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## **Game-Based Learning Approach to Improve Students' Learning Process in a Political Science Subject**

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### **Abstract**

Learning politics is vital for students especially in Diploma of Public Administration students. However, they often encounter difficulties in understanding the concepts, theories and processes that lead them to find it very complex, thus, reducing their interest to learn. It has been proven that by using a game-based pedagogical model, it brings benefits in the process to make complex educational concepts more approachable to the learners. Therefore, this paper attempts to explore students' perception towards an education game called "*Political Fun Race*" game. *Political Fun Race* is a game that is inspired by one of the popular childhood games – Snakes and Ladders. It is purposely designed to create an exploration to boost the interest of the students in Diploma of Public Administration in seeking political knowledge and it is deliberately developed to help them understand the major concepts in political science such as power, government, law and governance deeper. This game aims to improve the students' learning process via a game as a learning tool to add on besides lectures and traditional classroom. It consists of four (4) divided components (board, dice, counter and questions cards). The questionnaires were distributed to all part two students who enrolled in Course Code PAD120:

Political Science in UiTM Raub Campus in order to obtain the information of the study. The results found that majority of the students enjoyed playing this game and agreed that the innovation in teaching really helped them in understanding the subject and it has smoothen the learning process. Besides, it can enhance their general knowledge regarding political science. It is aligned with the aims of the Ministry of Higher Education Blueprint, thus, optimistically it will benefit all students regardless of their course, program, university or country as well as the public.

**Keywords:** game-based learning, political science subject, interactive learning

## 1. Introduction

The world is changing with the fast growth of information technology and rapid social change in the twenty-first century. The development of technology can cause various challenges and opportunities; however, it also provides advantages to the whole country including business, government, people and for the future. The quality of life of the population across the country can be improved through maximizing the opportunities of the development changes (Klaus, 2015). With that, higher education is gradually turning the academic institutions and academicians' attention to the new approaches towards education and learning.

Currently, there are many criticisms about Malaysian education system's inability to stimulate intrinsic academic motivation among students (Ong, Chan, Cho, & Koh, 2013). As reported in the mass media, the current education system does not fulfil the standard criteria of producing the graduates with soft skills and critical thinking skills (Mustafa, 2018). Due to this issue, Malaysian Higher Education begins to develop Malaysia Education Blueprint 2015 – 2025 (Higher Education) or MEB (HE). The ministry realizes that the education system needs to keep evolving to stay abreast with the global trends by introducing 10 shifts in the MEB (HE) that will continue the excellence of higher education. One of them is transforming the higher education delivery method that includes gamification (Ministry of Education Malaysia, 2015). A study found that gamification is an independent learning style that is practical and effective among university students (Mustafa, 2018). As reported in *The Star Online* by Yasmin Ahmad Kamil, the Ministry of Higher Education is looking to implement a flexible learning system for higher education institutions in Malaysia. According to the Minister of Higher Education, Datuk Seri Idris Jusoh, the flexible learning could also be done by emphasizing on gamification (Ahmad Kamil, 2016). Redesigning higher education is vital to ensure that our higher education system is at par with the global world and thus able to sustain Malaysia's higher education by producing well-versed graduates who are able to fulfil the demands of future employers. These are the reasons why the academics in the higher learning institutions are urged to diversify the delivery methods by introducing gamification in the teaching and learning system.

Besides, the evolution in technology that is changing from day to day has affected various fields and lifestyle of the population and the education system is not excluded. The conducts of teaching and learning process is still the same process but the methods can vary depending on the creativity of the instructors (Mohamad, Salam, & Bakar, 2017). Besides the traditional yet effective teaching and learning styles, such as, two ways communication namely lectures, one of the creative methods that is widely used by

the instructors in the education system is gamification. Political science is a field that requires students to know a lot on general knowledge including the theoretical and practical part. The students might need to build a proper understanding in learning all the terms, theories and concepts. At the end of the learning session they will be able to relate all the components with the reality. But, the problem that they face is, it is quite hard for them to digest all of the heavy terms in politics. Due to this issue, the researchers have initiated the innovation towards the delivery system by introducing gamification in combination with the face to face lecture session. Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2014) stated that the participants are more engaged in the individual and group work during the learning process and one of the methods used is gamification (Jui-Mei, Chun-Ming, Hwang, & Yueh-Chiao, 2011).

