The function to visualize the change and comparison of conceptual model visualization

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1. INTRODUCTION

Conceptual model visualization program "rami" was developed to be able to evaluate the vague emotions of human and to grasp them quantitatively. It is possible to apply this tool to a self-evaluation, a product evaluation, the visualization of type and level of pain and the development type of KJ method. The rami was considered that it needs to add the easier functions to analyze, although importance representation among the personnel appraisal items was verified in previous study. Therefore, new three functions were added as below.

2. CONCEPTUAL MODEL VISUALIZATION PROGRAM "RAMI"

rami is the computer application to express the importance of given stimulation in a figure which is drawn by hand. There is no restraint on the pre-set criteria or maximum and minimum and it can be expressed something what people feel freely. A drawn figure can be expressed in a pie chart directly by its ratio by measuring the area of a drawn figure. It is possible to express each figure more closely what users want to express by adjusting each figure's components (size, the length of a line, color, transparency and so on). A drawn figure has the time of drawing, the time required to draw and the length of a line, so the data can be used to analysis. Furthermore, a new evaluation is possible by giving a drawn figure a height. There are also other functions such as copy, delete, temporary save, drag-and-drop save and load.

3. THE FUNCTION FOR THE CONCEPTUAL MODEL VISUALIZATION DATA ANALYSIS

In a prior study, the importance representation among the personnel appraisal items was verified by St. Marianna University School of Medicine Hospital nurse support center. However, it was cumbersome to input figures in external program to compare more than two data in person.

So, by visualizing a plural data at a time, the function of the preference-related analysis was added which could not be clarified in existing tools.

3.1. Single-graph

This function can visualize the data of each figure included in a rami file by showing in a line graph. This graph has the comparison data such as an area, the length of a line, the width of a line, transparency, height, the time required of drawing and scale, which are included in the component and the measurement data of a figure and a maximum of four data among them can be shown on a graph at the same time. This is a common function in all graphs.

Figure 1 "rami" icon-mode screen

After the rami switches over the icon-mode screen (Fig. 1), leave one file selected and click the graph-mode button in order to indicate a single-graph. And when one of the comparison data is selected, the corresponding data in each figure is indicated in a line graph. It can be shown data more than two from comparative data list at the same time. With this, not only the comparison of evaluation item, but also the psychological aspect related evaluation may be visualized.

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3.2. Multi-graph

This function can indicate the total or the average of the comparative data of all figure stored in each file from the rami files more than two with a line graph. After selecting more than two files in the icon-mode of the rami, click the graph-mode button in order to indicate in a multi-graph.

And when an optional comparative data is selected from the comparative data list, the total or the average of all figure of each rami file can be indicated in a line graph. This function can show the expressing tendency when drawing a figure and it may show that whether the difference affects a preference criteria or not.

3.3. Item-graph

If plural rami file is composed of the more than two same evaluation items, this function can indicate in a line graph by selecting an optional evaluation item. After selecting a file which is composed of the more than two same items in the icon-mode of the rami, click the graph-mode button in order to indicate in an item-graph. And when selecting one of the comparative data list and then selecting an evaluation item, the comparative data of the evaluation items of each file is indicated in a line graph.

It is possible to compare with the same evaluation items about other products which are evaluated by the same user by using the function. With this, it can show that whether a preference criterion is changed or not what a user has from the beginning before the user is aware of it (Fig. 2).

Figure 2 "rami" item-graph screen

3.4. Other analysis factors

In an experiment used the rami, the comparative data could be divided in six kinds which are included in the form of a figure drawn by users (Fig. 3).

1) Angle of starting point and center

2) Drawing direction

3) Angle between start point and end point

4) Distance between the center point and the start point or the end point

5) Time to draw the whole figure

6) The ratio between the length of the line of a drawn figure and the length of the line of a circle which has the same area of the drawn figure.

These things may grasp psychology, tendency and habit by adding functions which were explained before.
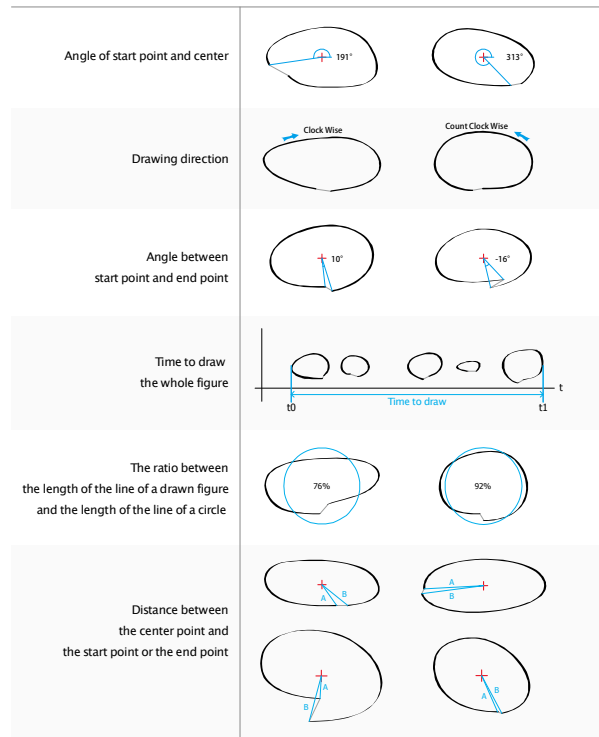

Figure 3 The example of the comparative data to grasp psychology, tendency and habit.

4. CONSIDERATION

In this paper, three kinds of graphs were added in order to analyze the data of the conceptual model visualization program "rami". It may be possible not only to do comparative analysis easily, but also to do new evaluation by these functions.

For instance, rami has been undertaken an experiment to reveal that rami can explain the evaluation factors to clarify the preference criterion of a product which even a user does not know oneself.

REFERENCES

Hong-Seok Choi and Akira Okazaki(2010), "The development of the concept quantitative visualizer rami", *International Service Innovation Design Conference 2010*, 269-274.

Tadahiko Fukuda(2004), *Human Engineering Guide,* Scientist co.