials see a life of work with an optimistic and holistic mind with consideration of all the opportunities that exist in work life (Brack & Kelly, 2012). This generation is growing with technology, so this generation can easily carry out several activities with various technologies at one time. Millennials don't see the manager's position as someone who knows more than the team. Managers for this generation are someone who must be able to be a mentor to their team and have good communication skills. This view is because this generation is easy to learn new things and adapt to work content.

Millennials know and plan their career development well (Darga, 2012). They are very choosy in choosing the work they are doing because access to information on job choices and career paths is very wide open. This is what makes many generations of millennials shift jobs quickly.

Generation is a generation that is very fluent working together on the team. This generation has grown up with all kinds of extra-curricular activities. The generation of millennials, most of whom are generations of baby boomers, have the view that extra-curricular activities are a concern for their children. Activities such as football clubs, language courses and so on indirectly enhance the ability to communicate and collaborate with generations of millennials. This capital has finally become a characteristic of the millennial generation in the world of work.

The high level of use of social media also contributes to the collaboration skills of generations of millennials. This generation can effectively communicate and work as team members and encourage team performance very well, and place team success above each other's personal success (Deal, Altman & Rogelberg 2010; Hershatter & Epstein, 2010). The ability to obtain data and expertise in using technology has become a major asset for this generation to develop workplaces for improvement in the organizations they belong to.

The generation of Millennials is the most diverse generation. Not only is it diverse in terms of ethnicity, this generation is also very diverse in their family backgrounds and abilities. This is due to the experience of each individual. This experience is formed from activities carried out while still in the right-hand, to the choice in choosing the path of work and expertise. In the world of work, Millennials are considered a generation who are thirsty for achievement, optimistic thinking and generations with the highest levels of education, compared to other generations (Newman, 2010).

Millennials don't really like the standard recruitment method for companies, this generation thinks they have more qualifications than the recruitment standards made by the company. This uniqueness makes it difficult for many companies to determine what can motivate millennials. Many companies need considerable time to design compensation structures and procedures for managing millennial generation when this generation first enters the workforce.

The ability of millennials to adapt to change and the environment has become one of the main capitals of this generation in the world of work. This ability has a direct influence on the involvement of this generation in the world of work. This adaptation ability is considered to have a positive effect both cognitively, emotionally and behavior in the workplace and on the achievement of the organization. The striking difference between generations of millennials and their predecessors is how they interpret work. The Baby Boomer generation understands that in carrying out their work they must work hard, be optimistic and get new experiences. Generation X defines the workplace as a place to look for stability in his life. Meanwhile, the Millennials are trying to find meaning in the work they are doing.

It is this different meaning that influences the differences in how to increase the involvement of each generation in the workforce. Generation of millennials want their work to have meaning for the sustainability of the organization or society, by providing knowledge of the meaning of the activities they do, companies can significantly increase the involvement of generations of millennials.

This unique characteristic of millennials is affecting how company run their human resource function. Managing millennials require a specific approach which need an alteration of the approach. Competency assessment is one of important function in performance management. Many company, especially in service industry, need to do competency assessment of their employee periodically in order to ensure the service quality. However, conventional competency assessment by using questionnaire is no longer effective due to the millennials characteristic, and simulation is taking too much time.

Serious Gaming method will engage people in a designed environment by applying element of game (Zichermann & Cunningham, 2011). Due to its effectiveness in inducting problem-based learning and situation, gamification concept in a form of serious gaming is widely used for

learning and teaching (Kapp, 2012). Serious gaming success is highly related to the traits of serious gaming that help improving the learning motivation of player by affecting their psychological aspect (De-Marcos et al., 2014). Serious gaming prove to successfully create relevancies between the games with real situation by adding the learning content to the goal of the game and create a well design situation. In addition, serious gaming will help the player improve their decision making and risk management in order to reach the goal of the game. Coffee shops are one of the emerging business in Indonesia, and most of the employee in this sector are millennials. In line with the growth of the business, many coffee shops already need a proper competency assessment for their employee. There are many position in coffee shops that require a specific competencies such as barista, finance and accounting, stock manager, etc. This research will focus on stock manager competency assessment since this position have a high impact on coffee shops overall performance. Currently most of coffee shops in Bandung is using KPI analysis in order to assess their employee competency. People who successfully fulfil their KPI is considered has enough competency, while people who unsuccessfully met their KPI is considered need training. However, the main weakness of KPI analysis is that it requires a lot of time as the performance can only observed and counted after a period of time. In order to finish the KPI analysis, the coffee shops usually need 1-6 months of trial. Not only consuming a lot of time, this method also affecting the coffee shop performance in the meantime if the employee is not a competent enough. This research will create a game which will serve the same purpose needed by the coffee shops. The main advantages of this game is that it only require a very little time to assess and understand the proficiency of the player in specific area. The game will be tested in many coffee shops, then the result of designed game will be compared to the KPI result in order to analyse the effectiveness of the game created.