Various approaches have been introduced through gamification to engage in the students' learning but there are still criticisms on gamification. Therefore, the gamification method that is commonly used by the instructors can either be by using technology or game-based or both. Most of the present studies focus on the gamification by using technology or is known as online learning or e-learning (Ebner & Holzinger, 2007; Huizenga, Admiraal, Akkerman, & Dam, 2009; Jui-Mei, Chun-Ming, Hwang, & Yueh-Chiao, 2011; Kiili, 2005; Mohamad et al., 2017; Papastergiou, 2009; Van Eck, 2006; Vásquez, Peñafiel, Cevallos, Zaldumbide, & Vásquez, 2017). However, there are only a few studies on the game-based learning without using technology (Ong et al., 2013). As the concept of gamification is still in its embryonic stage, there is a scarce resource of research papers and journals on this concept. Therefore, the aim of this present study is to improve the students' learning process via a game as a learning tool besides the currently existing lectures and traditional classroom method.

## 2. Review of Literature

Some previous studies have been conducted by scholars in studying the use of gamification as a tool to help the students to enhance their level of understanding. Some of the studies have been chosen in line with the purpose of this paper such as Marcos, Dominguez, Saens-de Navarete and Pases (2014) who have conducted an interesting research in comparing gamification and social networking on e-learning. In this study, the argument has been raised by comparing social networking, gamification and traditional e-learning in proving the benefits of this pedagogical strategy as a guide to the students in learning process. The study on traditional e-learning approach has proved that the participants in the novel study approaches get better results concerning skill acquisition and by looking at the context of traditional approach has yielded better result for knowledge acquisition. The result of this argument has shown that the students' attitude towards the new tool is positive particularly in increasing the level of understanding in learning process among the students.

As the above study has discussed on the comparison of the use of gamification, social network and traditional e-learning in helping the students to develop their proper understanding in knowledge, Ian (2013) in "*Play as You Learn: Gamification as Technique for Motivating Learners*" and Baner, Callan and Amstrong" (2014) in

*“Psychological Theory and The Gamification in Learning”* have made an important research in studying psychological theory and gamification as the elements of learning. In this study, they have raised an argument on the lack of theoretical foundation on gamification of learning and the uses of gamification as motivational approach in learning. They have identified and explored several theories from the domain of psychology to provide the theoretical foundation for gamification in learning. Several theories have been recognized in this paper in proving the argument they have raised as follows: i) theory of gamified instructional design, ii) classic conditioning theories, iii) expectancy-based theories, iv) goal-setting theory, v) self-determination theory. All these theories have been tested in order to get result and to relate it to the gamification research. The result showed that gamification is not a new instructional approach “per se” but instead is a new combination and presentation to classic motivational techniques and gamification is perceived as one of the learning activities that encourages active participation from the students. Even though the result showed that gamification is not a new instructional approach, but the study has proved that gamification is a new kind of combination of motivational techniques in learning process. Finally, they came up with recommendations for both gamification researchers and practitioners to best advance the study of gamification using the study as a theoretical basis.

In addition, the study of gamification with the relations towards empowering the use of language among the students has also been made by Flores (2015) in *“Using Gamification to Enhance Second Language Learning”* and Perry (2015) in *“Gamifying French Language Learning: A Case Study Examining a Quest-Based, Augmented Reality Mobile Learning-tool”*. Both papers focused on the importance of learning with second language by using gamification by assuming that this kind of mechanism motivates learners in their pursuit of achieving fluency. Gamification has been used as an adaptation to digital native and digital immigrants as a learning tool or pedagogical strategy. Both authors had the same ways of raising their arguments that gamification does not only incorporate game elements, but it also uses game design techniques in non-game context. This has empowered and changed the learners’ motivational skills towards a learning approach and sustaining a relaxed atmosphere. Finally, they have come up with an important model on educational gamification which included: i) understanding the target audience and the context, ii) defining learning objectives, iii) structuring the experience, iv) identifying resources and v) applying gamification elements.

