The Minimal English Test: The "100 Square Calculation" Effect

NIIMUMA Fumikazu and MAKI Hideki

1. Introduction

Maki and Niinuma (2003) first showed that repetitive administration of the Minimal English Test, originally developed by Maki, Wasada, and Hashimoto (2003), to Japanese ESL learners has an effect of improving their English proficiency. This was also reconfirmed by Maki, Hasebe, and Dunton (2011), who administrated three different versions of the MET, and they showed that the MET has the "practice makes perfect" effect. The purpose of this paper is to reconfirm their claim by administrating a different version of the MET (MET2011), to other Japanese ESL groups.

In this paper, we used the 10 tests of MET2011, and investigated the learners' improvement of English proficiency by administrating the 10 tests of MET2011 to English learners at a university in Japan. We administrated the MET 11 times in the order of Test 1 of the MET, Test 2 of the MET, ⋯, Test 10 of the MET, and Test 1 of the MET again. We found a statistically significant difference between the scores on Test 1 of the MET that they took for the first time and the scores on Test 1 of the MET that they took after they had taken 10 version of the MET.

The organization of this paper is as follows. Section 2 is an overview of the materials and the methodology of this research. Section 3 analyzes the data, and Section 4 reports the results. Finally, Section 5 concludes the paper.

2. Materials and Methodology

Section 2.1 gives an overview of the 2011 version of the Minimal English Test (MET 2011), and Section 2.2 states the methodology of the present research.

2.1. Materials

Maki, Wasada, and Hashimoto (2003) originally developed the Minimal English Test (MET) based on the textbook for university 1st year students written by Kawana and Walker (2002) and the CD that accompanies it. The MET requires the test taker to write a correct English word with 4 letters or fewer into each of the 72 blank spaces of the given sentences, while listening to the CD. Since 2003, the Maki Group has found statistically significant correlations between the scores on the MET, a 5-minute English test, and the scores on the English Section of the University Entrance Examinations (UEEs) in Japan from 2002 to 2009 (.59<r<.72). See

Maki (2010) and Goto, Maki, and Kasai (2010) for the details of the MET.

However, the problem with the MET was why the target words were 4 letters or fewer. In order to avoid this, Maki (2011) developed a new version of the MET, where every 6th word was a target word. Furthermore, for the convenience of test takers, they added an example before taking the MET, and the first blank was located in 5 words later (in the original MET, the first blank corresponds to the second word of the sentences).

The MET2011 is also based on the textbook written by Kawana and Walker (2002) and the CD that accompanies it. It requires the test taker to write a correct English word into each of the 59 blank spaces of the given sentences, while listening to the CD. The MET2011 was designed along the rules in (1) :

(1)　　　Rules
　　　　a.　　　Every 6th word is left blank in the MET2011.
　　　　b.　　　Japanese words, years, and unpronounced words in parenthesis are ignored.

Rule (1 a) means that the MET2011 has the form of a cloze test, where every 6th word is left blank, no matter how many letters the word may consist of.

The test 1 of the MET2011 is shown below :

Test 1 of the Minimal English Test of MET2011

Name : _____　Date : Month____Day____Year_____

Example : Please fill an English word into each blank spot, while listening to the CD.

1. Ms. Green, this is my (　　　) Mike. He's from Australia.
2. Mike, (　　　) is Ms. Green. She's our (　　　) English teacher.

Please fill an English word into each blank spot, while listening to the CD.
1. The majority of people have (　　　) least one pet at some (　　　) in their life.
2. Sometimes the (　　　) between a pet dog or (　　　) and its owner
3. is so (　　　) that they begin to resemble (　　　) other in their appearance
4. and (　　　). On the other hand, owners (　　　) unusual pets
5. such as tigers (　　　) snakes sometimes have to protect (　　　) from their own pets.
6. Thirty (　　　) ago the idea of an (　　　) pet first arose.
7. This was (　　　) pet rock, which became a (　　　) in the United States
8. and (　　　) to other countries as well. (　　　) paid large sums of money
9. (　　　) ordinary rocks and assigned them (　　　).
10. They tied a leash around (　　　) rock and pulled it down (　　　) street just like a dog.
11. (　　　) rock owners even talked to (　　　) pet rocks.

