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Che Ku Nor Asiah Binti Che Ku Mohamad[1], Abdul Rauf Bin Hassan[2], Abdul Halim Mohamad[3], Nik Farhan Mustafa[4]

Faculty of Language and Communication, University Putra Malaysia, 43400 Serdang, Selangor, Malaysia

Email: ckna5406@gmail.com, raufhassan2001@gmail.com, abhalim@upm.edu.my, farhan@upm.edu.my

Abstract

The issue of poor mastery of Arabic grammar among students is nothing new. Many studies have been done by previous researchers on this matter. One of the topics that is considered difficult and confusing is the topic of *al-ᶜAdad wa al-Maᶜdūd*. Studies show that factors affecting students' difficulty in mastering any educational topic are closely related to the techniques or approaches to teaching. Therefore, this study aims to identify the level of *al-ᶜAdad wa al-Maᶜdūd* dominance among form six students, to analyse the effect of gamification approach and comparing the *al-ᶜAdad wa al-Maᶜdūd* level of mastery between the control and experimental groups as well as comparing *al-ᶜAdad wa al-Maᶜdūd* level of mastery between male and female students. The quasi-experimental method was implemented using pre-and post-test questionnaires. The sample of this study was 60 students in sixth form at Ma'ahad Ahmadi Gemencheh, Negeri Sembilan. The students were divided into two groups, the control group (n = 30) and the experimental group (n = 30). Data were analysed descriptively to obtain frequency, percentage and mean. A t- test was conducted to measure differences in the level of mastery of the two groups. The findings show that the level of mastery for *al-ᶜAdad wa al-Maᶜdūd* was low for both the control and experimental groups before treatment. After the gamification approach was given to the experimental group, the findings showed a positive impact on *al-ᶜAdad wa al-Maᶜdūd* dominance with an improvement in the level of *al-ᶜAdad wa al-Maᶜdūd* for the experimental group was higher than that of the treatment group after the gamification approach was used. As for the level of *al-ᶜAdad wa al-Maᶜdūd* dominance between male and female students, the findings show no significant differences by gender. It is hoped that this study will be able to assist Arabic language educators apply a gamification approach to teaching and learning grammar in the Arabic language, in particular the topic of *al-ᶜAdad wa al-Maᶜdūd*.

Keywords: Gamification, Arabic Education, al-`Adad wa al-Ma`dud, Teaching and Learning in Arabic.

Introduction
In the day-to-day life of man, figures in the field of calculation involving numbers play an important role. It involves all formal language learning in the world including Arabic. For example, financial field requires skills in calculation. Other disciplines such as astronomy, physics, chemistry and other fields also involve calculation and number. Apart from that, *al-ᶜAdad wa al-Maᶜdũd* is also important in the worship life for Muslims such as saying intention (niyyah) in prayer (Hassan, Yusof, Ghani, & Ismail, 2014). Apart from that, the number of financial institutions from the Arab countries are increasing in Malaysia in the recent years. This situation provides an opportunity for students who master Arabic language particularly those related to calculation and achieve the presumed level that should be involved in the financial institutions.

In Arabic, the topic *al-ᶜAdad wa al-Maᶜdũd* is a topic related to figures and numbers. It is an important topic for students to master. Almost all of the Arabic grammar books discuss the topic *al-ᶜAdad wa al-Maᶜdũd*. For example (Ibn Malik, 1894) has lectured a special topic named *al-ᶜAdad wa al-Maᶜdũd* chapter to discuss this special issue. Modern Arab grammarian such as al-Rajihi, (2008) also put this specific title in his scriptures. Among the importance of learning *al-ᶜAdad wa al-Maᶜdũd* is because it is often used in the daily dealings of human life such as personal identification and family, asking for prices, teaching and learning processes (Maarup & Baharudin, 2016)

Problem Statement
In teaching and learning Arabic language, the aim is to provide students with the necessary skills needed in listening, writing, reading and speaking (KPM). To achieve this goal, the learning of Arabic language must include the Arabic language grammar. However, studies in various levels whether at secondary level or higher education especially in the field of Islamic studies showed that the level of Arabic grammar mastery is weak (Samah, 2009). In fact, the issue of the weaknesses in Arabic language mastery has always been discussed by previous researchers, (Hassan, 2005) and supported by some of the recent researchers (Muhammad, Ahamd & Mat, 2013).

Among the mistakes that are often performed are errors in the aspects of masculine and feminine gender and its number, whether related to the similar gender and number or different gender and varying number (Hashim, 2009). The mastery of gender aspect is among the basic Arabic grammar. If a student does not master this aspect, he has not actually understood the rules of the whole Arabic grammar (Zainal & Abdullah, 2014). Mastery of the gender aspect relates to topic which is often considered to be difficult and confusing for students which is the topic *al-ᶜAdad wa al-Maᶜdũd*. This is because the gender determination factor of *al-ᶜAdad*, which is the figure, depends on the gender of *al-Maᶜdũd* which is the word that is counted (Hussin, 2010).

