

# Indonesian History Educational Card Game

## Gamification of the Process of Learning to Increase Interest in History among Children.

---

Clara Lestari, Vera Jenny Basiroen, MFA, Wildan Ali, MA

Graphic Design and New Media Faculty

Bina Nusantara University

Jakarta, Indonesia

[Clara.fang@ymail.com](mailto:Clara.fang@ymail.com), [nonjane@binus.edu](mailto:nonjane@binus.edu), [wildan.ali@binus.edu](mailto:wildan.ali@binus.edu)

---

**Abstract** — To spark interest and curiosity in children to make them research more about the subject. The writers also aims to re-tell history in a more visual manner which is more attractive to children as oppose to currently used text heavy history book and to make history more interesting by using an interactive teaching method by using gamification..

**Keywords**— Educational game; Indonesian history; colonization era; VOC; trivia.

### I. INTRODUCTION.

Studying history lets you learn and understand further the reasoning of how and why people act as they did. Despite that, Dr. Hamid Hasan, a professor in a history major in UPI (Universitas Pendidikan Indonesia) claimed that history has lost its essence and it has been delivered in a monotonous and uninteresting manner that student has started to protest that the subject itself is meaningless and have no use to them. One of the main reason this happens is because most of the teachers only utilize text books to teach. Besides that, Mukhlis, S.IP, S.Pd, a middle school teacher and a member of ISPI (Ikatan Sarjana Pendidikan Indonesia) claims that even though students were given books to be read at home, they have no motivation to read the books due to the lack of interest in the subject. Mukhlis said that teachers do not have enough media as a teaching methods to explain history to students. Even though there other learning materials beside history books, it is only photos of national heroes.

Gamification is a method of applying game mechanics to engage and motivate people more to complete their task voluntarily. People has a natural desire for competition, achievement, status and collaboration. Gamification is a great method to motivate people to put a greater performance. Gamification can be used in many field from marketing to customer relation. Such technique can be applied to education as interactive; it is also immediate. Students are allowed to test their skill immediately without any significance lose if they get the answer wrong. In traditional teaching method, children will be given test by the end of the semester and by the time they know if whether they answer right or wrong, it is usually already too late.

### II. THEORY OF HISTORY AND ITS CONTEXT WITH THE PROJECT.

James Bowden, a full-time writer and historian, stated that historian has been using mediums such as communication,

record keeping and non-textual data in the form of material remains. The primary source of history is text documents in various forms such as ancient manuscript. This documents comes from poetry, myths, fables and inscription that is being left on buildings, objects, deeds, ancient letters, and other form of writings. Other sources of history include tradition, beliefs, and oral history (storied told directly by the people who experienced it firsthand).

Indonesia becomes independent in 17 August 1945. In 1595, Cornelis de Houtman arrives in Banten to trade. Houtman is the first ship captain recorded to arrive in Indonesia. During this trip, Houtman brings no soldier with him. In the year 1602 VOC (Vereenigde Oost Indische Compagnie) was formed under the command of Johan Olderbarnevelt. The main reason for VOC formation is to avoid unhealthy competition between Dutch traders and to strengthen the Dutch position in the competition with other countries traders. VOC was given special permission to monopolize the trade market in areas between South America and Africa. VOC was also allowed to have forces and to build defense fort. They are also allowed to take tax from people. By 1610, VOC starts to invade some territory in Nusantara (what Indonesia is formerly known as). VOC has been force monopolize the trade market, building fort and appoint a governor general for Dutch East Indie. However, the statement that the Dutch has been invading Indonesia since 1595 is inaccurate since Indonesia has only been formed after 1945 and VOC itself is not Netherland, VOC is merely a trading company. Officially, the Dutch has only started to invade Nusantara by 1796, when VOC goes bankrupt due to corruption and Pieter Gerardus van Overstraten was appointed to be Governor General representing Dutch Empire, not just a private company. The term Dutch invasion in Indonesia is only valid for 4 years, counting from Indonesian Independence Day on 17th August 1945 to 27th December 1949 when the Dutch Empire hands over sovereignty to Indonesian government.

