# Effect of Increase in Allotted Time on Game Playing Performance: Case Study of an Online Word Game

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## Abstract

*Online game players tend to differ in the duration of time they play. However, no matter whether the time on playing an online game is spent positively or negatively, we may assume that when the duration of each online-game round is increased, players tend to engage in more interaction with their opponents. Though there are a significant number of research studies on time usage in computer games, there is no research exploring the direct effect of time on online game playing performance. As a result, this research aims to investigate the effect of time on player performance based on the case of an online word game. Ninety-three online word games (186 players) were randomly observed via the biggest online board game website in Thailand. The results show that an increase in time does not have effect on players' performance. The managerial implication for further development is that webmasters may consider offering only time restricted games for players to avoid high traffic in websites; which, in effect will certainly solve the problem of lag time in online gaming.*

**Keywords:** Time, computer game, online game, game playing performance, word game, online word game

## *1. Characteristics of Time in Computer Game and Online Word Game*

Time is a fundamental element of our daily life. Whatever mission we want to accomplish, we do need a sufficient time to achieve our goals. Individual uses and perceives time differently. For example, waiting for bus when already being late, time may be perceived as passing very slow (Luthman, Bliesener, Staude-Müller 2009). For virtual world like Second Life, Harris, Bailenson, Nielsen, and Yee (2009) claim that as time go by, Second Lifers spend more time in populated areas, make more friends, and joined more groups. Similar to the case of computer game, a study by Andersen, Zeng, Christensen, and Tran (2009) indicates that in a real-time strategy (RTS) game player needs to observe opponent's behavior and uses proper stratagems in order to win game in the given time. This kind of time usage is considered as positive because it arouses player to think more to win the game. But on the other hand, when playing an online game, losing track of time can shape player to become addicted on game or even missing his/her appointment (Luthman et al. 2009). Lemmens, Valkenburg, and Peter (2011) also support that time spent playing violent games specifically can increase physical aggression.

But however, no matter what the time on playing an online game is spent positively or negatively, we may assume that when the time in each online-game round is increased, players tend to perform more interaction with the opponent player (e.g. having more turn to play, more time to generate a better strategy, and so on). Nonetheless, though there is the number of research studies on time usage in computer game, but somehow, there is no research explores the direct effect of time given on game playing performance, especially online game. As a result, this research aims to investigate the effect of time given on player performance based on the case of online word game (Scrabble or so called Crossword in Thailand). Online games become a popular activity throughout the world. Adults tend to play online game as well as youths (Rau, Peng, and Yang 2006). Traditional word game like Scrabble which people used to play on wooden or plastic board is now available online via Facebook, Thaibg, and etc. For some websites, players need not to pay when playing Scrabble online.

Nevertheless, it may come to someone's mind that what Scrabble is. Scrabble was invented by American architect, Alfred Butts (BBC 2010; CBS 2010). It is a game which two to four players score points by forming words whereas the words are formed across and down in crossword fashion and must appear in a standard dictionary (Wikipedia 2011). In one game, there will be 100 alphabet tiles available for both players. Players try to obtain the highest points by making words on a grid board (BBC 2010). Player may obtain 50 score bonus by putting seven alphabets or more simultaneously (so called Bingo) such as RETINA, RETSINA, TSARINA, SENIORS, SEQUOIA, ISOTONES, ISATINES, STYLIZERS, NUMEROUSLY, and etc. But however, by combining additional alphabet(s) with the existing word on the board (e.g. combining ISO with existing word TONE to become seven-alphabet ISOTONE), this case is not considered as Bingo. Therefore, to gain the points as high as possible, player needs to do many Bingos to win over his/her opponent. That is, player is required to manage his/her time efficiently to finish the game on time while performs a good score.

In case of Thaibg.com that authors will use as a platform for this study, authors have found that before beginning the game, player is allowed to take one from six options of game time. There are 2/15 (two minutes per one turn plus additional 15 seconds), 5/30 (five minutes per one turn plus additional 30 seconds), 10/60 (ten minutes per one turn plus additional 60 seconds), 5/0 (five minutes per one game with no additional time), 12/0 (12 minutes per one game with no additional time), and 22/0 (22 minutes per one game with no additional time). Researchers set these two options into two categories, playing with time allocation (2/15, 5/30, and 10/60) and playing with no time allocation (5/0, 12/0, and 22/0). As a result, from this literature reviews, here are our research questions:

**Research Questions:** By allocating more time for each Scrabble game, will player tend to generate more words in each turn or not? Moreover, should the webmaster of Thaibg offer Scrabble/Crossword games with time allocation option (2/15, 5/30, and 10/60) or not? Why, what is the benefit, and how?

