Effect (Comparison between Elderly Person and Youth) of the Break in the Touch Typing Learning Comparison

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Abstract. The technical education using the information appliance of the old worker is required. However, an elderly person is negative about the utilization of the information appliance. I experimented on, this study about an appropriate break to suppress fatigue of the elderly person, and to learn a touch typing technology effectively and made it clear. The experiment performed two kinds of touch typing learning by the Computer Based Training software. I performed an experiment of elderly person and "Consecutive learning short break models" "Massed practice long break models" which changed the interval of learning and the break by the touch typing software for youths. I performed a questionnaire to a subject to collect the subjective data of fatigue and the learning burden at the same time. As a result, I knew the thing that "the elderly person controlled fatigue by a learning method to put a break in diligently for a short time in this experiment, and could learn a touch typing skill" "having a long it than a youth as for the time to be concerned with the touch typing of the elderly person." that "the elderly person can learn a touch typing skill early by enjoying CBT learning."

1 Introduction

It is for the problem that is important effectively utilizing it in old workers to supplement lack of work force with the social progress with many Japanese elderly people [1].

In addition, the local government utilizes a web page as a place of the information disclosure necessary for a civic life. Therefore of the software that an elderly person utilizes an information appliance for life and collects necessary information was developed [2] In addition, the development of the special keyboard for elderly people is carried out [3]. However, the elderly person has cognitive hardness in psychology, and there is the characteristic that is hard to be able to support the new environment and situation flexibly [4].

Therefore the need of the PC utilization environment in consideration for the usability of the elderly person is pointed out [5].However, It doesn't generally spread for a stage of the development. It is a keyboard now to spread as an inputting tool of the information appliances widely. Therefore it is the technique that is indispensable to a thing and a worker of the current information-intensive society who the touch typing work using the keyboard utilizes an information appliance, and collect necessary information because it is. Therefore the technical education that can utilize the personal computer for elderly people is required now.

The conventional study of the touch typing using the keyboard of the elderly person clarified a psychology side and a relationship of the technical skill using spreadsheetware[5], Development of the keyboard. The precedent study about the appropriate break interval in the touch typing learning by the Computer Based Training software which I was going to perform in this study was poor. Computer Based Training (CBT) using the touch typing software spreads as the touch typing technology acquisition now.

However, as for the interval of learning for the acquisition of the touch typing technology and the appropriate break, it cannot be yet said that it is clear. Therefore this study performed the experiment that changed the interval of learning and the break by the touch typing software for youths (freshman) with an elderly person, and I performed a statistical analysis, and a comparison considered the touch typing technology acquisition of the "short learning short break repetition model" "massed practice head break type" and the relations of the break.

2 Experiment

2.1 Design of the experiment

It is said that it is good that the abecedarian learning touch typing acquires a finger errand from home position (HP) by the touch typing learning software. The touch

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typing learning software is shown on the Web a lot.

It was done the screen display, and I chose "K/B trainer" [6] [7] with the reputation with plainness, and, by this experiment, a finger position from home position used it for an experiment from freeware in the Web. Key point of the typing acquirement law by the touch typing is"① I learn a key and the placement of the finger ② I memorize shooting with a finger. I changed a learning break interval by an experiment corresponding to each key point and experimented on three kinds. in an information processing room（for Windows）.

Experiment 1: I practiced learning a key position from the HP in correspondence with key point ①.

Experiment 2: I performed an experiment to input along a Japanese syllabary list in correspondence with key point ②.

I assumed it one set when I finished hitting one time of Japanese syllabary list. I prepared for learning time and two kinds of intervals of the break and tested it".

A experiment (Consecutive learning short break models),

B experiment (Massed practice long break models).

I classified subjects (elderly person, youth) in, "A experiment" and "B experiment" at random. In addition, I performed inventory survey of fatigue and the work awareness to all the members. I carried out a spare experiment, and the experiment method was decided.