Furthermore, Robson, Plangger, Kietzmann, Mc Charthy and Pitt (2016) highlighted a main point which is gamification utilizes a wide range of game design elements, and appropriate alignment of gamification elements that consists of mechanics, dynamics, and emotions will determine the success in gamification. All these elements will be extremely important for a better gamified experience which the enjoyment a user can get from game element (Fitz-Walter et al., 2017). Since gamification aims to integrate more fun and engagement into education while providing positive feedback but at the same time pushes students to be more interested, motivated, and stimulated to learn (Muntean, 2011). However, increasing motivation is not an easy task, thus, the effective design and application of the gamification experience also require great effort (Dominguez et al., 2013). Several review on gamification of education revealed that

several game elements are used in studies to gamify education, for example, points, levels/stages, badges, leaderboards, prizes, progress bars, storyline, and feedback (Nah et al., 2014). Meanwhile, Lister (2015) reported the most commonly implemented forms of gamification as points, badges, achievements, leaderboards, and levels. These also can be supported by some results that showed that the utilization of game mechanics, which are points, badges, and a leaderboard, resulted in students' having a more positive attitude towards the course and more engagement in the discussion forum and gives impacts on cognitive and behavioral engagements of university students from an Asian university through experimental and quasi-experimental studies (Hew, Huang, Chu and Chiu, 2016).

### 3. Methodology

#### 3.1 Materials for the game

To play the “*Political Fun Race*” game, there should be:

- i. Five (5) students (maximum number of players)
- ii. One (1) game board
- iii. One (1) dice
- iv. Five (5) counters
- v. Question cards
- vi. One (1) user manual on how to play



**Figure 1: The tools inside the “*Political Fun Race*” game box**

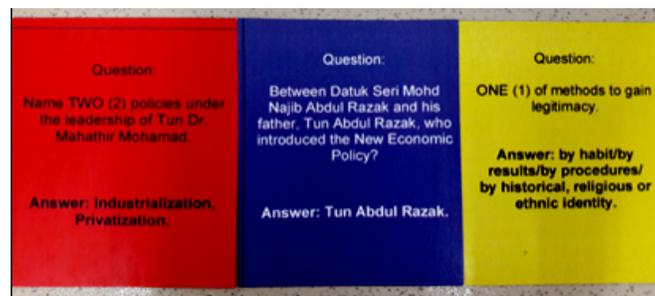
### 3.2 Game Applied

**Performance** : Students will participate in “*Political Fun Race*” and develop their knowledge through the correct and incorrect answers among themselves.

**Conditions** : Students will be judged on their performance based on consecutive and successful correct answers.

**Standards** : Students will be judged on their performance based on continually and successfully answering the questions.

**Repetitions** : The learning opportunity through question cards. Students will play the game as to revise the previous lectures.



**Figure 2: Question cards consist of level of difficulties such as ‘easy’, ‘medium’ and ‘difficult’ will determine performance, conditions, standards and repetitions**

### 3.3 Description of Game

#### Step 1

1. Each player will put their counter on the space that says 'start'.
2. Each player will take turns to roll the dice to determine the turn - 1st, 2nd, 3rd, 4th and 5th place. The player with the highest number on the dice will go first.
3. The first player will start playing by rolling the dice. You move your counter forward the number of spaces as shown on the dice.

#### Step 2

1. If the counter lands at any space entitled **successful event of politics**, you can move up to the top of the ladder.
2. If the counter lands on any space entitled **crisis event of politics**, you must slide down to the bottom of the space given
3. If the counter lands on the coloured spaces – **RED, BLUE, or YELLOW** – you need to answer the questions based on the given question cards.

#### Step 3

1. The observant will read the question and you must answer the question within 60 seconds. A timekeeper is responsible to observe the time.

#### Step 4

1. If the **ANSWER IS INCORRECT**, you will **MISS THE TURN** for the next round. Meanwhile, if the answer is correct you will remain at your position until your turn takes place.
2. If the counter lands on coloured space that is **WHITE**, it shows that you are **FREE** to perform any action and do not need to answer the given question of politics.

#### Step 5

1. However, if your counter lands on existing player space, therefore, the existing player needs to move **ONE SPACE BACKWARD**.
2. The winner is the player who gets to the last space on the board first.