## *2. Research Methodology*

This research is a descriptive research using quantitative data to which observation is applied to give us a greater understanding of the effect of time on game playing performance. Ninety-three Scrabble games (186 players) were randomly observed via the biggest online board game website in Thailand, *www.thaibg.com*, in Scrabble (Crossword) category. The rooms those were observed are Practice 1, Practice 2, Practice 3, Practice 4, and Practice 5. The observation started from 18th January 2011 (12:30 AM) until 21st January 2011. The player performance will be investigated based on the longest word played in each game.

## *3. Findings*

Since there are 100 alphabet tiles available each game, Scrabble with two players and each player plays a word with an average of five-alphabet long will have possible ten turns available for each players. In Thaibg.com, the game will automatically end when the remaining time (RT) less than one second. From this situation, we may assume that:

$$MTP = T(TT + AT)$$

**Whereas:**
MTP = Maximum time played for each Scrabble game in Thaibg.com
T = Turns in each game
TT = Time available in second for each turn
AT = Additional time in second for each turn

**Therefore, we can calculate MTP for each option:**

MTP of 2/15 = T(TT + AT)
= (10)(120 + 15)
= 1350 seconds = 22 minutes 30 seconds per game

MTP of 5/30 = T(TT + AT)
= (10)(300 + 30)
= 3300 seconds = 55 minutes per game

MTP of 10/60 = T(TT + AT)
= (10)(600 + 60)
= 6600 seconds = 110 minutes per game

MTP of 5/0 = T(TT + AT)
= (1)(300 + 0)

= 300 seconds = 5 minutes per game

MTP of 12/0 = T(TT + AT)
= (1)(720 + 0)
= 720 seconds = 12 minutes per game

MTP of 22/0 = T(TT + AT)
= (1)(120 + 0)
= 1320 seconds = 22 minutes per game

Furthermore, table 1 shows the summary of overall game observed via Thaibg.com. The total of 93 games (2 players per game) was observed. The player performance will be judged on the longest word played in each game. Time restrictions on each game were categorized as time allocation game and no time allocation game.

| Performance (Longest Word Played) | Time Allocation | No Time Allocation |
|---|---|---|
| **≤ Six Alphabets** | 26 | 23 |
| **Seven Alphabets** | 19 | 13 |
| **≥ Eight Alphabets** | 8 | 4 |
| **Total Games** | 53 | 40 |
| **Overall Observed** | 93 Games (186 Players) | |

**Table 1: Overall Game Observed**

Pearson Chi-Square was used to determine on our research question. Since the Chi-Square test value (.657) exceeds p-value at .05, therefore, this result answers our research question that by allocating more time for each Scrabble game, player will not tend to generate more words in each turn. Therefore, an increase in time does not have effect on players' performance. Table 2 is the summary of the result.

| | Asymp. Sig. |
|---|---|
| **Pearson Chi-Square** | .657 |
| **Number of Valid Cases** | 93 Games (186 Players) |

**Table 2: Summary of the Result**

## *4. Discussion, Managerial Implications, Limitation, and Future Research*

Many online game players have problems controlling their playing time as well as they cannot stop playing a game that they have pleasure with (Rau et al. 2006). But however, playing game also has positive sides such as pressure relief, enjoyment, and so on. A study by Rau et al. (2006) mentions that the more time players play games, the more improvement in their skills has shown. For the managerial implication, webmaster may offer only no time allocation game such as 5/0, 12/0, and 22/0 in order to avoid high website traffic. The limitation of this research is that the sample observed is only 93 games. It therefore is not enough to represent the whole population. Moreover, even though the observation took a period of three days, but the author did not observe for the whole day or whole night. That is, some games might be overlooked. The future research should study more about player performance such as score obtained in given time, frequency of turn played in each game, and etc.

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