Apart from that, a study by Hussin, (2010) found that the level of students' mastery on this topic is weak and requires its solution. Among the weaknesses, students are very confused in understanding and learning *al-ᶜAdad wa al-Maᶜdũd*. This confusion resulted in conceptual error for final line changes or *iᶜrãb*, the determination of matching *al-ᶜAdad wa al-Maᶜdũd*, determination of *al-Maᶜdũd* which matches either single word or *jamaᶜ*, and the students are also confused with the function of *al-Maᶜdũd* either *al-Naᶜat* or *al-Tamyidh* or *mudhafun ilaih.* Students are also confused with the types of *al-ᶜAdad* including determining the use of *al-ᶜAdad al-Asliyy* and *al-ᶜAdad al-Tartibiyyi*.

In a study by Tu`aimah, (1986) it was found that among the obstacles which led to students' weak achievement and mastery are related to the grammar curriculum itself, which is filled with unrelated grammatical terms as well as difficult and confusing grammatical terms such as *al-ᶜAdad wa al-Maᶜdũd*. Besides that, there are also obstacles from teachers themselves who are not using modern methods, techniques and approaches in grammar education. Arabic language teachers have more tendency and are influenced by teaching approaches of Islamic boarding schools which is using teacher-centred teaching. Teachers will be the authority who will convey their educational content from the beginning of the class until the end. As the outcome, this type of lesson makes students to become less agile and inactive in voicing their thoughts and views (Samah, 2012).

Students are also found to have difficulties to remember various facts delivered by teachers in the event of solely teacher-centred teaching. There is also possibility where students do not focus on the teaching material even though the teaching material is interesting because it is difficult for them to concentrate to the lesson over a long period of time (Tamuri & Nor , 2015). However, various efforts have been made to facilitate the learning of Arabic language grammar and this effort still continues to date.

Research Objectives
The **objectives** of this research are as follows:
    1.2.1   Identify the level of *al-ᶜAdad wa al-Maᶜdũd* mastery for control and experimental groups before the gamification approach is implemented.
    1.2.2   Compare differences of *al-ᶜAdad wa al-Maᶜdũd* mastery levels between control groups and experimental groups before and after gamification approaches.
    1.2.3   Analyse gender differences in *al-ᶜAdad wa al-Maᶜdũd* mastery between control and experimental groups before and after gamification approach**.**

Research Hypothesis
The following is the null hypothesis tested at a .05 level of significance:
Ho1:   There is no significant difference in the level of *al-ᶜAdad wa al-Maᶜdũd* mastery between the control and experimental group.
Ho2:   There is no significant difference in the level of *al-ᶜAdad wa al-Maᶜdũd* mastery based on gender between the control and experimental group

Literature Review
Gamification Approach in Education
Gamification is a learning approach that includes game elements in the teaching and learning process (Deterding, 2012). This student-centered approach allows students to have a more relaxed and fun learning experience. Studies on gamification approach have been conducted since the year 2012 to date. Gamification approach is closely related to motivation, interest, behavior and achievement of students (Glover, 2013; Hanus & Fox, 2015). However, there is limited number of recent studies on gamification in education especially education that is geared to Arabic language learning (Jasni, Zailani & Zainal, 2019). For the time being, studies are more focused on various other fields including science, mathematics, second language and business (Jaafar, 2018).

In addition, there are also studies that show game-based learning can make students enjoy playing while learning and can accelerate the learning process and create an interesting and entertaining learning atmosphere (Hassan & Poopak, 2012). Studies also show that game-based learning can increase cognitive level capability such as attention skill, increased memory capacity, ability of working memory for storage and manipulating space images, speed result-making, and performing tasks (Tobias, Fletcher, Bediou, Wind, & Chen, 2014).

However, if the gamification process is not planned and developed by observing cognitive development as well as learning goals and objectives, these game-based learning methods will not achieve learning objectives and might bring negative effects such as waste of time. Consequently the objectives and syllabus would fail to be conducted according to the prescribed curriculum.

Among the basic elements of gamification are having mechanical, dynamic and aesthetic values (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). The mechanics consist of game components that function as points, challenges, stages, charts, badges, gifts and virtual goods. The dynamics describes the behavior during mechanics acts upon player inputs and other outputs from time to time (Zichermann & Cunningham, 2011). For example, dynamic of games are reward, status, achievement and competition. Meanwhile aesthetic is related to the player's emotional reaction when interacting with game rules. That is often associated with satisfaction, pleasure, envy, respect, and relationships.