---

12. Now that we （　　　） entered the computer age, we （　　　） virtual pets.

13. The Japanese Tamagotchi---the （　　　） chicken egg---

14. was the precursor （　　　） many virtual pets.

15. Now there （　　　） an ever-increasing number of such （　　　） pets

16. which mostly young people （　　　） adopting as their own.

17. And （　　　） your virtual pet dies, you （　　　） reserve a permanent resting place

18. （　　　） the Internet in a virtual （　　　） cemetery.

19. Sports are big business. （　　　） Babe Ruth, the most famous athlete of （　　　） day,

20. was well-known for earning （　　　） much as the President of （　　　） United States,

21. the average salary （　　　） today's professional baseball players

22. is （　　　） times that of the President. （　　　） a handful of sports superstars

23. （　　　） one hundred times more through （　　　） contracts with manufacturers

24. of clothing, （　　　）, and sports equipment. But every （　　　） produces

25. one or two legendary （　　　） who rewrite the record books,

26. （　　　） whose ability and achievements are （　　　） for generations.

27. In the current （　　　） Tiger Woods and Michael Jordan are two such legendary （　　　）,

28. both of whom have achieved （　　　） mythical status.

29. The fact that （　　　） large number of professional athletes （　　　） huge incomes

30. has led to （　　　） competition throughout the sports world.

31. （　　　） send their children to sports （　　　） camps at an early age.

32. （　　　） kids typically practice three to （　　　） hours a day,

33. all weekend （　　　） during their school vacations in （　　　） to better their chances

34. of （　　　） obtaining a well-paid position on （　　　） professional team

35. when they grow （　　　）. As for the many young （　　　） who do not succeed,

36. one （　　　） if they will regret having （　　　） their childhood.

2.2. Methodology

This survey was conducted at a university in Japan during the period from April 2011 to July 2011. The MET2011 was administrated at the beginning of each class once every week. For the first ten weeks, the versions of the MET (from MET 1 to MET 10) were administrated in the following order MET 1, MET 2, …, MET 10, and on the 11th week, the MET 1 was administrated again.

In this survey, we only used the data from the participants who took Test 1 of the MET 20011 both in the first week and the 11th week. Note that some of the participants did not take all of Tests 2-8 due to their absence from class.

3. Analysis

In this survey, the samples were obtained from 114 freshmen at Morioka University. In fact,

the total number of the subjects who participated in this project was more than 114. However, we restricted the subjects to those who took the MET 1 both in the first week and the 11th week, so that the total number of the subjects was 114.

In this study, we used t-Test: Paired Two Sample for Means (hereafter, t-Test) of Microsoft Excel to analyze the data (the scores of the first MET 1 and the scores of the second MET 1). The level of statistical significance is $p < .05$. The result is shown below:

(1) The result of the t-Test (The 1st MET 1 and the 2nd MET 1)

	The 1st MET 1	The 2nd MET 1
Mean	16.605	22.325
Observations	114	114
t stat	-6.4622	
P(T<=t) two tail	6.356E-10	
t Critical two tail	1.9706	

Let us see if there was a statistically significant difference between the two scores of the MET 1. In the second line, the mean is about 16.6 for the 1st MET 1 and about 22.3 for the 2nd MET 1. Thus, there was about 5.7 point gain, which is about 9 % gain percentage-wise, as the perfect score on the MET 1 is 65 points.

To see if there is a statistically significant difference between the two scores, we need to look at the last line (t Critical two tail (1.9706) and the third line from the bottom (t Stat (-6.4622)). If the absolute value of t Stat is larger than t Critical two tail, it means that there is a statistically significant difference between the two data. Furthermore, the second line from the bottom shows that the p-value (P(T<=t) two tail) is about 6E-10, and thus, $p < .05$. Therefore, (1) shows that there was a statistically significant difference between the mean score of the 1st MET 1 and the mean score of the 2nd MET 1.