### III. GAMES AND APPLICATION OF GAMING THEORY ON THE PROJECT.

Game by itself has many definitions. Oxford dictionaries defines game as “an activity that one engages in for amusement or fun”. According to Katie Salen and Eric Zimmerman in their book Rules of Play, a game is something that has rules that has

an outcome that can't be predictable outcome. There are elements in a game that in general is present in a game. Lennart Nacke, who works as an Associate Professor and Research Director of the HCI Games Group from University of Waterloo in Canada divides those elements into several parts, which is;

1. **Players.** Players are the decision maker in a game. They partake voluntarily in a game. By joining the game, they will have the opportunity to win the game. The number of player varies depending on the rules of the game. A game can contain only 1 player or multiple player. The number of player will affect the experience in playing the game itself. Depending on the number of player, several different playstyles can be achieved. With 2 players, one can play a competitive game against each other or cooperate to take down the obstacle in the game together. With 3 or more players, one can play a team competitive play or multilateral competition where all the players compete against each other.
2. **Objectives.** Objectives are what the player are after in a game. They the goal of the game. A good game objective should be challenging but still attainable. In a game, the player needs to complete the objective to measure the player's involvement in the game. There are numerous types of objective such as;
  - **Capture** The objective of the game is to capture your opponent pieces from the game. An example of a game that uses this objective is Chess and Othello.
  - **Territorial Control** The objective of the game is to control areas of the 'board'. Monopoly is a great example of a territorial control game.
  - **Collection** The objective of the game involves a collection of a certain game object to progress through. An example of such game is Rummy.
  - **Solve** The objective of the game is to solve puzzle. A popular example of such game is Brain Quest and Sudoku.
  - **Chase/race/escape** The objective of the game is to run towards or away from something. An example of such game is Tag and Temple Run.
  - **Spatial Alignment** The objective of this game is to position elements of the game. An example of games that uses this objective are Tetris and Tic-Tac-Toe.
  - **Build** The objective of this game is to build the player's resources into a certain point. An example of this is The Sims games or Settlers of Catan.
  - **Negotiation** The objective of this game is to make an opponent performs an act that is against the rule and makes him/her lose. An

example of this is the physical game Twister. (Schreiber, 2013)

3. **Rules.** Rules are the main guideline of the game which acts as the base of the game. It determines what the player can and cannot do. The rules limit player's action and determine the reaction of the game to such the player's action. It determines how player will interact with the game. In general, the rule will limit the action of players; be explicit and unambiguous; applies to all player; cannot be altered (Salen & Zimmerman, 2010).
4. **Resources** are in game objects that have a value to players. The game designer sets the value of the item by determining the utility and scarcity of the items. The more useful an item is, the more valuable it is. The value can also be determined on how rare an item is. The most common resources in a game are lives, health, currency, time, inventory and units. However, not all game need to have all those kinds of resources.
5. **Conflict** in a game acts as a hindrance for the player to win the game. Conflicts takes in various form. In a shooting game, the main conflict of the player is to avoid getting shot to stay alive. In a game of Chess, the conflict is dilemma on how to move your piece. The common type of conflicts than can be found in games are: Obstacles, opponents, dilemmas, and outcome.

Gamification is the application of elements in game (rules, objectives, competition, etc) into other activities to engage users. Gamification aims at making usually not so interesting task more interesting and makes the user wants to do the task voluntarily. Macie Halls from John Hopkins University stated that gamification has been used in Marketing, but it can also be used in education. Not only promoting a specific learning aims, games are a form of active learning. An approach on gamification in education has been made in a grade 6-12 public school in Manhattan called Quest to Learn (Q2L) that has fully integrated the concept of gamification in their curriculum. The research conducted by Connecting Youth: Digital Learning Research Project at New York University (NYU) suggest that the average growth rate of grade 8-10 student in one year at Q2L is comparable to an average growth rate of a college student. By applying gamification in the learning process, student will perform better.

#### IV. DATA AND PROBLEM ANALYSIS.

These are the sources that the author used in to collect information and problem analysis of the project.

1. **Books.** The history of Indonesia during the colonization period was taken from Indonesian Ilmu Pengetahuan Sosial (IPS) elementary school text book. Other book that was used to support the theory for this project includes A Theory of Fun for Game

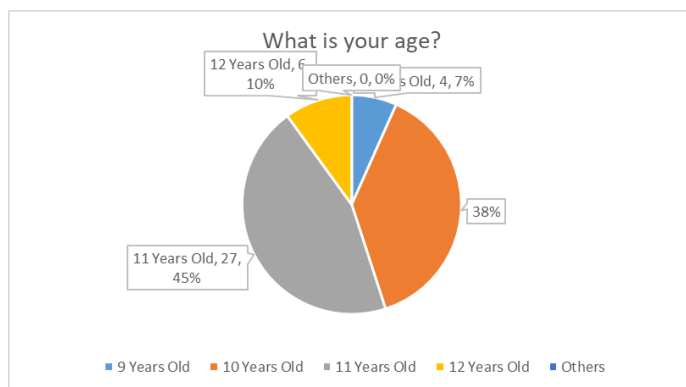
Design by Raph Koster (2004), Rules of Play by Eric Zimmerman and Katie Salen (2003), Design for Communication: Conceptual Graphic Design Basics Book by Elizabeth Resnick (2003) and The Art of Game Design by Jesse Schell (2008).