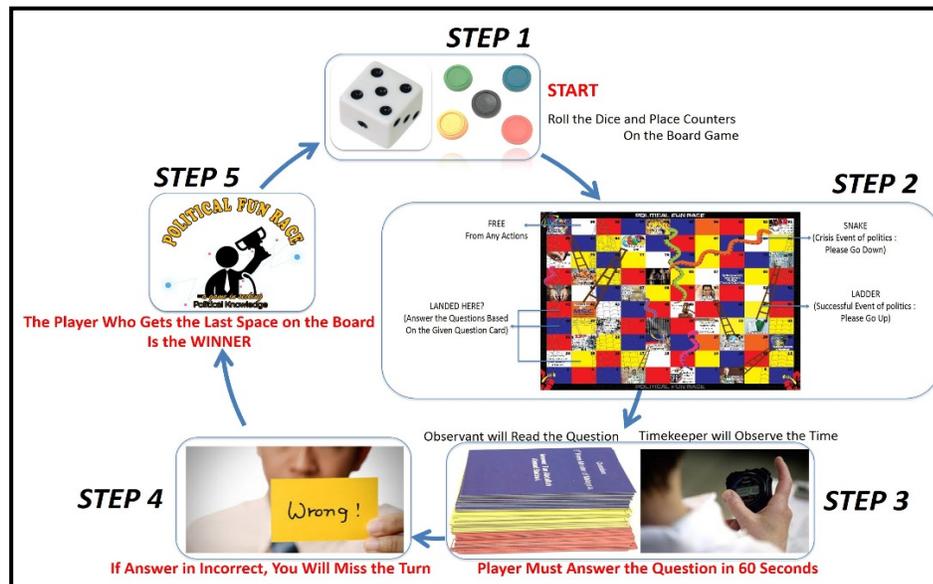


Figure 3: The steps on how to play the game

## Application

In order to achieve the intended learning outcome as a game in seeking knowledge, below is the application of “Rules and Regulations” for the game to create an element of learning while educating.

### **Rules and Regulations:**

1. Students must act and behave as a good citizen.
2. Students are not allowed to cheat in this game. They are not allowed to use other than the materials provided in the game.
3. Lecturer may monitor the students as the game starts.
4. Respecting the others:
  - a. All participants must respect the turn taken by other players when the other players obtain number six that enable them to roll the dice twice.
  - b. All participants must accept the loss if the answer is incorrect which will cause them to miss the turn for the next round.
  - c. All participants must accept the loss when the player lands in the counter space which has existing player space that will cause them to be one step backward.
  - d. The total number of participants will be seven (7). Five (5) of them will be the players while the other two (2) will be the observants. The first observant is responsible to read the question cards while the second one will act as a timekeeper to make sure each player answers the questions within 60 seconds. All participants must listen carefully to the instructions and respect the observants.
5. The first player to reach the last space first will be considered as a winner. If the player rolls too high, it will “bounce” off the last square and is required to move backwards. The player will only win by rolling the exact number needed to land on the last square.
6. The player has to accept and continue playing while waiting for the turn to roll the dice.

### **3.5 Instrument**

In order to evaluate the result of the application of this game in the classroom, the data were obtained from the questionnaires which were distributed after the learning experience. The distribution of the questionnaires was conducted through online survey, which was created using Google Form. The total number of students of Diploma in Public Administration for Course Code PAD120: Public Financial Administration, in UiTM Pahang Kampus Raub consists of 154 respondents. In this study, the descriptive analyses were used to analyse the data. Further explanations about the findings were discussed in the result section. There are two sections in the questionnaire which are section A and B. Section A consists of the questions related to the demography of the respondents such as name, gender and student’s current semester. Section B consists of multiple choice questions of respondents’ feedback about the learning experience after playing “*Political Fun Race*”. The questions lead the respondents to choose options

ranging from either Yes or No. Based on this study, the researchers are able to identify the student's perceptions towards the new approach of game-based learning.

#### 4. Results

Based on the survey that had been done, a total number of 154 responses had been received throughout the semesters of September 2017 to January 2018. A total number of 11 questions with 2 sections were prepared for the students. The survey was conducted among Diploma in Public Administration students taking Course Code PAD 120: Introduction to Political Science. Among the 154 respondents, 24.7% were male while 75.3% were female respondents. Since PAD120 course was offered to the part 2 students, therefore, a total of 92.9% of the respondents were from part 2 while the rest were from parts 3 and 6. This indicates that the remaining 7.1% were either repeaters or registered students.