Effective gamification in education has several features, i.e., (a) has a clear educational objective, (b) provides challenges and satisfaction through victory, (c) has interesting colors, (d) has clear organisation, (e) contains clear and concise instructions, and (f) promotes player engagement interactively (Moncada & Moncada, 2014).

Hence, a solution which can be implemented to improve students' mastery in the topic *al-ᶜAdad wa al-Maᶜdũd* would be by using the gamification approach. The gamification approach is identified as an alternative to the effective use of teaching materials. This study would like to observe the effectiveness of gamification and traditional teaching and learning approaches to the mastery of *al-ᶜAdad wa al-Maᶜdũd* among students.

Methodology
Research Design
This is a quantitative study with quasi-experimental design involving students in an existing classroom (Cresswell, 1994). This study involves two groups of students. Respondents in this study are divided into one experimental group and one control group; in which the experimental group was using gamification approach and the control group was using traditional approach. The quasi-experimental research design utilised in this study is pre- and post- imbalanced group test. In actual experiments, samples must be randomly selected from the population and distributed to groups so that each group is balanced from all aspects. However, in this study, the balance between these groups could not be fully controlled. In the field of education, equilibrium is usually unable to be controlled (Campbell & Stanley, 1966). This quasi-experimental research design is conducted to view the effectiveness of an intervention programme or teaching method. The research design is as seen in Table 1.

TABLE 1: Quasi Experimental Design (Source: Campbell, D. T., 1973)

Experimental Group (Gamification Approach)	Pre Test	X*	Post Test
Control Group (Traditional Approach)	Pre Test	Y*	Post Test

X*: Teaching using gamification approach

Y*: Teaching using traditional approach

Research Sample

The researchers utilised purposive sampling in order to select Form 6 students in the school involved in this study. The number of respondents for experiments such as this study were not less than 30 persons per group (Aguinis & Bradley, 2014). Therefore, this research involves 60 students in Maahad Ahmadi Gemencheh. Two classes of Form 6 students were treated as respondents in the study. There are 30 students in each group. The experimental group consists of 10 male students and 20 female students. Meanwhile the control group consists of nine male students and 21 female students. Both groups are of equal competencies and have similar results in the examination.

Research Instrument

To obtain the research data, the researchers used two types of instruments to achieve the objectives of this study. The instrument are a set of Pre- and Post-test questions and gamification of *al-ᶜAdad wa al-Maᶜdũd*.

Test question

The researchers have developed test questions related to *al-ᶜAdad wa al-Maᶜdũd* which consists of 50 questions. Pre-test and post-test questions were given to the respondents of the experimental group and control group before and after the learning session. All questions include five (5) constructs surveyed by the researchers which are *al-ᶜAdad al-Mufrad*, *al-ᶜAdad al-Murakkab*, *al-ᶜAdad al-Maᶜtuf*, *ᶜAdad al-ᶜUqũd* dan *al-Maᶜdũd* as shown in Table 2 as below:

Table 2: Item Distribution of Test Questions

Question	Construct Name	Answer Type	Number of Item	Total marks
Question 1-10	*Al-ᶜAdad al-Mufrad*	Multiple choice	10	20
Question 11-20	*Al-ᶜAdad al-Murakkab*	Multiple choice	5	20
		and structure	5	
Question 21-30	*al-ᶜAdad al-Maᶜtuf*	Multiple choice	5	20
		and structure	5	
Question 31-40	*ᶜAdad al-ᶜUqũd*	Multiple choice	5	20
		and structure	5	
Question 41-50	*al-Maᶜdũd*	Multiple choice	5	20
		and structure	5	
		Total	50	100%

Students of the treatment group were exposed to gamification approach. Meanwhile the students of the control group used traditional approach that are often used in the teaching and learning process. Pre-test tests were conducted on students to test and measure their level of mastery. Then students

were taught and exposed with the learning content within six learning sessions and it was ended with post-test. The post test items are the same as carried out in pre-test, however positions of some items were changed to avoid recognition and bias. In this study, the gamification and traditional approach utilised were the independent variable, while the level of student mastery as the dependent variable.

Gamification of *al-ᶜAdad wa al-Maᶜdũd*
Gamification approach proposed in this study is conducted in order to incorporate the basic element of gamification in the process of teaching and learning which are mechanical, dynamic and aesthetic. The element was applied and adapted from a game of snake and ladder which is very popular among students (Nazari et al., 2012). The procedures of the snake and ladder game adapted are the same as the original snake and ladder game. Game elements found in *al-ᶜAdad wa al-Maᶜdũd* gamification are as found in Figure 1 as below:

Gamification Element	Statement
Mechanic	
	Snake and Ladder (virtual item), Flashcards
Dynamic	Reward
	Ladder: symbolises goodness and the reward is the ability to reach higher number.
	Snake: symbolises negativity and as punishment, player will go to lower number.
Esthetic	Persistence, desire to end the game (competition), respect, satisfaction.

