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PREFACE

These last few years, the Indonesian government continues to improve research activities in the field of food, chemical, machinery, electrical engineering, civil, management, and information in order to optimize the resources available. This policy is related with the problems faced by the Indonesian people at this time such as import of raw materials and products and high level of unemployment and poverty. In order to overcome these problems, the development of natural resource-based industries nationwide is required.

Finding solutions for the problems described above, as suggested by many, requires multiple approaches, perspectives and disciplines. And the 3rd Bali International Seminar on Technology (BISSTECH) 2015 is expected to be a forum that effectively provides opportunity to exchange of information between the government, researchers, universities, industry and society as an effort to better understand the problems which hopefully and subsequently will lead to better answers to the problems.

For this reason, the Faculty of Industrial Technology, University of Pembangunan Nasional (UPN) "Veteran" Jawa Timur (Surabaya, Indonesia), the State Polytechnic of Bali (Bali, Indonesia) and the Engineering College National Cheng Kung University (Taiwan) has agreed to jointly organize the 3rd Bali International Seminar on Science and Technology (BISSTECH) with the theme:

"TOWARDS FUNDAMENTAL AND APPLIED RESEARCH FOR SOCIO-ENVIRONMENTALLY SAFE INDUSTRIAL DEVELOPMENT"

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DR. IR. NI KETUT SARI, MT

Chairman of Bisstech III
University of Pembangunan Nasional "Veteran" Jawa Timur
Surabaya, Indonesia

Om Swasti Astu, Good morning.

Minister of Research and Higher Education of Indonesia.
Governor of Bali.
Our distinguished guests, speakers, and participants of the seminar.

Welcome to "Bali International Seminar on Science and Technology" or the third BISSTECH, held by University of Pembangunan Nasional "Veteran" Jawa Timur, State Polytechnic of Bali, and National Cheng Kung University – Taiwan. Therefore, I really appreciate the topic of the seminar: "TOWARDS THE FUNDAMENTAL AND APPLIED RESEARCH FOR SOCIO-ENVIRONMENTALLY SAFE INDUSTRIAL DEVELOPMENT".

Ladies and Gentlemen,

On behalf of the committee, please allow me to deliver a short report on the seminar. The objective of this seminar is to share ideas of recent research results from industries, institutions/universities, and government related to Chemical Engineering, Food Technology, Industrial Engineering, Technology And Information Systems, Civil Engineering, Mechanical Engineering, Electrical Engineering, Accounting, Business Administration And Tourism. In this moment, we do hope that all participants will have the opportunity to share their brilliant ideas through effective communication in order to solve the problem of fundamental industrial technology sustainability.

The attendances are from 9 countries, consisting of 202 authors, 5 keynote speakers, and 48 reviewers and scientific committee. On behalf of the committee we'd like to appreciate your participation & excellent works for making this seminar possible and bringing it to success. We'd also like to express our grateful to our honorable guests from UPN "Veteran" Jawa Timur, PNB, NCKU, Sponsors (Pertamina EP, Patrajasa Logistik, Semen Indonesia, Fajar Mas Murni, Dinas Perindustrian dan Perdagangan Jawa Timur di Jember, PT. Gunung Bale, Novis Nature Vavita, Tamara Overseas Corporindo, Bapak Sony), and also Alumni of Chemical Engineering of UPN "Veteran" Jawa Timur, for the supports they have given to us. There is no better words we could say except thank you so much.

Ladies and Gentlemen,

This program will be held for 3 days. Today & tomorrow will be research results sharing sessions. Tonight, the Governor of Bali is willing to greet you at his office for gala dinner while tomorrow night, State Polytechnic of Bali will welcome you for a dinner at Jimbaran beach. The day after tomorrow, those of you who are willing to go for a sightseeing program will have the opportunity to relax and enjoy the beautiful scene and culture of Bali. Please contact the committee for registration and guidance. If you still have time, please extend your stay in Indonesia to see the other beautiful

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places in Indonesia, such as Surabaya, or Lombok Island, and others, which are very nice and close from Bali.