**Table 1: The Students Feedback**

NO	QUESTIONS	YES (%)	NO (%)
1	The Political Fun Race game is FUN.	100	0
2	I enjoy and learn something new from this game.	99.4	0.6
3	I am familiar with all the terminologies of political science used in the game.	89.6	10.4
4	I am able to enhance my general knowledge through this game.	99.4	0.6
5	I am able to relate this game with the courses in Diploma of Public Administration.	99.4	0.6
6	I agree this game should be used during tutorial class as one of the methods for teaching and learning.	99.4	0.6
7	I agree this game can create awareness on current political issues.	98.1	1.9
8	I would recommend this game to be used to other students/ institutions taking/teaching political science subject.	100	0
9	In my opinion, this game is related to the course that I have learnt below: 1. Introduction to Public Administration 2. Political Science 3. Government and Politics	2.6 72.1 25.3	

From the study that had been conducted, it was found that 100% of the respondents of “*Political Fun Race*” game had fun playing the game. In receiving the feedback from the students about whether they enjoyed and learned something new from this game, 99.4% of the respondents claimed that they enjoyed the game, while 0.6% did not. In spite of that, they were also asked whether they are familiar with all of the terminologies of political science that had been used in the game. 89.6% responded that they were familiar while 10.4% were not familiar with the terms. It is assumed that they were still confused with some of the terminologies used. Furthermore, a question was also asked on whether this game has helped them to enhance their general knowledge and 99.4% agreed while the rest disagreed with the statement. The same result was obtained for the questions of whether they are able to relate this game with the courses in Diploma of Public Administration or not and in the question that ‘I agree this game should be used during tutorial class as one of the methods for teaching and learning’.

The second last question is on whether the students agree this game can create awareness on current political issues or not and 98.1% of them agreed while the rest did not. The last question is “I would recommend this game to be used to other students/institution taking/teaching political science subject” and 100% of the students agreed to the statement.

Among the items asked to the students is to measure the students’ understanding relating to the relationship of this game with the courses that they have learned, whereby the question was, “In my opinion, this game is related to the course that I have learned”. The result found that 72.1% answered that it is related to political science, 25.3% responded that it is related to government and politics and the remaining 2.6% responded that it is related to Introduction to Public Administration.

## 5. Discussions

It cannot be denied that Political Science is a complex subject. Therefore, the students often encounter difficulties in understanding the concepts, theories, terminologies and processes. It leads them to feel that the subject is very complicated, thus, decreasing their motivation to learn. In order to overcome these issues, the researchers introduce a game-based learning system to inject the excitement in learning political subjects among the students. The game is called “*Political Fun Race*”. The aim of this study is to explore students’ perceptions towards “*Political Fun Race*” as a teaching tool.

“*Political Fun Race*” is a traditional type of game. It is a face-to-face interaction game. It contradicts with the digital games that are frequently played by Y generation nowadays. Surprisingly, based on the results, 100% of the respondents agreed that “*Political Fun Race*” game is fun. During the playing session, researchers could clearly see that the students had a really good time. They were laughing, screaming enthusiastically and were clapping hands when they were able to answer the questions correctly. This is in line with the findings by Billinghamurst and Kato (2002). According to both of them, unlike interactions in digital games via computers, face-to-face interaction games expose people to human expressions, physical actions, and verbal tones. This finding is also supported by Eric Zhi Feng Liu and Po-Kuang Chena (2013). By using games as a medium for game-based learning, it could enhance the direct interpersonal interaction

between teachers and students as well as among the students (Liu & Chena, 2013). Hence, we can claim that by playing the game, rolling the dice, moving the counter, reading the question cards, competing or cooperating with peers through direct verbal communication, the students can interact with one another and learn happily from each other.

Other than that, 99.4% of the respondents enjoyed playing the game and agreed that the game has assisted them in the acquisition of new knowledge related to political science. Through game-based learning, it helps the participants to learn more actively and with greater interest, enabling the learned content to leave a deeper impression than it would be by using conventional methods alone (Papastergiou, 2009). A game-based learning has been applied in many science-related school subjects. Yien, Hung, Hwang and Lin (2011) used game-based learning in a nutrition course, discovering that this approach is more effective in enhancing the learning effectiveness and attitudes of the students than the traditional teaching approach and even influenced their dietary habits. Using a game similar to Monopoly to teach students about the area of circles, Lin, Liu, Chen, Liou, Chang, Wu and Yuan (2013) also obtained the identical results. This finding shows that if the students enjoy and possess a greater interest towards something, in this case referring to game-based learning "*Political Fun Race*", it will indirectly let them open their heart to love the subject.

The result also indicated that 89.6% of the participants agreed that they are familiar with all of the terminologies of political science that had been used in the game. It shows that while playing the game, the students can revise their knowledge simultaneously.