Figure 1: Game Element in al-*ᶜAdad wa al-Maᶜdũd* Gamification

The following are the steps and adaptation of *al-ᶜAdad wa al-Maᶜdũd* gamification development:
Step 1 Determine aim and objective
Establish the objective of the game to meet the topics of *al-ᶜAdad wa al-Maᶜdũd* in which students understand the topic *al-ᶜAdad wa al-maᶜdũd* in relation to al-cAdad al-Mufrad, al-cAdad al-Murakkab, al-cAdad al-Mactuf and cAdad al-cUqũd in gender determination as well as the determination of *al-Maᶜdũd* single-word or *jama'* word. The assessment of *al-ᶜAdad wa al-Maᶜdũd* mastery is based on pre- and post-test questions given before and after the teaching and learning of *al-ᶜAdad wa al-Maᶜdũd* conducted.
Step 2 Game space
This gamification is adapted from the original snake and ladder game which is very popular among students. The grid space on the figure is used as the basis and space for the game.
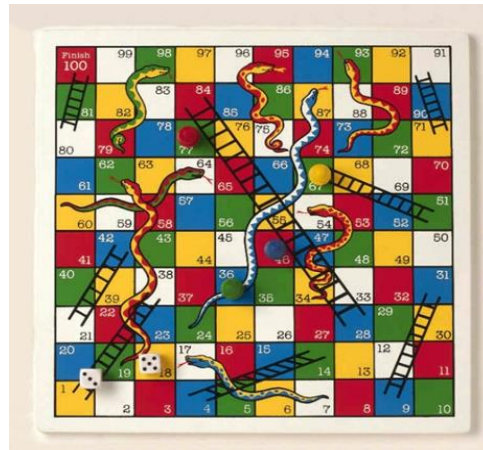
Figure 2: Original Game Space Grid

After the grid space to be used is identified, the researchers change the colour of the grid area. The colour of grid space is changed to purple, green, yellow and pink. These colors represent the objective of *al-ᶜAdad wa al-Maᶜdũd* learning which are to enable students to determine *al-Maᶜdũd* to be either a single word or *jama'* word.

   I.   Purple is *al-Maᶜdũd* to follow *al-ᶜAdad* either single or dual word.
  II.   Green is for *al-Maᶜdũd* (*jamaᶜ majrũr*)
 III.   Yellow is for *al-Maᶜdũd* (*mufrad mansuũb*)
  IV.   Pink is for *al-Maᶜdũd* (*mufrad majrũr*).
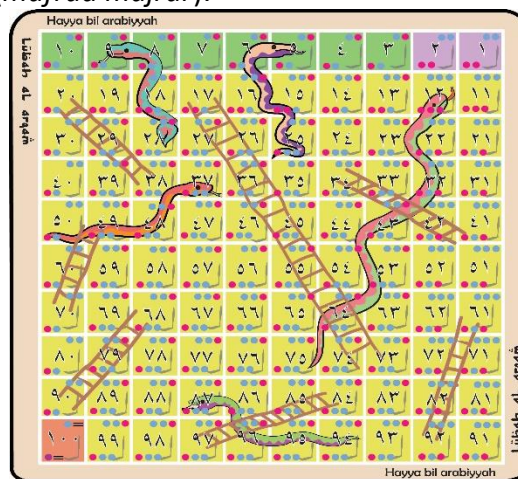
Figure 3: Grid Space of *al-ᶜAdad wa al-Maᶜdũd* Gamification

The game starts at the top right, which is in line with the Arabic language writing that begins from the right. After the colour of the grid area are set, researchers include colour elements in the number spaces for masculine and feminine gender determination. Small circles which are blue and pink in colour are placed in the number spaces. Blue represents the masculine and pink represents the feminine gender. Through these colours, students can determine the gender for *al-ᶜAdad al-Mufrad*, *al-ᶜAdad al-Murakkab*, al-cAdad al-Mactuf and cAdad al-cUqũd.