Ladies and Gentlemen,

We really hope that the seminar would give a contribution in creating a better future for mankind. We deeply apologize for all the inconveniences you might experience during the sessions of this seminar. Thank you.

Om Shanti Shanti Shanti Om.

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NYOMAN INDAH KUSUMA DEWI, SE, MBA, PH.D

Chairman of Bisstech III
Bali State Polythecnic, Indonesia

Excellencies: Minister of Research, Technology and Higher Education - Mohammad Nasir and Governor Bali - Made Mangku Pastika
Distinguished Participants,
Ladies and Gentlemen:

Good morning,
It is my privilege, as General Chair from Bali State Polytechnic, to welcome all of participants of Bali International Seminar on Science and Technology (Bisstech) III 2015 with the topic: **"Towards Fundamental and Applied Research For Socio-Environmentally Safe Industrial Development".**

This international seminar is jointly organised by Bali State Polytechnic, the Faculty of Industrial Technology, University of Pembangunan Nasional (UPN) "Veteran" Jawa Timur, and the Engineering College of National Cheng Kung University-Taiwan based on the same passion to provide a national industrial development strategy based on national natural resources. I have great confidence that Bisstech III will able to contribute ideas, strategy, theoretical and practical knowledge to achieve the underlying purpose of this seminar.

I would like to take this opportunity to express my sincere gratitude and appreciation to the honorable speakers: Professor Pao-Shan Yu from Taiwan; Professor Dr. Wolfgang W. Schmahl from Germany; Prof. Inocencio E. Buot, Jr, PhD from Philippine; and Prof. Yasushi Kiyoki from Japan for sparing their precious time to participate in this seminar. I would also like to extend my thanks to all presenters and participants for their participation. My deep appreciation to the organising committee for their hard work, without them this seminar would not be made possible.

Finally, I wish this fruitful 2 days will be beneficial for all of us as the academia and researcher by sharing and exchanging our knowledge and experiences for the better future. And enjoy your time to explore the beautiful Bali.

Thank you.
General Chair

Nyoman Indah Kusuma Dewi, SE, MBA, Ph.D

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PROF. DR. IR. H. TEGUH SOEDARTO,MP

Rector
University of Pembangunan Nasional "Veteran" Jawa Timur
Surabaya, Indonesia

Assalamualaikum Wr. Wb.
Our Distinguished Guests, Speakers, and Participants of the seminar.

Thank God for granting us with blessings, so we could gather here today in this very special moment, BALI INTERNATIONAL SEMINAR ON SCIENCE AND TECHNOLOGY (BISSTECH) 2015.
On behalf of University of Pembangunan Nasional "Veteran" Jawa Timur, please let me extend my warmest greetings and welcome our distinguished guests. I would also like to express my appreciation to each of you for attending this International Seminar, especially all of you who come from overseas.

Ladies and Gentlemen,
These last few years, the Indonesian government continues to improve research activities in the field of food, chemical, machinery, electrical engineering, civil, management, and information in order to optimize the resources available. Therefore, I really appreciate the topic of the seminar: "TOWARDS THE FUNDAMENTAL AND APPLIED RESEARCH FOR SOCIO-ENVIRONMENTALLY SAFE INDUSTRIAL DEVELOPMENT" aiming to communicate the results of research conducted by Industries, Research Institutes, Universities and Governments, both domestic and abroad based on national natural resources.

In this concern, UPN "Veteran" Jawa Timur is very pleased to join hands with Bali State Polytechnic, and National Cheng Kung University - Taiwan in holding the seminar since these institutions are on the same page in developing science and technology.
It is gratifying to note that the agenda of the seminar covering a wide range of very interesting items relating to the topic.
We believe this seminar is a great opportunity for all delegates to discuss the existing problems and find solution concerning the science and technology.