## **2. LITERATURE REVIEW**

### **2.1 MILLENNIAL GENERATION**

Millennials is a generation that is very optimistic and has a high level of education. This generation has diverse desires and is ready to work very hard to achieve this desire. The basic motivation of this generation is success in a job. In addition to success in work, generations of millennials also have ambitions as a comprehensive new generation that has capabilities and possibilities that grow over time (Bencsik, Horváth-Csikós & Juhász, 2016). This makes the Millennials generation have a high level of tenacity and creativity in solving problems. Apart from these basic characteristics, the following are other characteristics shown by the Generation of Millennials:

#### **1. Easy to accept changes**

Generation Y or Generation Millennium is a generation that has the main characteristics of adaptability. This generation has high quality in digital knowledge, making it very easy for this generation to adapt to the use of technological tools and devices. Generation Y is a generation that easily accepts change, both in daily life and work. This generation is familiar with the virtual world and social media. This increases the ability of this generation to work with colleagues who have different cultures and backgrounds.

#### **2. Live For Today**

One effect of the ease with which this generation can adapt is that they are accustomed to thinking short term. This resulted in a large number of people in this generation who did not have a long-term plan arranged, many of them only thought of the short term with all the scenarios. Therefore, the millennium generation is also known as a generation that is very easy to move to work or the term is Job Hopping. However, this short-term mindset made the Millennials generation famous for their high creativity and response in overcoming problems.

### 3. Like the Challenge and the fast rhythm of work

Generation of Millennials are very aware that they have very high adaptability, and they want to continue to get challenges. It's important for Generation Millennials to work where they want and to do something they really like. When Millennials feel they are in an environment that is not challenging or not what they want, they will easily move to other workplaces. The character of the Generation of Millennials is characterized by high Multitasking abilities, the ability to see conditions as a whole, and the ability to share knowledge well. Millennials also have the habit of carrying out all their activities with a fast rhythm (Krishnan et al, 2012).

### 4. Communication Priorities and Patterns

Millennials place their careers as a top priority, this generation is always labeled with a lack of respect for traditional values and less attention to the family. Living in the midst of a consumer society, Generation Millennials are formed into a generation of hard-working people. Millennials are very accustomed to using modern technological devices so that this generation of communication is most prevalent in digital media (Myers & Sadaghiani, 2010).

## 2.2 THE GAME

The game is using a card-based model, where the player will take role as a stock manager in a coffee shop. Prior to start the game, game master will give the menu set, stock order lead time data and forecast demand data. As the game started, the player will fill the stock to its maximum capacity (25 item) which consist of coffee, sugar, milk, and evaporate milk. For each round of game, the game master will open 2 demand cards and the player need to spend the available stock to fulfil that demand. Each demand card that successfully fulfilled will give score based on the score mark on the card, each demand that failed to fulfill will be thrown to discard pile. After fulfilling the demand, player will decide which item they want to restock and how many, then put the ordered stock on lead time process board. Re ordering process marks the end of a round. Entering new round, the lead time process is move by 1 box, and any new stocks that finishing its lead time process moved to available stock. After that, the available stock will be calculated where each over stock item need to be discarded and counted for the points penalty, then the game repeats the process from demand card reveal.

The game will be played for 10 rounds where all the demand card will be either become points or discarded to discard pile. The total points then calculated and assessed based on the scoring rubrics. Other than the rubrics, the points from observed behaviour is then added to the total score to conclude player level of proficiency. The maximum score a player can get in this game is 395, and the maximum score for behaviour is 50 so 445 will be the base for 100% proficiency.