Figure 4 shows blue and pink coloured flashcards which acts as *al-Maᶜdũd*. Blue represents *al-Maᶜdũd* for masculine gender and pink represents *al-Maᶜdũd* for feminine. When the player arrives at any

number, he will take a flashcard that represents *al-Ma^cdũd*. If the player takes a blue or pink card, he must select the correct al-cAdad to be written.
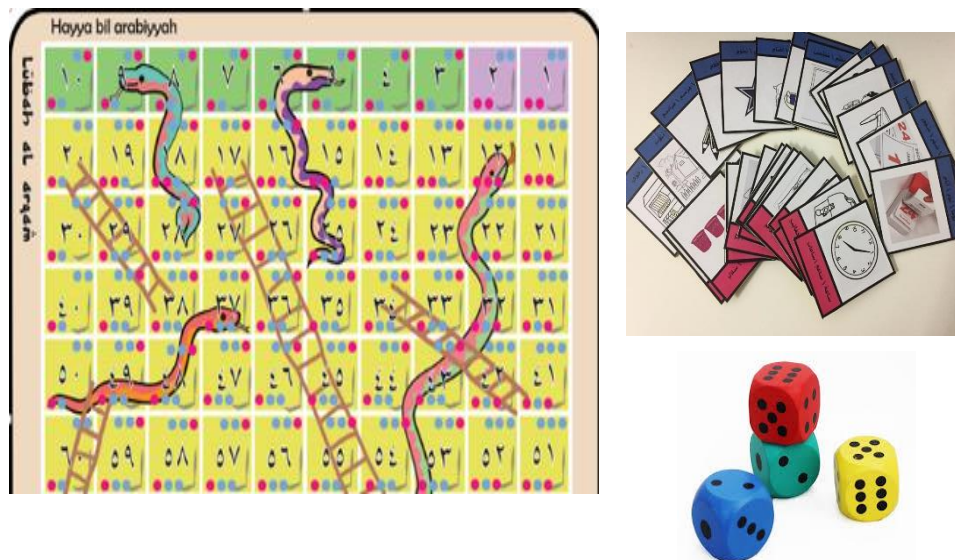

Figure 4: *al-^cAdad wa al-Ma^cdũd* Gamification

Result and Discussion
Analysis of *al-^cAdad wa al-Ma^cdũd* Mastery Level
Objective 1:   Identify the level of *al-^cAdad wa al-Ma^cdũd* mastery for control and experimental groups before the gamification approach was conducted.
To answer the objectives of this study, researchers have analysed the students' achievement score based on pre-test. Researchers have conducted a descriptive test to determine the frequency, percentage and mean, in order to analyse the test achievement score and consecutively determine the level of *al-^cAdad wa al-Ma^cdũd* mastery.

The mastery of *al-^cAdad wa al-Ma^cdũd* among the respondents in control group is at low level based on pre-test score with total mean value for *al-^cAdad al-Mufrad* pre-test score at 7.47, *al-^cAdad al-Murakkab* 7.60, *al-^cAdad al-Ma^ctuf* 8.13, *^cadad al-^cUqũd* 9.13, *al-Ma^cdũd* 6.20 and the total score for *al-^cAdad wa al-Ma^cdũd* pre-test score is 38.47. Pre-test score for each *al-^cAdad wa al-Ma^cdũd* section is as stipulated in Table 3 as follow:

Table 3:   Pre-test Score of *al-^cAdad wa al-Ma^cdũd* (Control Group)

Control Group Respondent N=30	Score *Al-^cAdad al-Mufrad* (20M)	Score *al-^cAdad al-Murakkab* (20M)	Score *al-^cAdad al-Ma^ctuf* (20M)	Score *^cadad al-^cUqũd* (20M)	Score *al-Ma^cdũd* (20M)	Total Score (100M)
Mean	7.47	7.60	8.13	9.13	6.20	38.47

Overall, the mastery of *al-^cAdad wa al-Ma^cdũd* among respondents in experimental group is at low level based on the pre-test score in which the total mean score obtained for pre-test of *al-^cAdad al-*

Mufrad is 7.33, al-*ᶜAdad al-Murakkab* 8.53, al-*ᶜAdad al-Maᶜtuf* 9.27, *ᶜadad al-ᶜUqũd* 8.13, al-*Maᶜdũd* 6.40 and overall score for pre-test of al-*ᶜAdad wa al-Maᶜdũd* is 39.67. Pre-test and distribution score are as stipulated in Table 4 below.

Table 4: Pre-test Score of *Al-ᶜAdad wa al-Maᶜdũd* (Experimental Group)

Experimental Group Respondent N=30	Score *Al-ᶜAdad al-Mufrad* (20M)	Score al-*ᶜAdad al-Murakkab* (20M)	Score al-*ᶜAdad al-Maᶜtuf* (20M)	Score *ᶜadad al-ᶜUqũd* (20M)	Score al-*Maᶜdũd* (20M)	Total Score (100M)
Total	220	256	278	244	192	1190
Mean	7.33	8.53	9.27	8.13	6.40	39.67

Overall, Table 3 and Table 4 have shown the total pre-test score for respondents in control and experimental groups. Mean score for the overall pre-test of control group is 38.47 and for experimental group is 39.67. This shows that the achievement of al-*ᶜAdad wa al-Maᶜdũd* for experimental group is at a low level. Hence, the finding of the mean scores between control and experimental group proves that the level of mastery of al-*ᶜAdad wa al-Maᶜdũd* is at low level. The score 38.47 and 39.67 are in the range of less satisfying group (KPM, 2010). This means that the ability and capability of respondents of both groups is equal prior to the teaching and learning of al-*ᶜAdad wa al-Maᶜdũd* through gamification implementation. The frequency distribution and percentage of al-*ᶜAdad wa al-Maᶜdũd* for both groups are as below.