1. Experiment1: (A to Z typing) five times of repetition
2. Break: Tea break (ten minutes)
3. Experiment2:（Typing of the Japanese syllabary list）ten times of repetition

2.2　Experiment method

2.2.1 Experiment 1

After explaining key to keyboard placement,　　and having ordered that "I return a finger to HP every typing by all means" learns HP than typing speed "memorizing the position of each key exactly" and should type it with an appropriate fingers. I started an experiment.

I tested five times consecutive typing without judging that it was in a state without fatigue, and sandwiching the break for short-term memory reinforcement of the placement of the keyboard.

2.2.2 Experiment 2

I directed it to type it being conscious of "accuracy" and "speedup of the typing". The software for the typing learning that I used this time displays a finger position to a screen graphically and is structure to warn by a beep in the case of a typing error. Therefore I cannot shift to the next key when I do not type a precise key. It is the structure which I notice a typing error and am easy to hit again.

The experiment assumed it one set until I finished hitting one time of Japanese syllabary list. I set two kinds of breaks in the inside that performed ten sets of experiments in total.

A Experiment（Consecutive learning short break models）:It is a short break of one minute every one set of

learning

B Experiment（Massed practice long break models）: The learning that five sets continued including the break of nine minutes after five sets of consecutive learning.

2.3　Subject

48 elderly people (average age 67.4 years old, SD: 4.1) who participated in health club of University X,

56 University X first graders (average age 18.9 years old, SD: 0.2). There is experience using all the members word-processing software. There is no experience in the touch typing training. The elderly person who typed it by trade removed it. The university student with a word processor qualification from commercial high school removed it.

I classified it in A experiment group and B experimental group at random and performed experiment 2.The elderly person experiment posted an experiment assistant university student to each subject. I thereby had the environment that could ask you a question when I was in trouble

Experiment1：48 elderly people, youth 56

Experiment2：36 elderly people (20: A experiment (unfinishedanswer4)16, B experiment (unfinished answer 8)), youth 56

2.4　Questionnaire

For the middle (after five sets) and the end (after ten sets) of experiment 2, I performed the following questionnaires to check a fatigue degree and learning awareness of the learning

2.4.1 Question item

(A) This learning is difficult to do.
(B) This learning is tiring.
(C) This learning is interesting.
(D) This learning is effective.

2.4.2 Evaluation method

5th phases of evaluations

（1．not it at all，2．a little，3．to some extent，4．considerably，5．very much）

3 Result and Consideration
3.1　Experiment 1
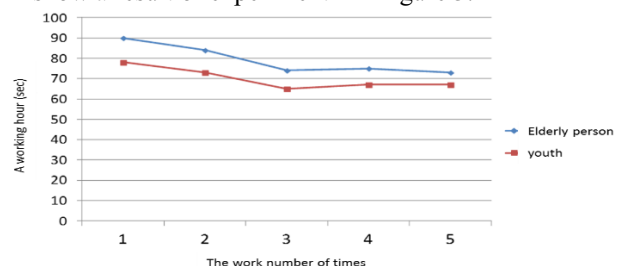
I show a result of experiment 1 in figure 3.

Figure 1 Experiment 1(A to Z) keying time

Significant difference was recognized than figure 1 in the working hour of a youth and the elderly person. But, I told "I return a finger to HP every typing by all means" learns HP than typing speed "memorizing the position of each key exactly" and should type it with an appropriate finger. Therefore I cannot evaluate a result provided this time for differences between youth and typing skill of the elderly person. Experiment 1 thought that it was in a learning process of the typing with both youth and elderly person memorizing HP and key position relations

I recognized shortening of the time to approximately 85% of youths, 81% of elderly people in comparison with the first by five times of consecutive keying experiments in the fifth mean working hour. Each person regarded the placement of the key as a process to learn.

3.2 Experiment 2

I show a result of experiment 2 in figure 2

I examined a result of figure 2 by analysis of variance two way layout. As a result, in the working hour of a youth and the elderly person, only the main effect of the age accepted significant difference (P<0.01). The significant difference was not seen in A experiment and B experiment.