Distinguished guests, Ladies and Gentlemen,
Furthermore, may I congratulate the organizing committee for making this seminar possible. I wish this moment could not only enrich a broader knowledge, but also make new friends, and build networking in creating a better future.
Hopefully all of you are having very pleasant stay in Indonesia, especially in Bali, and if it is possible please make a visit to our campus in Surabaya, the second biggest city in Indonesia, which is only 40 minutes from Bali. I apologize for all the inconveniences you may experience during the session. Good Luck!

Wassalamualaikum Wr. Wb.
Prof. Dr. Ir. H. Teguh Soedarto, MP

Ir. MADE MUDHINA, MT

Director of Bali State Polythecnic
Indonesia

The honorable;

1. Minister of Research, Technology and Higher Education
2. Governor of Bali
3. Keynote speakers
4. Presenters and participants
5. Rector and staff of Universitas Pembangunan Nasional Veteran East Java
6. Deputy directors and head of departments of Bali State Polytechnic
7. Distinguished guests, ladies and gentlemen…..

Om Swastyastu,

First of all, let us express our great gratitude to Ida Sang Hyang Widhi Wasa, The Almighty God for His blessing today, so that we can do this International Seminar.

The honorable minister, governor, ladies and gentlemen,

As we have already known that the development and economic growth of a country is strongly influenced by some economic factors such as natural resource, human resource, capital, and managerial asset who can organize and manage the production factors. These factors should be supported by the advance of technology, as the result, some experts believe that the advance of technology plays a very important and significant role to determine the development and economic growth of that country since it tries to combine the production factors in realizing production objectives.

In general, the technology in developing countries is still left behind compared to the developed countries. It has a tendency that the gap among those countries is getting wider and in consequence it will influence the development of economy of those countries. The developing countries need different sort of technology that it is in the developed countries. If a developing country tries and uses the technology in developed countries, neglecting the existence of local culture, this may bring any problems for those developing countries due to the reason that it is neither effective nor efficient. The developing country, like Indonesia, for example, is really appropriate to apply something we call it "adaptive technology". It is a kind of technology which comes from research and development, adapted by some social considerations in order to be able to solve any real problems exist. The main indicators for the adapting process in developing technology in Indonesia should be in accordance with the consideration to employee some labor forces, use domestic material in order to add our national income.

Simple technology is strongly effective to be applied in Indonesia in order to be able to solve any problems without creating any other new and complicated problems. It is because simple technology is much easier to be understood and applied, and especially for those who are in the low culture of technology. Meanwhile, the development of mass technology which can employee big numbers of employees should be regularly continued and developed.

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In relation to the development of technology, it cannot be separated from basic and applied science. Basic science will try to discover more about nature and its surrounding, then the applied one, as it is developed by Bali State Polytechnic, will try to solve any practical problems as well as to handle any problems faced by the human being itself. The collaboration between basic and applied science will finally produce any technology that can ease human to solve problems and obstacles. That is why, it is really appropriate to name this international seminar as "BISSTECH"-Bali International Seminar on Science and Technology. It can be clearly seen that science and technology will collaborate. It is a brilliant thought which will finally some media in order to help human to reach a better quality of life which will not destroy out nature.

Distinguished guests, ladies and gentlemen,

Bali State Polytechnic, as a vocational higher education, has a very strong commitment to run Three Basic Principles of Higher Education (Tri Dharma Perguruan Tinggi) by utilizing science and technology (IPTEK) in order to give direct impact to the economy of society. That is why; Bali State Polytechnic has a strong willing to cooperate with UPN Veteran, Surabaya, East Java to run this international seminar with the theme "TOWARDS FUNDAMENTAL AND APPLIED RESEARCH FOR SOCIO-ENVIRONMENTALLY SAFE INDUSTRIAL DEVELOPMENT BASED ON ENGINEEERING AND TECHNOLOGY". This seminar aims at facilitating researchers to exchange their ideas and thoughts as well as to build any network among them in this country, which later on trying to find any right solution of our nation' problems through the development of technology that you have done in your research.

At last, on the behalf of the committee, I would like to extend my special thank to Minister of Research, Technology and Higher Education, Governor of Bali, for your excellent support to this seminar. Furthermore, I also would like to thank to keynote speakers, presenters, and all participants for your contribution in this prestigious international seminar. The last but not least, we would like to thank to UPN Veteran East Java which has cooperated with Bali State Polytechnic to run this international seminar.