- The internet. The writer used internet for some of the references which is physically unavailable due to convenience, cost and availability problem. Internet is a convenient way to gather information and images to support this research. Some sources have been taken from personal website of an expert in the field. The writer has also taken some sources from online journals.
- Survey. The writer distributed questionnaire to a number of respondent which fits the target market to understand better about the topic and problem of this project and to find out the preferences of the target audience.

### Survey Results.

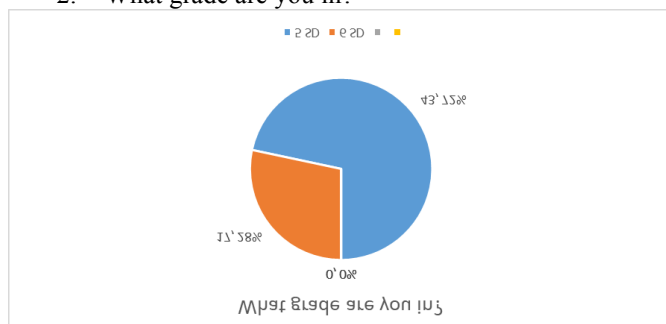
The author conducted a survey amongst 60 students from grade 5 to 6. Here is the result of the survey.

- What is your age?



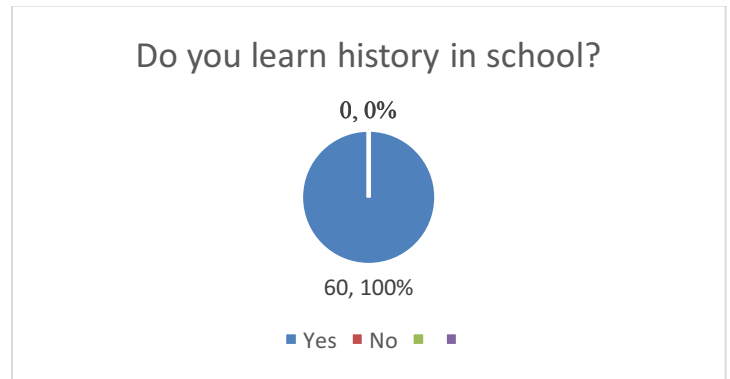
The survey is taken at Mahatma Gandhi School and SD Santo Lukas and others. 7% of the respondent is 9 years old (4 people), 38% of the respondent is 10 years old (23 people), 45% of the respondent is 11 years old (27 people) and 10% of the respondent is 12 years old (6 people).

- What grade are you in?



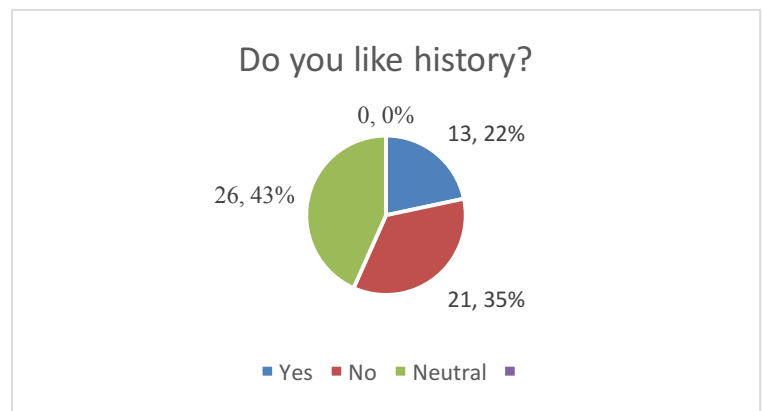
17 of 60 respondent are currently studying on the 6th grade while 43 of 60 respondent are 5th graders.

- Do you learn history in school?