## 3 METHODOLOGY

The game will be tested on several different coffee shop in Bandung. 8 coffee shops is chosen for this research with total 15 player who currently working as stock manager is become the test player subject. The game will be conducted in 1 session (approx. 30 minutes) for each player. The Score will determine the proficiency of the player. The rubric of the score and the interpretation of the result is provided in the table below:

Table 1. Point and interpretation

Point Range		Assessment	Max Order Lost	Minimum order finish
355	395	Excellent	2	28
335	354	Good	4	26
316	334	Average	6	24
296	315	Low	8	22
0	295	very low	30	0

Not only the score will determine the proficiency of the player, but their behaviour while playing the game will be observed and assessed. The rubric for the behaviour assessment is provided on the table below:

Table 2. Behaviour assessment rubric

No	Traits	Score		
		0	5	10
1	Accurately recording data	Player not recording anything	Player only recording the stock data	Player record the stock data and demand left
2	Ordering the inventory on time	Reordering not considering the lead time	Reordering is considering the lead time but not considering the current stock	Reordering considering lead time and current stock condition
3	Dealing with obsolete Stock	Reordering not considering maximum stock capacity	Reordering considering the current stock but failed to keep the stock under maximum capacity	Reordering considering current stock and successfully to not pass the max capacity
4	Analyse the trend	Player not care about the trend at all	Player analyse the demand trend to choose item to reorder	Player analyse the demand trend to choose item to reorder and the number of item reordered
5	Raw Material prioritization	Player don't care about material prioritization	Player understand which raw material is more important than other	Player understand which raw material need to be prioritized in reordering by analyse the demand, lead time and stock

By using the rubrics above, each player will be given a score, then the result will be compared to the real KPI counted by the company. The correlation of both result will be analyse using Pearson bivariate correlation analysis in order to find how close the result of both methodology.

#### 4 RESULT

Game was tested to 8 different coffee shop in Bandung, with total 15 player joining the test. The proficiency data result then compared to KPI achievement of each player to compare the proficiency result from the game to real performance. The KPI achievement is collected from each coffee shop which describe the achievement of players in the last 6 months prior playing game. The result are provided on the table below:

Table 3. Result Data Comparison

Coffeshop Number	Player Number	Game Result	Interpretation	Game Result In Percentage	KPI Result In Percentage
1	1	372	Good	83.60%	85%
1	2	385	Good	86.52%	88%
2	3	407	Excellent	91.46%	85%
2	4	351	Low	78.99%	75%
3	5	340	Low	76.46%	75%
3	6	341	Low	76.71%	75%
4	7	422	Excellent	94.94%	100%
4	8	344	Low	77.22%	80%
5	9	355	Low	79.75%	80%
6	10	357	Average	80.25%	75%
6	11	389	Good	87.34%	85%
7	12	357	Average	80.25%	75%
7	13	339	Low	76.20%	70%
8	14	409	Excellent	91.90%	100%
8	15	391	Good	87.85%	90%

Most of coffee shop only implementing simple KPI where the KPI data only consist of able or not able to do some job assign. This KPI design resulted in the KPI percentage that are not sensitive to detail performance. However, some coffee shop such as coffee shop 1 and 8 have more detail KPI which cause the percentage for these coffee shops rather unique. Both result is converted to percentage in order to have a fair comparison between the game result and the KPI result.

Then, the result is analyse using the Pearson bivariate correlation analysis, which resulted as in follows:

Table 4. Pearson correlation

<b>Correlations</b>		
	KPI_result_in_p ercentage	Game_Result_in _percentage
Pearson Correlation	1	.909**
KPI_result_in_percentage Sig. (2-tailed)		.000
N	15	15
Pearson Correlation	.909**	1
Game_Result_in_percentage Sig. (2-tailed)	.000	
N	15	15

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Based on the Pearson correlation it shows that both game and KPI result is highly correlate in positive way. This test shows that both methods can give similar result which shows that the game can serve the almost similar result that the KPI analysis.

## 5 CONCLUSION

From the test result above it shows that the game can test a competency proficiency of stock manager in a coffee shop. It is also indicates that the result from the game highly correlate with KPI analysis that requires more time to do. It is concluded that the game can be an alternative for a company to run a competency assessment for their employee. Not only served as a substitute for KPI, but the game method also helps the company to assess the behavior of the employee as they play the game. For the player, not only the game only requires a short time, but it is also a fun activity that they can enjoy. To improve its robustness, in the future this game will be tested on more industry that has the same position on their company. Also, to prove that the serious game works, another game for another function in the organization needs to create.

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