Finally, I wish you a very good luck and all the best for the seminar. I do hope this seminar will give us any positive contribution. Thank you

Om Shanti, Shanti, Shanti, Om

GAMIFICATION APPROACH TO ENHANCE STUDENTS ENGAGEMENT IN STUDYING LANGUAGE COURSE

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ABSTRACT

Many researchers have attempted to utilize gamification to increase student engagement, motivation and achievement in the classroom with varying degrees of accomplishment. This research attempts to review of existing literature on the subject as well as the implementation of gamification on Language course. It aims to get better understanding of how gamification can efficiently be used in education. This analysis reveals that the underlying fact that make games engaging are already utilized in pedagogical practices. There are two important recommendations from this research. First, use gamified learning scenario as an activity, to encourage students trying new things and avoiding fear to make a mistakes. Secondly, the gamification in education setting needs students to participate deliberately to ensure the gamification retains the game-like nature.

Keywords: gamification, enjoyment, motivation, engagement

INTRODUCTION

For students, Language is a course that can be very challenging. This work is aimed to use gamification to help students understand the Madurese language more thoroughly, as well as to make the learning of the topic more fun and engaging. Successful and efficient educational applications have a similar relation to instruction, goals, feedback and interaction. Unfortunately, many educators find it difficult to implement strategies in their curriculum to compete with the engagement of computer games.

Background

Gamification is currently adopting the game elements to improve user experience and user engagement, specifically in non-game contexts (Groh, 2012). Anderson and Rainie's (2012) report defined gamification as the online interactive system design that occupy on people's competitive instincts and rewards to motivate the player. Rewards may be virtual rewards, such as payments, points, badges, or free gifts. According to (McGonigal, 2011), people worldwide spend 3 billion hours a week playing video and computer games. Therefore, it would be potential to make the students' practice for their language skill and knowledge instead of perfecting their skill in "Clash of Clans" strategies.

Many researchers studied the relationship between gamification with in-class participation, students' motivation and student's engagement. Thamvichai et.al. (2012) implemented a points-based system in an attempt to integrate game mechanics into an engineering curriculum. Through the use of a quick questionnaire, the researchers found students motivated to engage in the given tasks. At the same year, Cronk (2012) also adopted gamification concept as a reward-based system in the form of a virtual tree that would get bigger relates to students' points/score. This study also reported an increase in an in-class students' participation. Sheldon (2011) also implemented gamification concept in the classroom. In his experiments, the students are divided into guilds and compete to gain experience points (XP). At the end of the semester, the XP is translated into letter grades. This study reported that the students are pleasing to the class participation.

Educational Games

It is believed that nature of games may facilitate students' engagement and involvement, motivation and interest, and the retention of learned skills. More recently, it has also been suggested that players of commercial games are developing problem solving and literacy skills (Urh et al, 2015). It means that the good commercial games have good learning principles that provide opportunities for gamers to engage and improve their skills during gameplay. Furthermore, Barab and Dede (2007) stated that the "immersive" nature of educational games have the potential to transform the school content standards knowledge into "just-in-me" knowledge to solve meaningful problems actively and interactively.

Lee and Hammer (2011) stated that there are three reasons why the game-like elements have a high engagement in high schools and institutions of higher education. First, the players who usually use different avatars, such as the act as a fantasy character or a secret agent, is proven to be successful in schools (Nasir and Saxe, 2003). This fact leads to experiences of social credibility and recognition.

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Second, good game designs perfectly match the player's cognitive abilities with the difficulty level. For example, good games present personalize tutorials while keeping players' engaged and motivated. Moreover, good games usually have incremental sub-goals and also alternative ways to solve its problem that is can be very challenging and motivating. This situation answers the challenges of the educational system nowadays that is student motivation and engagement (Bridgeland et al., 2006).