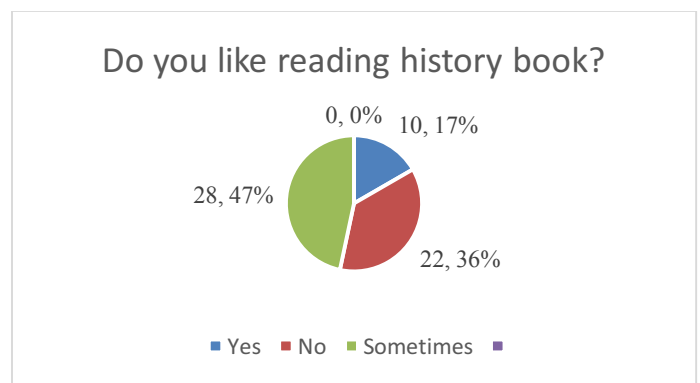
100% of the respondent stated that they learn history in school, although it is not a standalone subject, but it is included in Ilmu Pengetahuan Sosial (IPS)

- Do you like history?



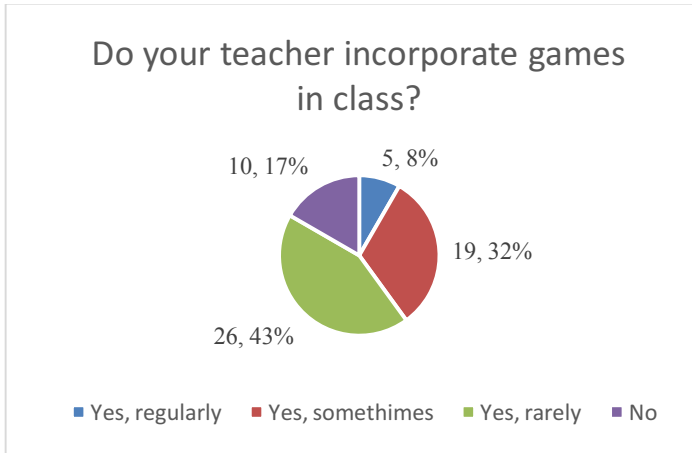
43% of the respondent (26 people) feels neutral about history and 35% of the respondent (21 people) dislike history while only 22% of the respondent (13 people) likes history.

- Do you like reading history books?



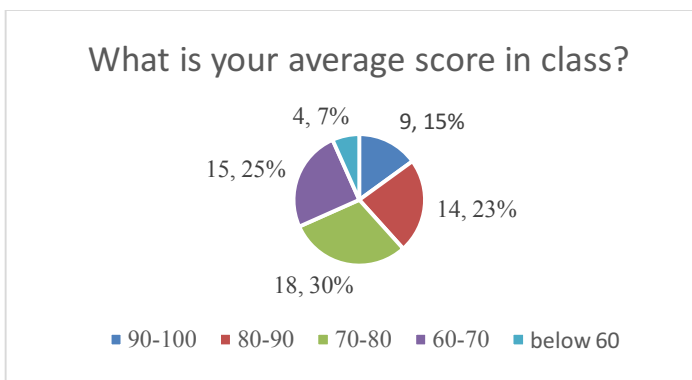
47% of the respondent (28 people) reads history books sometimes, 36% of the respondent (22 people) does not like history book while 17% of the respondent (10 people) likes to read history book.

6. Does your teacher incorporate games in class?



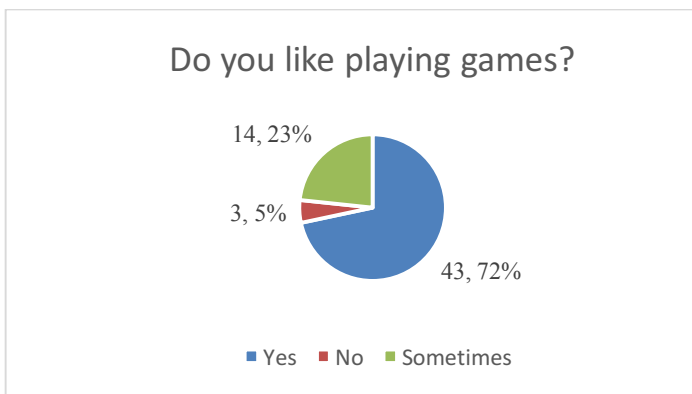
43% of the respondent (26 people) claims that their teacher rarely uses game as a teacher method in class, while 32% of the respondent (19 people) claims that their teacher sometimes uses games in class. 17% of the respondent (10 people) claims that their teacher did not use games at all in class and 8% of the respondent (5 people) claims that their teacher uses game regularly in class.