4. Results

As shown above, we found that there was a statistically significant difference between the mean score of the 1st MET 1 and that of the 2nd MET 1. From this, it is clear that the learner's English proficiency, at least his/her listening comprehension, improves by taking different versions of the MET 10 times. Therefore, it shows that the MET2011 not only has the function of measuring the learner's English proficiency, but also the function of improving the learner's English proficiency.

Notice that the repetitive training is also useful for child education. 100 Square Calculation, developed by Hideo Kageyama, who states that repetitive training improves basic skills such as addition or subtraction, is one of them. According to Kageyama (2002), if a 4th grade student has

a two-week repetitive training of 100 Square Calculation, the time that he/she took to complete the 100 Square Calculation for the first time becomes almost half of the time that he/she took after a two-week repetitive training.

Unfortunately, in this research, we were unable to administrate MET2011 to the students every day because of the class schedule. However, it is safe to say that repetitive training is also important for English proficiency ("practice makes perfect" effect). Notice that the numbers of English drills that Hideo Kageyama produces are quite fewer than the numbers of other subjects such as mathematics, science or Japanese. Furthermore, as far as we are aware of, Kageyama (2007) is the only English drill, which focuses on listening comprehension. However, the target of the drill is for elementary school students and the drill concentrates on daily conversation. This indicates that the MET may become a new type of English drill, which is equivalent of 100 Square Calculation.

In order to strengthen our argument, it would be necessary to compare the scores of the students who take only the 1st MET 1 and the 2nd MET 1 with the scores of the students who take the MET test every week. As pointed out by an anonymous reviewer, the class materials, other than the MET tests every week, might be an intervening factor for the improvement of the scores of the MET. We will leave this open for future research.

5. Conclusion

To conclude, it was proven that the MET2011 not only has the function of measuring the learners' English proficiency, but also the function of improving the learners' English proficiency through the repetitive administration of MET2011. Therefore, the MET has been proved to have the "100 Square Calculation" effect.

References

Goto, Kenichi, Hideki Maki, and Chise Kasai (2010) "The Minimal English Test : A New Method to Measure English as a Second Language Proficiency." *Evaluation & Research in Education* 23, 91-104.

Kageyama, Hideo (2002) *Yomi, Kaki, Keisan de Gakuryoku Saisei*. (The Reformation of Scholastic Ability through Reading, Writing, and Calculation). Tokyo : Shogakukan.

Kageyama, Hideo (2007) *Hanpuku Renshuu Eigo Kikitori Doriru* (Drill of Repetitive Training of English Listening) Tokyo : Alc Network.

Kawana, Norihito and Stuart Walker (2002) *This is Media.com*. Tokyo : Seibido.

Maki, Hideki (2010) "Introduction to the Minimal English Test." In Morioka Daigaku Institute of Language (ed.) *Gengo Kyoiku Kenkyu* (*Language Education Research*) Volume 3, 15-26. Kanagawa : Seizansha.

Maki, Hideki (2011) The Minimal English Test : MET 1 - MET 10. Ms., Gifu University.

Maki, Hideki, Megumi Hasebe, and Jessica Dunton (2011) "The Minimal English Test : "Practice

Makes Perfect" Effect" *Bulletin of the Faculty of Regional Studies, Gifu University*

Maki, Hideki and Fumikazu Niinuma (2005) "The Minimal English Test : From Proficiency Measurement to Proficiency Improvement." *Bulletin of the Faculty of Regional Studies, Gifu University* 16, 7-12.

Maki, Hideki, Hiroaki Wasada, and Ekuko Hashimoto (2003) "Saishoo Eego Tesuto : Shoki Kenkyuu." (The Minimal English Test : A Preliminary Study) *Eego Kyooiku* (The English Teachers' Magazine) 53.10, 47-50.