Third, games especially simulations, are perfectly-fitting sandboxes that allow students to learn from mistakes in quick recovery. Games and simulations enable students to see failures as an opportunity to learn along with frequent feedback cycles. As a result, the students cover an important emotional problem faced in traditional institutions, such as the excessive demand to pass a final exam, or to fail the course.

METHODOLOGY

In this study, the effect of the gamified learning activity was analyzed along three dimensions: perceived easy to use, engagement, and motivation. There are totally 30 students participating in this study, of which 18 are male and 12 female, with the average age of 6-8 years.

Gamification in Education : enjoyment, engagement, motivation

Gamification is a strategy to design the engagement power of games in a non-gaming context (e.g., industry, education, etc.). Others have emphasized the fact that gamification is implemented through technology. For example, Domínguez et al. (2013) defined gamification as "incorporating game elements into a non-gaming software application to increase user engagement and experience". This definition appears more specific and also includes the purpose of gamification as fostering engagement in studying. Prior scholars have defined the educational participation as a bound in learning process (Filsecker and Hickey, 2014), committed learning (diSessa, 2000), and intentional learning (Scardamalia et al, 1989). Therefore, we may conclude that gamification is brought up the enjoyment while studying by fostering students' engagement and students' motivation.

In the gamification literature, usually we found game elements, for example, rewards systems and the use of badges for displaying achievement (Landers and Callan, 2011). This badge is an "informal way" to offer a learning certificate (Abramovich et al., 2013). The badges on the learners' profile are viewable by other players and are awarded for either incidental activity or mastery of skills/demonstration of knowledge. In other words, badges may symbolize a learner's participation and performance (Simões, et al,, 2013).

Some researchers have adopted gamification concept to their prior e-learning system. For example, Schoooools.com for K-6 (Simões et al., 2013), casual social games for undergraduate education and employee training (Landers and Callan, 2011) and, intelligent-tutor-systems (Abramovich et al., 2013). In Landers and Callan (2011) experiments, there is a social experiment where the college students have to answer small quiz and based on their score, the students would be ranked and provided with badges indicating their performance level. There are five performance levels, namely: "Newbie", "Novice", "Intermediate", "Expert" and "Master". These badges are viewable by others on the students' profile. A preliminary evaluation of this project regarding student's motivation presented that a considerable number of students used the gamification features and that by doing so taking the quiz seemed to the more enjoyable and rewarding activity.

Abramovich et al. (2013) introduced gamification in the context of an intelligent tutor system. In gamification learning scenario, the badges were awarded based both on individuals mastery of a skill and on their participation in the system. After using the intelligent tutor system, which use gamification learning scenario – they found that the students showed less concerned about poor performance as compared to their peers and more interest in learning language. Therefore, in summary, research on gamification has just begun, and questions related to their impact on learning, students' motivation and engagement needs a systematic exploration. This study represents an empirical exploration of the relationship between enjoyment, motivation, engagement while studying in gamification learning scenario.

Application Design

Gamification has been used in many contexts, from military training (Halter, 2006) and education (Kapp, 2012) to service marketing (Huotari and Hamari, 2012). In this research, we build gamification in Language course for 6th grades with five learning modules. This user leveling in this application is based on the students knowledge. There are three user levels for each module, namely "beginner", "intermediate" and "advanced". Each level contains three core steps, which are: doing pre-test, learning the material and doing exercise. The pre-tests' result presents the user level at the current module. The detailed of this gamification learning scenario is as Figure 1.