7. What is your average score in class?



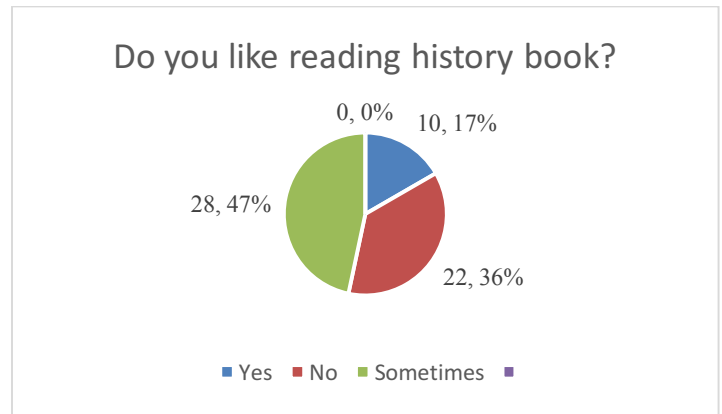
30% of the respondent (18 people) scores 70-80 on average, 25% of the respondent (15 people) scores 60-70 on average, 23% of the respondent (14 people) scores 80-90 on average, 15% of the respondent (9 people) scores 90-100 on average and 7% of the respondent (4 people) scores under 60 on average.

8. Do you like playing games?



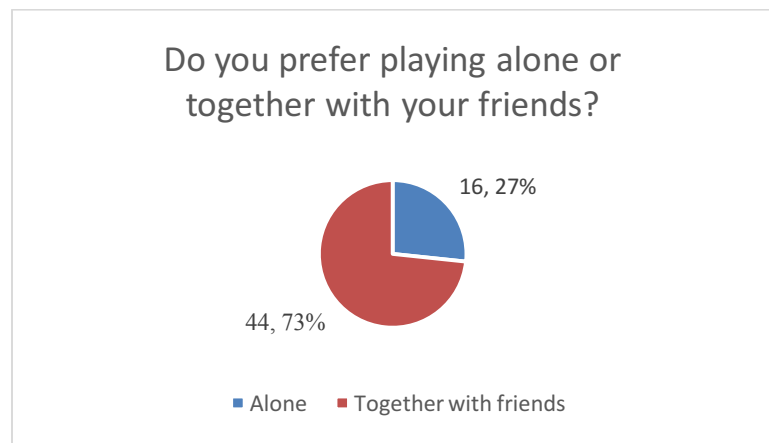
72% of the respondents (43 people) likes playing games, 23% of the respondent (14 people) likes to play games sometimes while 5% of the respondent (3 people) dislike playing games.

9. Do you like reading history books?



47% of the respondent (28 people) reads history books sometimes, 36% of the respondent (22 people) does not like history book while 17% of the respondent (10 people) likes to read history book.

10. Do you prefer playing alone or together with your friends?



73% of the respondent (44 people) prefer playing together with their friends while 27% (16 people) prefer playing alone.

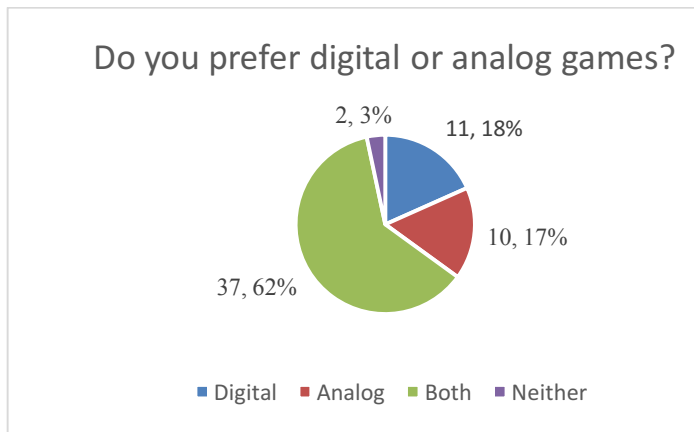
11. Have you ever played board games/card games before?