Then, I analyzed contracted relations in progress and a working hour of the work number of times. In the first half (1~5) and the latter half (6~10), there was a difference in typing speed.
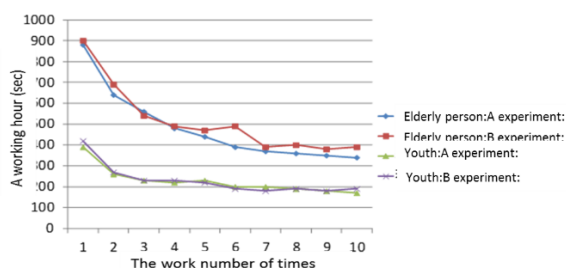

Figure 2. Experiment2 (Japanese syllabary list) typing time

The first half accepts shortening of the rapid working hour than figure 4. I thought with the process that this learned the position of the key which appeared quite frequently to vowel sounds from new typing, and learned a touch typing technology rapidly. It was reduced to half in acknowledgment of the acquisition of the steady technique in a working hour in comparison with the first time in the latter half.

Working hours of the elderly person are always longer than a youth. However, it decreased to the original working hour of the youth and an about the same standard in a working hour in the latter half of the elderly person. In the latter half, I did not do shortening of the sudden working hour like the first half. As a whole, a working hour shortened an elderly person and a youth by the acquisition of the touch typing skill together. The standard deviation of the elderly person in particular was big. However, it became fast, and the standard deviation reduced to progress of the learning, too.

From this, it was thought that individual difference greatly influenced the touch typing technology acquisition of the elderly person. I examined it in analysis of variance two way layout by age and an experiment method. However, significant difference was not recognized the main effect, interaction together probably because it was highly individual. In addition, the break that is long for the touch typing skill acquisition of the elderly person is inappropriate because experiment B accepted the temporary increase of the working hour just after a long break in elderly person group. "Interesting" answered the elderly person, "it is effective" than "I am tired" "difficult to do" about learning than a questionnaire result. "Difficult to do" "was tiring when I compared the tenth with the fifth of experiment A," but decreased. And "it is effective" increased "interesting".

Besides, the subject whom "interesting" answered, "it is effective" shortened a working hour. And "difficult to do" was long in one set of working hour of the subject whom I answered, "I am tired".

The youth felt, "it is hard to do it" in comparison with an elderly person, but the touch typing skill acquisition was early. In addition, "it was effective," but there was many it. "It was interesting," but there was few it.

A person feeling that an elderly person is interesting is in contrast to having learned a technique early. Age and the kind of the experiment influenced fatigue. Age in particular strongly influenced it.

Short learning short break repetition type of experiment A avoided the consciousness "that it was hard to do" for an elderly person than the above and was able to learn a touch typing skill. In addition, it became clear that the elderly person did not feel fatigue for a youth in a process of the skill even if I did the same touch typing learning.

I knew that it was possible for the technique acquisition effectively by enjoying that I put a short break diligently to maintain a touch typing skill when the elderly person reduced fatigue and learned it.

These were tendencies same as findings of the skill of the spreadsheet inflection technology of Umemuro [5] for elderly people. From this, I knew the fault if it was important to learn while enjoying it because an elderly person learned a computer utilization technology as well as the technical acquisition of the spreadsheet.

This experiment of the elderly person assumed it a repetition experiment of 10 set in consideration of the burden on subject, but the repetition number of times of the experiment is considered by the result in a skill process provided this time when I take similar skill process when I increase. A typing skill improved by utilizing CBT software, and learning it repeatedly, and shortening of the working hour knew that I was connected regardless of age in touch typing learning from experiment 1, a result of experiment 2.

4 Summary

1. The elderly person can learn a touch typing skill early by enjoying CBT learning.
2. The time to be concerned with the touch typing of the elderly person is longer than a youth。
3. The elderly person knew what controlled fatigue

by a learning method to classify a break into diligently for a short time, and could learn a touch typing skill in this experiment.

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