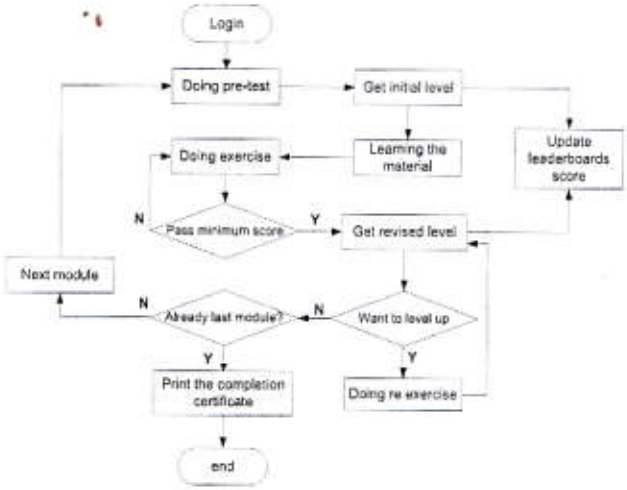

Figure-1. Application Learning Scenario

After doing pre-test, the application calculates the score and obtain the a user initial level. In the meantime, the leaderboards score for that specific level is also updated. User level represents the "students' badges". Furthermore, to be specific, there is a score for each "students' badges" within leaderboards score.

After getting to the initial level, the user should follow the learning material instruction and do some exercise. If he/she passes the minimum score, then he/she gets revised level and also the system update the leaderboards score. Also, the user may level up by doing re exercise and get the revised level. This scenario applies to all modules, so when a user is already in the last module, the application made a completion certificate.

RESULTS

In this study, the effect of the gamified learning activity was analyzed along three dimensions: perceived easy to use, engagement, and motivation. There are totally 30 students participating in this study, of which 18 are male and 12 female, with the average age of 6-8 years. For each of these dimensions, participants indicated their agreement or disagreement on a 5-point Likert scale (strongly disagree, disagree, neither agree or disagree, agree, strongly agree) to a number of related statements. The results for each dimension are discussed next in details.

Enjoyment

An important effect of gamification is that the application should be enjoyable. Furthermore, the enjoyment of the application can lead to improved learning. Therefore, it was important to know how the students enjoy the gamified learning activity. Statements related to enjoyment are presented in Table-1.

Table-1. Statements related to students enjoyment

No	Description
1	I feel genuinely fun
2	I feel happy when playing the game
3	I feel that it is great for killing time productively
4	I feel exhausted when playing it
5	I feel miserable when playing it

Engagement

An important effect of gamification is that the application can engages the student to the learning material. The student were not only learning what their schools offer but also trying to understand and also internalizing the material towards their life (Newmann, 1992). Gamification within learning process allows students to fail and not feel rejected, so they are willing to try more and more. Statements related to engagement are presented in Table-2.

Table-2. Statements related to students engagement

No	Description
1	I wanted to explore all the options because it was very challenging
2	I felt that time passed quickly
3	I wanted to complete the game
4	I did not care how the game ended
5	I feel bored when playing it

Motivation

Students' motivation plays an important role towards conceptual change processes within the affective components, critical thinking, learning strategies and learning achievement. When students have determined their achievement goal, they are intrinsically motivated. Therefore, the students intend to accomplish something to satisfy their innate needs for improving their own performance (Ryan et al., 1991). We suggest that gamified learning interventions may enhance student motivation in their learning process.. Statements related to engagement are presented in Table-3.

Table-3. Statements related to students motivation

No	Description
1	It was important to me to do well at this task
2	I would describe this activity as very interesting
3	I tried very hard on this activity
4	I didn't try very hard to do well at this activity
5	I didn't put much energy into this

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The response of students is summarized in Table-4. It appears that the majority of students felt enjoyed, engaged and motivated through this gamification learning scenario.

