

A Study of the Learning Curve of the Japanese Keyboard on Smartphone

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Abstract – Japanese (Nihongo) is an east Asian Language, extensive use of Chinese character called KANJI and Phonetic Characters called KANA (hiragana and katakana). Many people assume Japanese Keyboard on smartphone is difficult to use that's why I decide to conduct study to determine how easy to learn Japanese Keyboard for new users. Two user with no experience with Japanese keyboard on smart phone were asked to enter some Japanese sentences as fast as they can at least 20 times and same thing was asked to experienced users as well.

Keywords – Japanese Keyboard, Learning Curve, Smart phone. etc.

I. INTRODUCTION

Japanese writing is uses Phonetic Japanese Alphabets it's called KANA (仮名) and Chinese Characters Called KANJI (漢字) and English Alphabets called ROMAJI (Romaji literally means "Roman characters"). Kana has two types Hiragana (ひらがな), and Katakana (カタカナ), Hiragana Looks like curvy and Katakana looks angular. Unlike western alphabet the Japanese writing system consist of syllable. It is often transposed on smart phone keyboards like the following figures.



Fig.1 Japanese Smartphone keyboard (hold a key to access relative syllable).

II. OBJECTIVE

Many People Especially Foreign People assume that Japanese Keyboard is very difficult to use on smartphone, this study will try to determine how easy it is to learn this keyboard for new users.

III. RELATED WORK

Zhai, S., Milgram, P., and Buxton, W. 1996. The influence of muscle groups on performance of multiple degree-of-freedom input, Proceedings of the ACM Conference on Human Factors in Computing Systems,

User performance in relation to 3D input device design[1][2], Oakley, I. and O'Modhrain, S. 2005. Evaluating a motion based vibrotactile mobile interface, In Proceedings of the Eurohaptics [3], Muhammad Suhaib .TILT OR TOUCH? An Evaluation of Steering Control on Tablet or Smartphone, A Study of Playing Video Game on Computer with Keyboard Control [4][5].

IV. METHODOLOGY

2 Foreign Fresh 1st Year Graduate Students with no experience with this keyboard were request to enter different Japanese sentences as fast as they can minimum 20 times. The same thing was request to 5 experienced users (more than 2 years' usage).

むかし、むかし、あるところに

おじいさんとおばあさんがいました。

おじいさんが山（やま）へ木（き）をきりにいけ、

おばあさんは川（かわ）へせんたくにでかけます。

「おじいさん、はようもどってきなされ。」

「おばあさんもきをつけてな。」

まい日（にち）やさしくいいあってでかけます。

(Japanese Text Sample)

V. OBSERVATIONS

Experienced users can enter 110char/min on average. Below are 2 curves representing the evolution of the number of characters entered each of the 20 trials for the 2 new user's participants (N1-M and N2-D).

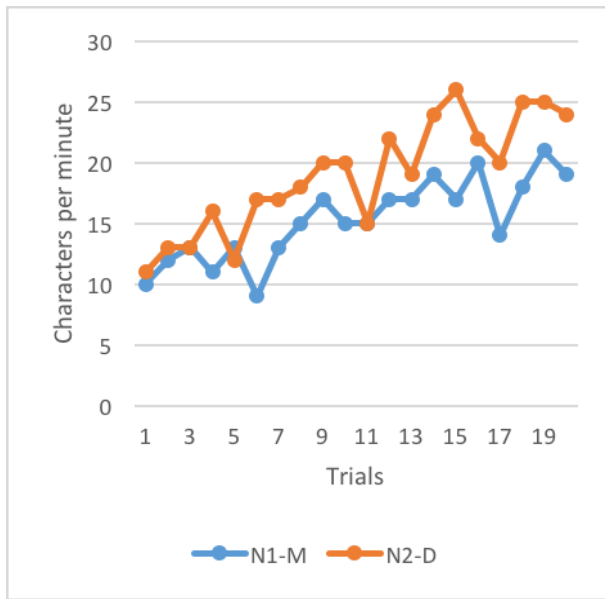


Fig.2 New Users progress.

VI. MODEL

We choose to fit the mean of the new user's progress using a Least square linear regression. Below is the formula of the regression y follow by the coefficient of determination r^2 to quantify the error

$$Y = 0.59x + 10.91$$

$$r^2 = 0.83$$

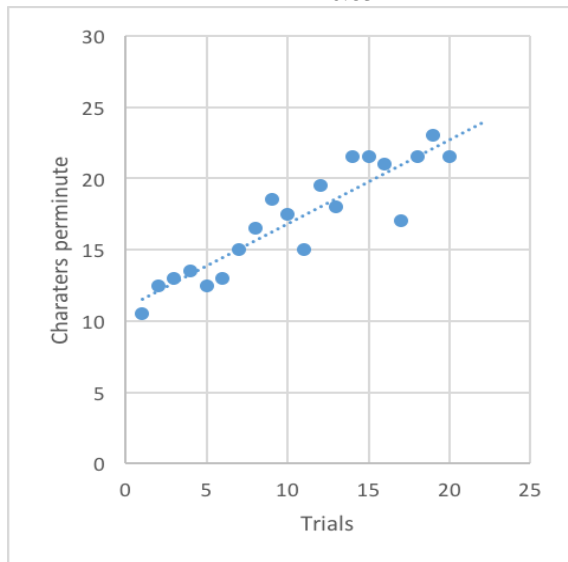


Fig.3 Model fitting the mean of new users typing evolution.

VII. CONCLUSION

The learning curve of the Japanese keyboard on smart phone is linear. A new user will need approximately 168 trials to reach the experienced level. This study has some

limitation worth mentioning: short time of candidate training (2days), and a relatively small number of trials. These factor make it difficult to judge the design of this keyboard accurately. But, we can still tell that the design is good since the user is supposed to frequently use it on his smart phone. The user can then quickly reach the 168 trials to become an experienced user. Some other correlation was observed, for example the level of Japanese of the participant and the typing speed.

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