Analysis of Difference in *al-ᶜAdad wa al-Maᶜdũd* Mastery between Control and Experimental Groups
Objective 2: Comparing the differences of al-*ᶜAdad wa al-Maᶜdũd* mastery level between control and experimental groups before and after the gamification approach.
The table below shows the distribution of al-*ᶜAdad wa al-Maᶜdũd* mastery level of control and experimental groups after treatment was given.

Table 5: Mastery Level of *al-ᶜAdad wa al-Maᶜdũd* (Exprimental and Control Group)

Group/score	Score				
	0-39 (%)	40-55 (%)	56-70 (%)	71-84 (%)	85-100 (%)
Control	16 (53.3%)	14 (46.7%)	0	0	0
Experimental	0	0	0	7 (23.3%)	23 (76.7%)

Table 5 shows the al-*ᶜAdad wa al-Maᶜdũd* overall mastery distribution for control and experimental group in the form of frequency and percentage after treatment was given. Based on the schedule, it is evident that majority of the students in control group is weak level at the score of 0-39% with a total of 16 students (53.35). Meanwhile, 14 students (46.7%) are at the score between 40-55%. In the experimental group, majority of the students scored high with 23 students (76.7%) scoring between 85-100%, whilst 7 students (23.3%) scored between 71-84%. This explains that the mastery of al-*ᶜAdad wa al-Maᶜdũd* in the experimental group is higher than the control group. The following shows the differences in the mastery of al-*ᶜAdad wa al-Maᶜdũd* among respondents of the control and experimental groups.
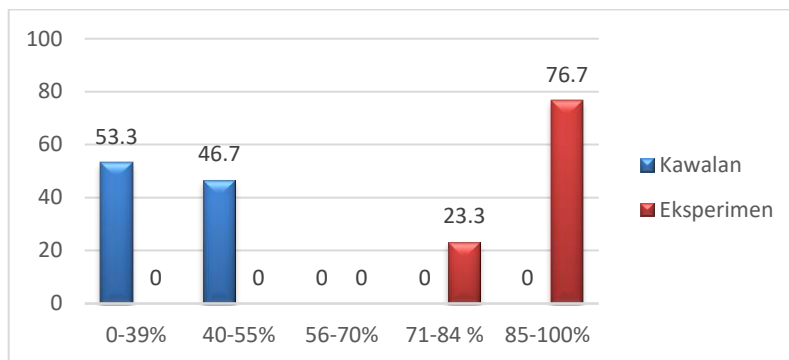
Graph 1:   Difference of *al-ᶜAdad wa al-Maᶜdũd* Mastery

Subsequently, the researcher analysed the findings in order to answer hypothesis (Ho1) formulated. To answer Hypothesis 1:

(Ho1): There is no significant difference in the mean score of *al-ᶜAdad wa al-Maᶜdũd* mastery between experimental and control group.

Data analysis uses independent sample t-test, mean score of pre- and post-test of *al-ᶜAdad wa al-Maᶜdũd* among students in experimental group that utilises gamification approach and control group that do not utilise the gamification approach as follows:

Table 6: Mean score, Standard deviation and Independent Sample t-test Total Score in Pre- and Post-Test of Control and Experimental Group

Mastery of *al-ᶜAdad wa al-Maᶜdũd*	Group N=30	Mean	Standard deviation	Mean diff	t value	Df	Sig. P<.05
Pre test	Control	38.47	10.342				
	Experimental	39.67	7.902	1.067	.449	58	.655
Post test	Control	56.07	9.105	33.33	17.588	58	.000
	Experimental	89.40	4.987				

*t-critical= 2.009, df=58,2-end, p<.05

Based on Table 6 above, *al-ᶜAdad wa al-Maᶜdũd* mastery level for control group is based on the pre-test finding mean score and standard deviation 38.47 and 10.342. Meanwhile the mean score and standard deviation for the experimental group were 39.67 and 7.902. Statistical results show the t-value is .449, with a freedom rate of 58 and a significant p value greater than .05. Due to the t-value .449 is smaller than t-critical 2.009 and its significant value .655 is greater than the significant level .05, hence the statistical finding showed no significant difference in the pre-test mean score of *al-ᶜAdad wa al-Maᶜdũd* between control group and experimental group.