Table-4. Summarized result of the questionnaire

No	Question	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Statement related to enjoyment						
1	I feel genuinely fun	0%	10,000%	20,000%	33,333%	36,667%
2	I feel happy when playing the game	3,333%	10,000%	16,667%	36,667%	33,333%
3	I feel that it is great for killing time productively	6,667%	10,000%	16,667%	30,000%	36,667%
4	I feel exhausted when playing it	20,000%	36,667%	20,000%	13,333%	10,000%
5	I feel miserable when playing it	43,333%	30,000%	20,000%	6,667%	0%
Statement related to engagement						
6	I wanted to explore all the options because it was very challenging	0%	6,667%	10,000%	50,000%	33,333%
7	I felt that time passed quickly	6,667%	20,000%	26,667%	16,667%	30,000%
8	I wanted to complete the game	3,333%	6,667%	16,667%	46,667%	26,667%
9	I did not care how the game ended	33,333%	36,667%	13,333%	10,000%	6,667%
10	I feel bored when playing it	6,667%	10,000%	10,000%	40,000%	33,333%
Statement related to motivation						
11	It was important to me to do well at this task	3,333%	6,667%	13,333%	36,667%	40,000%
12	I would describe this activity as very interesting	3,333%	6,667%	16,667%	30,000%	43,333%
13	I tried very hard on this activity	40,000%	26,667%	13,333%	10,000%	10,000%
14	I didn't try very hard to do well at this activity	33,333%	23,333%	10,000%	10,000%	23,333%
15	I didn't put much energy into this	30,000%	26,667%	13,333%	10,000%	20,000%

Regarding to enjoyment questions, 33.33% of participants agreed and 36.67% strongly agreed (a total of 70%) that they had fun while studying in this gamification learning scenario. When asked aboutthe opposite, i.e., if they were exhausted while studying in this gamification learning scenario, 36.67% disagreed and 20% strongly disagreed (a total of 56.67%). While there is some ambivalence about the participants' feelings of enjoyment while studying in this gamification learning scenario, it seems that most felt some degree of enjoyment while a small number of participants did not specifically enjoy the activity.

When asked if the students were feel challenged in this gamified learning activity, the majority of participants answered that they were engaged enough to explore all the options (83.33%) and only 16.67% felt bored when playing it. More than half of the participants (73.33%) wanted to complete this gamified learning activity and slightly less than half found that time passed quickly during the gamification (46.67%). Only 16.67 % stated they did not care how this gamification is ended.

This research also revealed if gamified learning scenario may increase students' motivation. The overall responses were positive: 76.67% of participants felt that it is important for them to do well at this task, and

73.33% believed that this activity is interesting. When asked about the opposite, i.e., if they didn't very hard to do well at this activity, 23.33% disagreed and 33.33% strongly disagreed (a total of 56.67%).

DISCUSSION

The results of the study have a positive impact, particularly on enhancing learning, which is the primary objective of the work. The majority of participants felt that the gamified learning activity improved their learning. Furthermore, the activity did engage the participants and result in some degree of enjoyment.

There are two important recommendations to ensure that the gamified activity retains its game-like feel. The recommendations are: (1) use gamification as an activity, and (2) students' participation should be optional. If we use this as an assessment or students are forced to undertake it, then it will reduce students' motivation to complete it. Students will see it likely as another learning task and takes away from its game-like nature.

One of our intentions in the development of the gamified learning activity was to develop an approach and supporting tool that is not discipline-specific. However, so far, it has only been trialled in Language subject. Trials in courses from other disciplines would be useful to ascertain that the approach and tool are non-discipline specific.

Our proposed work is aimed to investigate how gamified learning approach influence students engagement and motivation during the learning process. This approach was trialed in 6th grade of Elementary School. To evaluate this approach, 30 participants have completed the questionnaire survey that has three dimensions, namely: enjoyment, engagement, and motivation. We found that 70% members believe that they feel happy while doing gamified learning activity. Furthermore, 73.33% believe that this activity is very interesting, and 83.33% perceived that doing gamified learning activity makes them feel challenged and want to complete and master all level.

These results present that this implementation of gamified learning scenario has substantial influence and deserve further researched. Moreover, the students' participation should be voluntary to ensure that the gamification retain as a "game-like" activity. Therefore, students will be encouraged to try new things and overcome the fear of making mistakes. Students who are enthusiastic to participate in this gamification also will be engaged in enjoyable experiences in the learning activity.

CONCLUSION

A gamification is an innovative approach to education that is continuously emerging. Future studies should investigate the new mechanics and new applications associated with emerging gamification technologies.

The results of this survey presented that the gamification can have a positive effect on learning. However, it should be remarked that these findings are about one particular implementation of gamification in education. Further research is needed to discover if gamification improves learning to use a variety of methods and to determine other ways gamified activity in school.

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