88% of the respondent (53 people) have played board/card games before while 12% of the respondent (7 people) have not. Most of the respondent said that

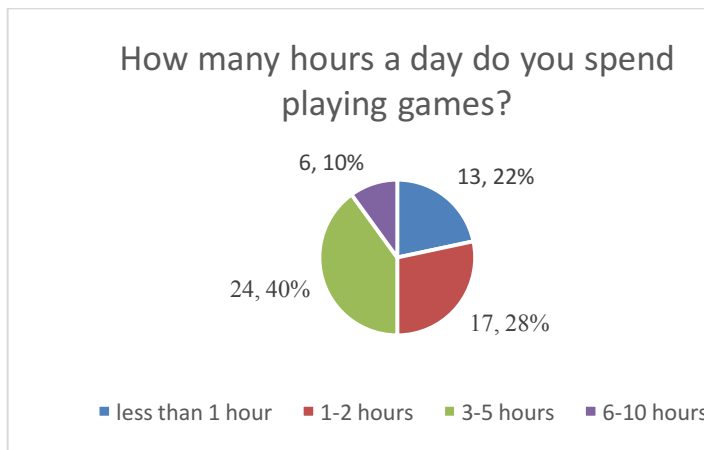
they have played classic board and card games like UNO, Monopoly, Chutes and Ladders and Chess before.

12. Do you prefer digital or analog games?



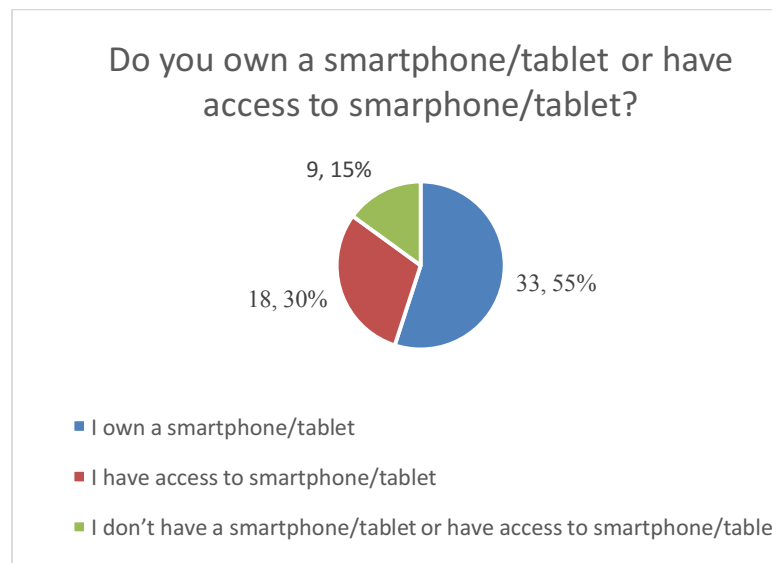
62% of the respondent (37 people) likes both digital and analog games, 18% of the respondent (11 people) prefer digital games, 17% of the respondent (10 people) prefer analog games while 3% of the respondent (2 people) likes neither.

13. How many hours a day do you spend playing games?



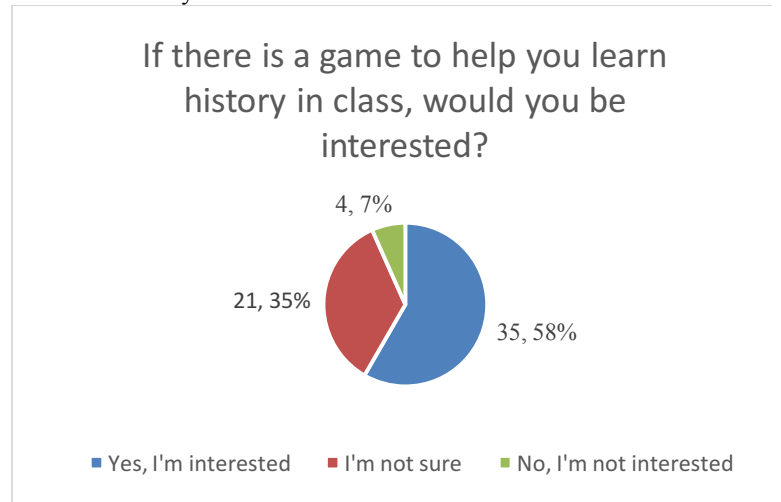
47% of the respondent (28 people) reads history books sometimes, 36% of the respondent (22 people) does not like history book while 17% of the respondent (10 people) likes to read history book.

14. Do you own a smartphone/tablet or has access to smartphone/tablet?



55% of the respondent (33 people) owns a smartphone/tablet, 30% of the respondent (18 people) have no private smartphone/tablet, but have access to one while 15% of the respondent (9 people) have no smartphone/tablet or have access to it.

15. If there is a game to help you learn history in class, would you be interested?



58% of the respondent (35 people) are interested in the game, 35% of the respondent (21 people) are not sure about it, while 7% of the respondent (4 people) are not interested in the game.

