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DADS6001: Applied Statistics (2-2023)

Midterm Project: Thai University Students' English Language Skills: Difference between Listening and Reading Skills

1. Introduction

All Thai university students are required to enroll foundation courses of English. However, the English proficiency levels of new students are unknown, and this is one of the problems affecting how an English course should be designed. To fill this gap, it is needed to understand students' English proficiency background. Therefore, this study aims to investigate Thai university students' current English proficiency level between listening and reading skills based on CEFR (the Common European Framework of Reference for Languages). The results of the present study will be beneficial for teachers of English to effectively design English courses meeting students' their English language skills and background.

2. Methods

2.1 Samples and Data Collection

Listening and reading test scores were sampled from 54 first-year students (n = 54) who enrolled in an English foundation course at a Thai public university. These students sat for a CEFR-based English proficiency test called BUU-CET U, which assesses students' English listening and reading skills up to the CEFR level B1. The total test score for each skill was 30, and the test score is mapped with CEFR as shown in Table 1. The data of listening and reading test scores were collected using a Google Form.

Table 1. BUU-CET Skill Score Mapped with CEFR

Skill Score	BUU-CET U Level	CEFR Level
1-10	1	A1
11-20	2	A2~A2+
21-25	3	A2+~B1
26-30	4	B1~B1+

2.2 Statistical Hypotheses and Analysis

As the present study aims to investigate the difference in mean scores of listening and reading skills, an independent t-test was computed using R programming to respond the following statistical hypotheses:

H_0: There is no difference in mean scores between listening and reading skills.
H_1: There is a difference in mean scores between listening and reading skills.

3. Results

3.1 Hypothesis tests

The collected data were tested for normality and variance. To test data normality, data of the two groups (i.e., listening and reading skills) were graphed (see Figure 1) and a Kolmogorov-Smirnov test was used to check if the data were normally distributed. Results showed that the data of the two groups were normally distributed as the p-value was greater than .05 ($p = 0.78$).

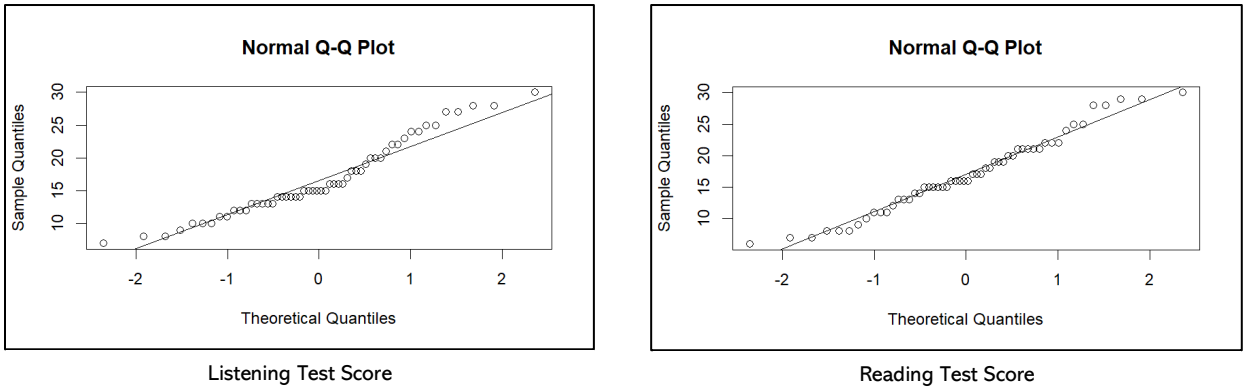

Figure 1. Distribution of listening and reading test scores

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Exact two-sample Kolmogorov-Smirnov test

data:  Listening and Reading
D = 0.11111, p-value = 0.7875
alternative hypothesis: two-sided
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Variances of the data were compared to check whether or not they were equal using an F-test. Results showed that variances of the data were equal as the p-value was greater than .05 ($p = .66$).

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data:  Listening and Reading
F = 0.88837, num df = 53, denom df = 53, p-value = 0.6681
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.515487 1.530986
sample estimates:
ratio of variances
         0.8883713
```

3.2 Descriptive Statistics Results

Descriptive statistics were computed for mean scores and standard deviations of the two sets of data. Results showed that mean score of listening skill (M = 16.60, SD = 5.74) was rather equivalent to that of reading skill (M = 17.00, SD = 6.09).

	variable	n	mean	sd
	<fct>	<dbl>	<dbl>	<dbl>
1	Listening	54	16.6	5.74
2	Reading	54	17	6.09

3.3 Comparison of listening and reading test scores

An independent t-test was performed to determine a significant difference between listening and reading mean scores. Results showed that there was no significant difference in the mean between listening and reading test scores, $t(106) = -0.30$, $p = .75$, as seen in Figure 2.

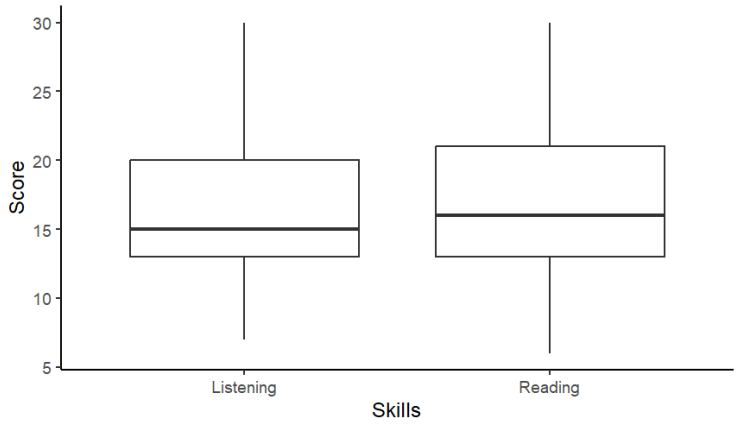

Figure 2. Listening and reading test scores

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        Two Sample t-test

data:  Listening and Reading
t = -0.30877, df = 106, p-value = 0.7581
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -2.611058  1.907355
sample estimates:
mean of x mean of y
 16.64815  17.00000
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4. Discussion and Conclusion

The present study is sought to determine a difference in Thai public university students' proficiency level between listening and reading skills. Since no significant difference in mean test scores between the two skills was found, it can be concluded that the students' English proficiency for both listening and reading skills were at the same proficiency level. However, by looking closely at the mean scores for both skills, it can be seen that the students' listening and reading skills were at the CEFR A2 level. This means the students have limited ability in communicating in English. Thus, teachers can design a proper course and material to suit the students' current English proficiency level.

There are some limitations of the present study to address. First, the data of the present study covers only listening and reading test scores. Data of speaking and writing test scores should be included in future research. Another limitation regards the sample size. As the data were collected from a small sample of the target population, a bigger sample size should be considered to promote the generalizability of the research results.