For the post-test of *al-ᶜAdad wa al-Maᶜdũd*, mean score and standard deviation for control group is 56.07 and 9.105. Meanwhile the mean score and standard deviation for the experimental group were 89.40 and 4.987. Statistical results show the t-value is 17.588 with a freedom rate of 58 and a

significant p value greater than .05. Due to the t-value 17.588 is greater than t-critical 2.009 and its significant value .000 is smaller than the significant level.05, hence the statistical finding showed a significant difference in the post-test mean score of *al-ᶜAdad wa al-Maᶜdũd* between control group and experimental group. This means that null hypothesis (Ho1) is rejected.

In conclusion, the analysis findings proved that the level of *al-ᶜAdad wa al-Maᶜdũd* mastery among the respondents in experimental group who utilised the gamification approach in learning *al-ᶜAdad wa al-Maᶜdũd* showed a significant increase than the control group that did not use the gamification approach in learning *al-ᶜAdad wa al-Maᶜdũd.*

Analysis of Gamification Approach based on Gender
Objective 3: Analyse the difference of *al-ᶜAdad wa al-Maᶜdũd* mastery level based on gender between control group and experimental group before and after the gamification approach.
(Ho2) There is no significant difference in the level of *al-ᶜAdad wa al-Maᶜdũd* mastery based on gender between control group and experimental group.
Data analysis utilising independent sample t-test, the mean score of pre- and post-test of *al-ᶜAdad wa al-Maᶜdũd* among students in control group based on gender as shown in Table 7.

Table 7: Mean score, Standard deviation and Independent-Sample t-test of Control Group in Pre and Post Test based on Gender

Mastery of *al-ᶜAdad wa al-Maᶜdũd*	Gender	Mean	Standard deviation	t-value	Df	Sig. P<.05
Pre-test	Male	37.56	9.262	.243	28	.810
	Female	38.57	10.975			
Post-test	Male	56.00	7.348	.026	28	.977
	Female	56.10	9.929			

*t-critical= 2.045 , df= 28, 2-end, p<.05

According to Table 7, the level of *al-ᶜAdad wa al-Maᶜdũd* mastery of for male student in control group based on pre-test findings, mean score and standard deviation is 37.56 and 9.262, while the mean score and standard deviation of pre-test for female students is 38.57 and 10.975. The statistical results show the t-count value is .243 with a degree of freedom 28 and a significant p-value to be greater than .05. Due to the t-count value .243 smaller than t-critical 2.045 and its significant value .810 greater than a significant level of .05. Hence the results of statistics show that there is no significant difference in the mean score for the pre-test of *al-ᶜAdad wa al-Maᶜdũd* between male students and female students of the control group.

For post-test, the level of *al-ᶜAdad wa al-Maᶜdũd* mastery for male students was 56.00 and a standard level of 7.348. Meanwhile the mean score and standard deviation for female students were 56.10 and 9.929. Statistical results show the t-count is .026. The value is smaller than the t-critical value of 2.045 with a significant value .977, greater than a significant level of .05. Based on the statistics, there is no significant difference in the mean score of *al-ᶜAdad wa al-Maᶜdũd* post-test between male students with female students of the control group.

Table 8: Mean score, Standard deviation and Independent-Sample T-Test of Experimental Group in Pre- and Post-Test based on Gender

Master of al-ᶜAdad wa al-Maᶜdũd	Gender	Mean	Standard deviation	t-value	Df	Sig. P<.05
Pre-test	Male	41.40	10.157	1.013	28	.320
	Female	38.30	6.562			
Post-test	Male	88.00	4.714	-1.091	28	.285
	Female	90.10	5.088			

*t-critical= 2.045, df= 28, 2-end, p<.05

Table 8 shows that the level of al-ᶜAdad wa al-Maᶜdũd mastery for male student in experimental group based on pre-test findings, mean score and standard deviation obtained is 41.40 and 10.157. Meanwhile, the mean score and standard deviation of the pre-test for female students is 38.30 and 6.562. The statistical result shows the t-count value is 1.013 with a degree of freedom 28 and a significant p-value to be greater than .05. Due to the t-count of 1.013 smaller than t-critical 2.045 and its significant value .320 greater than the significant level of .05, hence the statistical analysis showed that there was no significant difference in the mean score of al-ᶜAdad wa al-Maᶜdũd pre-test between male students and female students of experimental group.

For post-test, the level of al-ᶜAdad wa al-Maᶜdũd mastery for male students is a mean score of 88.00 and standard deviation 4.714, while the mean and standard deviation score for female students is 90.10 and 5.088. Statistical results show the t-value is -1.091. Due to the t-count of -1.091 is smaller than t-critical 2.045 and significant value of .285 is greater than the significant level of .05, hence the analysis of the statistics shows that there is no significant difference of al-ᶜAdad wa al-Maᶜdũd post-test mean score between male and female students of the experimental group. Therefore, the null hypothesis (Ho2) is accepted.