This survey is meant to see how well is history received amongst 5th and 6th grader. From this survey the writer learns that while overall performance in class is well spread out, the interest in history itself is not very high with only 13% of the respondent saying that they like history. The writer also learns that while using game as a method of learning is not a foreign concept, most of the time, it's not used frequently enough.

## **Interview Conclusion**

The writer has interviewed 3 people, 1 being an elementary school history teacher, 1 being a board and card game developer and the last one is a young mother.

1. Desi Natalia is an elementary school teacher from SD Pengharapan Utama. From this interview, the writer learns how important it is for students to learn history to appreciate the struggle of our national hero trying to earn independence for Indonesia. While she claims that on average, her students perform well on their exams, some students have problem with memorizing dates and documents. In most cases, they perform better only in topics that they are more interested in. Currently, history is only part of Ilmu Pengetahuan Sosial (IPS). Previously, it is a separate subject. Desi believes that it is better before when it is a separate subject. Previously, the history subject cover more topics than it is now. Desi claims when she uses games in her class (quizzes), her student showed more enthusiasm than usual and they start to actively participate in class. Currently, Desi feels that the government need to add more effort to increase interest in history in children. She believes that it is not only about getting good scores to pass the exam, but also about loving the subject itself. She believes that by using movies and games, student will be more interested in learning the history itself rather than just reading history books as it tends to bore them. She also said that by using a more interesting illustration, such as cartoons that the children are already familiar with, it will make the learning process more interesting. However, the illustration needs to illustrate the real events accurately.
2. Febndy Kwik is a game developer from Aqua Terra Ventus Production. He previously worked on a popular card game called thrones of elements. According to Febndy, board game in Indonesia is currently in a developing state. Local developers have started to create their own game. Whereas Trading Card Game (TGC) has been popular in Indonesia for a long time, but Indonesia mainly act as a consumer in this field as most of the TGC played here are imported TGC. Febndy also claimed that while digital game is a popular thing nowadays, analog games stand as a different kind of thing from digital games. In traditional analog games where player need to see each other face to face, there are more connection than playing against each other from a screen. When playing face to face, a player can bluff using facial expression, it gives a different experience from playing digital games. Currently, there are many educational games, mostly made internationally, for example Timelines, a history game. The game itself does not teach the subject in details, however, it educates the players on elements of the era such as figures that plays an important role in the era. Febndy believes that one of the reason that educational game is not as big as regular game is because when making educational game, the developer must understand the topic well to give an accurate info on the subject, which will require extensive research. In production value, according to Febndy, local games currently have lower quality material in comparison to international games. One of the reason for that is because the interest for local games is lower than international games which results in lower revenue. Due to this, some designer cannot make a living full time from making board and card games and have to make it a side job and they cannot fully devote their time to it. Febndy said that currently, board game and card game enthusiasts in Jakarta have their own community and they act as the main consumer of the board and card game market in Jakarta. However, many of board game developers promote their product to event such as POPCON to promote their game to a wider target market.
3. Anita Harpin is a 43 years old woman who has 2 daughter, one currently 13 years old (SMP 1) and the other one is 10 years old (5 SD). Both her children go to an international school in Serpong. According to Anita, both of her children do well in school, especially the older one. While the younger one is not as academically superior like her older sister, she excels in her dancing class. Anita claims that she doesn't play game that often, mainly because most of her time is occupied taking care of her children. She however, play casual mobile game in her spare time, such as 'Candy Crush Saga' and 'Slot Machine'. Her children like to play games, however, according to Anita, they are not addicted to games. She limits their playtime so it won't interfere with their studies. In school days, she give them 1-2 hours of playtime while in weekends, she let them play until 10 at night. Anita claims that she had given them educational game when they were smaller to train their motoric skills and to balance their right and left brain. Anita agrees that educational game will help children to understand their subject better. Her younger child have difficulties to concentrate on things she doent have much interest on. By using educational games, she believes that her child will have an easier time understanding the subject. Anita uses a shared tablet amongst her family, which is also used by her children to play games. She knows what game her children are playing. She said that currently, they like playing 'Temple Run' and 'Sally's Salon' as well as logo quiz game. Both of her children has access to smartphone, but they do not have their own smartphone. The older one has a regular mobile phone that she use to communicate with. Anita supports the usage of educational game in school as a teaching method. She claims that in her childrens' school, they has been using an app called

'Koobits' which is an app that helps them to exercise their lesson in school. She believes that if the concept is developed even more, kids will learn more effectively. The time that they used to play game will be more useful.