On top of that, 99.4% of the respondents agreed that "*Political Fun Race*" game should be used during tutorial class as one of the methods of teaching and learning. The majority of the students accepted this learning method and hoped to continue using this approach in the future. The result showed that 100% of the students would recommend this game to be used to other students/institutions who are taking/teaching political science subjects. The students also expressed that learning with this game could assist them to gain knowledge and it also increased their interest and awareness on current political issues in Malaysia.

In a nutshell, game-based learning helps the students to improve knowledge, acquire problem-solving skills and make it possible for them to interpret their society, nature and the world around them through experiences (Sukran Ucus, 2015). "*Political Fun Race*" for example, provides relevant information related to political science subjects. That is why it is very important for the social studies courses, especially for political sciences subject to apply game-based learning in class which aims to train the students as active members of a classroom. Based on the findings, the researchers can say that, a game-based learning approach is capable in improving students' learning process in a political subject.

## 6. Conclusion

Through the game-based learning approach, this project is seen to be able to provide students to have a more fun and interactive learning environment. Besides the conventional method of teaching and learning which is face-to-face, game-based learning method is an innovation that can increase students' motivation, engagement and understanding. Moreover, the instructors may add the elements of fun, cooperation and competition during the face-to-face classes. It is clear that a game-based learning method offers an exciting opportunity to promote the engagement among the students in understanding the political studies (Pho and Dinscore, 2015; Dominguez et al., 2013). Furthermore, it is hoped that this project can make the process of learning more engaging and motivating to the students. It is supported by Glover (2013), where his study found that the elements of motivation can be injected in the game-based learning education by encouraging the students to fully complete the activities as required by the game. It is an important consideration for the instructors to carefully observe the implementation of the project either by encouraging good behavior or discouraging bad behavior. Lastly, this project is competent in providing positive effects towards the students' learning of political science subjects. It can also create a variety in the education tools of learning in conducting teaching and learning process.

Overall, the students are very positive about the game-based learning method and they believe that it can improve their political knowledge. In future, it is an urgency to have a greater collaboration with the Ministry of Higher Education as well as with the private institutions in order to upgrade this game to be in the form of *mobile apps*. In such way, this project will have a greater impact by emerging ideas in education and technology. Moreover, in order to expand the larger targeted groups, it will be a great idea of collaboration for each library unit in every education institution to establish one section for game centre. By having a game centre, everyone can have the opportunity to experience the game session without restriction hour such as in the classroom or tutorial hour only. Another recommendation for further studies is in the advancement aspect of game application which is to make it real like "*Let's Politics Let's on Live*" which allows the students to play in real setting as they themselves will act as the counters. They will act, play, move, write, speak, and respond in 'live' to stimulate greater power of excitement and enjoyment while playing in order to empower both cognitive and behavioural aspects. All these efforts will improve the current educational system to adapt to any style of learning and utilize the countless engaging tools that are available to everyone. It will also create a wider impact of commercialization as well as applicability not only to the political science students but also for all Malaysians.

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## APPENDIX 1

### Examples – Types of Questions in the Question Cards

No	Type of Questions (Level)		
	Easy	Medium	Hard
1	<p><b>Question:</b> One of field that relates to political science.</p> <p><b>Answer:</b> economics/ sociology/philosophy/ psychology, geography, law, history.</p>	<p><b>Question:</b> Sources of authority.</p> <p><b>Answer:</b> traditional, charismatic, legal-rational.</p>	<p><b>Question:</b> Abraham Lincoln's famous quote on democracy.</p> <p><b>Answer:</b> Democracy is "a system by the people, from the people and for the people."</p>
2	<p><b>Question:</b> Electoral system is synonym to what political system?</p> <p><b>Answer:</b> Democracy</p>	<p><b>Question:</b> Elements on the state.</p> <p><b>Answer:</b> populations, territory, government, sovereignty.</p>	<p><b>Question:</b> Lord Acton's famous quote on power.</p> <p><b>Answer:</b> "power tends to corrupt and absolute power corrupts absolutely"</p>
3	<p><b>Question:</b> Malaysia's Head of Government.</p> <p><b>Answer:</b> Prime Minister</p>	<p><b>Question:</b> Three bodies of government.</p> <p><b>Answer:</b> executive, legislative, judiciary</p>	<p><b>Question:</b> One method to establish constitution.</p> <p><b>Answer:</b> King's Decree/ Evolution/ Revolution/ Constituent Assembly.</p>



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