Discussion
Based on study conducted on Form 6 students in learning al-ᶜAdad wa al-Maᶜdũd through gamification and traditional approach, both of these approaches have differences on effectiveness. Based on the results of pre-test findings, both groups have almost the same level of mastery and experience. This is proven based on the findings of the study showing that there is no significant difference in the mean score of pre-test conducted between experimental groups and control group.

After six teaching and learning sessions, all students in the experimental and control group were assessed through post exams. Study findings have shown that the level of mastery among students in the experimental group using the gamification approach had highly increased compared to the control group which was using the traditional approach.

This clearly suggests that gamification approach brings advantages in comparison to the traditional approach practiced previously. This study is in line with the findings of the study on "Gamification approach in Teaching and Learning towards Form Two Students for the Topic Algebra" which found

that gamification approach is effective in enhancing students' mastery in the topic algebra because this approach can help students to become more active, self-confident and improve thinking skills (De Sousa, Durelli, Reis, & Isotani, 2014). The findings of this study is in line with studies that find learning through gamification approach has successfully increased achievements in learning various fields (Putih & Ali, 2011)

The gamification approach also makes students understand the learning content better. Students will try their best to understand the concept or content of the lesson in order to answer questions and match their friends who have points in the snake and ladder game. When students can understand the concept of *al-ᶜAdad wa al-Maᶜdũd* and repeatedly answer questions related to gender determination of *al-ᶜAdad* and the determination of *al-Maᶜdũd*, this will indirectly increase their level of understanding regarding the topics learnt. In line with the findings of other studies, students can understand the concept of *al-ᶜAdad wa al-Maᶜdũd* more easily. Parallel with previous study (Putih & Ali, 2011) the students who were actively involved had better mastery and understanding of the topics.

For differences in the mastery of *al-ᶜAdad wa al-Maᶜdũd* based on gender between respondents in control group and experimental group before and after the gamification approach, the findings showed that there were no significant difference in the mastery of *al-ᶜAdad wa al-Maᶜdũd* between male and female students before and after the learning of *al-ᶜAdad wa al-Maᶜdũd* was conducted.

Students' intelligence is difficult to be identified based on biological factors such as gender. This is because every individual has different intelligence level. In order to overcome the imbalance in the level of achievement among male and female students, teachers play important roles in making obvious changes to the teaching and learning process so that it is more effective (Jelas et al., 2014).

Considering the study objectives on the differences of mastery level based on gender for both groups, the study findings showed that there were no significant differences in the mastery of *al-ᶜAdad wa al-Maᶜdũd* in the pre- and post-tests between male and female students. This finding supports the statement by Yusof and Azman, (2018) which stated that the role of learning support is important to actively engage students in the teaching and learning process. This will indirectly be able to reduce the imbalance of the achievement level between male and female students. From the theoretical aspect, this study clearly supports the learning theory by Vygotsky (1978) which emphasises that the students' knowledge is built on experience, active learning and the use of teaching materials as teaching aid tool for more effective learning. The findings also showed that the gamification approach is suitable for students of different academic and personality abilities.

Conclusion and Recommendations Required
Based on the overall findings, the study formulates that students who learn by using gamification approach will have a positive impact on the learning. This situation can be seen as there is an increase in *al-ᶜAdad wa al-Maᶜdũd* mastery score for students who learn through gamification approach in comparison to the traditional approach learning. This study also shows that this approach is more effective than traditional teaching and learning. If this gamification approach is expanded it will be able to produce creative, innovative and competitive students and further improve the achievement

in Arabic language. Therefore, with this approach, teachers can change the teaching and learning approach by making it more effective.

The findings of the study have shown that the gamification approach is practically suitable for use in the topic of *al-ᶜAdad wa al-Maᶜdũd*. Student mastery analysis for gamification approach showed that student achievement score has increased positively. Therefore, this study found that learning outcomes are better and suitable for use in learning difficult and confusing topics in Arabic. However, this gamification of *al-ᶜAdad wa al-Maᶜdũd* is more effective for determining the gender of *al-ᶜAdad wa al-Maᶜdũd* and less helpful for *al-Maᶜdũd* mastery.

From a theoretical aspect, this study clearly supports Vygotsky's (1978) theory of learning, which emphasizes that students' knowledge is built on experience, active learning and the use of teaching materials as teaching aids for teachers to learn more effectively. The findings also show that this gamification approach is suitable for students with different academic abilities and personalities. Therefore, it is hoped that this study will be able to increase teachers' confidence in learning methods using gamification approach and the role of teachers as facilitators and best facilitators for students. This study is expected to benefit various parties, especially Arabic language teachers and students who are learning Arabic itself.

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