### Game Testing Results

The prototype card game was test played by several children of varying ages (between 4<sup>th</sup> graders to 10<sup>th</sup> graders) as well as several adults. The results summary is as follows:

1. For the younger students (4<sup>th</sup> to 6<sup>th</sup> grade), they found it somewhat difficult to get the answers correct. When asked about it, the common answer is that the material is either not taught in their school, or that it isn't taught as thoroughly.
2. For the older students (up to 10<sup>th</sup> grade), it is noticeably much easier to get the correct answers. They seemed to have much fun. The fun had by these older student prompted several other younger ones to join, although not necessarily to play, but to read the contents of the cards (reading the contents, in a way learning the history).
3. Several adults including teachers were asked to play to see whether the cards would also appeal to adults (most of them have had the history lessons in their youth during school). Of the 5 adults who played, 3 had difficulty getting the correct answer (the lessons had passed too long and they've mostly forgotten) but had fun playing and trying to remember the lessons. 1 adult has children and had also been teaching them lessons at home, and she said this is an "enjoyable way to learn". Although she still remembers most of the historical questions asked in the cards, she admits that it is uneven, with some questions being much more difficult to answer than others.

### V. CONCLUSIONS.

Studying history is important not only because it explains what our civilization is built on, it also lets people understand further on the reasoning of how and why people act as they did. Currently, most school only utilize history text books to teach. The learning process usually relies on memorizing dates and the details of an event. In addition to this, there are also lack of other material to teach history in school. Other than history book, which is usually text heavy with old photographs and minimum visual, they only have pictures of national hero. This results in the lack of interest of student regarding the subject. By using gamification, it is possible to make the process of learning history not only educational, but also fun and enjoyable. Game is a media that children are already familiar with, which will make them feel less intimidated by the subject. By using games to teach, student can also play it in their free times.

A card game can be created, and aimed to re-tell history in a more visual manner and to make history more enjoyable and fun to learn, so children will have more interest and curiosity in the subject. While it is not a book, which can tell a story in full detail, by increasing interest about the subject, it would make the children want to research more about the subject. By using a dynamic, colorful and expressive visuals, the card game offers a more children friendly visuals rather than old photograph, which aims to attract younger children to play the game.

Other conclusion based on the test plays is that this way of learning is very recommended for teachers and schools to apply for many other subjects (like science), or for simply learning about basic, specific concepts. Teachers recommending this method not only for use in schools but also for home learning environment, as the concept of fun learning (as opposed to the traditional, learning from just books) is what everyone seems to be in favor of.

### REFERENCES

- [1] J Bowden. (2015). Sources of History. Ancient History et cetera. Retrieved 8 March 2017, from <http://etc.ancient.eu/education/sources-of-history/>
- [2] H Hasan (2017). Retrieved 14 March 2017, from [http://file.upi.edu/Direktori/FPIPS/JUR.\\_PEND.\\_SEJARAH/194403101967101-SAID\\_HAMID\\_HASAN/Makalah/Pendidikan\\_Sejarah\\_Kemana\\_dan\\_Bagaimana.pdf](http://file.upi.edu/Direktori/FPIPS/JUR._PEND._SEJARAH/194403101967101-SAID_HAMID_HASAN/Makalah/Pendidikan_Sejarah_Kemana_dan_Bagaimana.pdf)
- [3] A Marwick. (2014, March 14). The Fundamentals of History. History.ac.uk. Retrieved 14 March 2017, from <https://www.history.ac.uk/ihr/Focus/Whatishistory/marwick1.html>
- [4] M Mukhlis. (2013). Peningkatan Kualitas Pembelajaran IPS Melalui Pemanfaatan Media Cuplikan Film Sejarah. Ispi.or.id. Retrieved 14 March 2017, from <http://www.ispi.or.id/2013/02/05/peningkatan-kualitas-pembelajaran-ipspeningkatan-kualitas-melalui-pemanfaatan-mediaa-cuplikan-film-sejarah/>
- [5] PlayStationGeneration.it. (2008, February 19). PlayStation 2 - The Third Place - David Lynch UK TV Advert [Online]. Available: <https://www.youtube.com/watch?v=ge-gUEI1-24>
- [6] K Salen & E Zimmerman (2010) Rules of play (1st ed.). Cambridge, Mass. [u.a.]: The MIT Press.
- [7] Schreiber, I. (2013). Game Design Concepts. Learn.canvas.net. Retrieved 13 March 2017, from <https://learn.canvas.net/courses/3>