

K. Ishihara, R. Nakagawa, S. Ishihara, Y. Fujiwara, H. Sako. Usability improvement of the automatic washing-drying machine. *Gerontechnology* 2008; 7(2):129. Around 33 % of automatic washing machines sold in Japan in 2007 have built-in dryers. The operation is complex and difficult as the machines have multiple functions. The authors conducted usability experiments to compare the usability of a new model with the conventional one. Thereafter, an improved operation panel was installed in the newly released model. **Usability experiment on the simulator** The objective operation panels were the conventional model, SANYO AWD AQ-2000, and the proposed model, AWD AQ-3000, in which a control knob was newly employed. Both panels were implemented as simulator programs with a touch screen. Seven women aged over 30 years who were used to automatic washing machines participated in the experiment. They were asked to set the designated washing tasks by using two simulator panels. Time and steps needed to complete each task were counted, and a measure for irritation (5-point rating) was scored by the participants. Each operation steps was recorded on video tape. Hierarchical task analysis was performed (Figure 1) to find any erroneous steps. **Usability experiment on the test model** We conducted the experiment again with the test model, AWD AQ-3000, which had the improved operation panel according to the result of the analysis. The layout of the mode-selection buttons was changed to lead the user's focus. The buttons for detail setting were eliminated, and the information on the LCD was more associated with the control knob. Fifteen men and women, all washing machine users, who were older than 30 years and 25 users who were around 20 years old participated in the experiment. They were asked to operate to actual devices of the conventional model and the improved test model for the designated seven washing tasks. Time, operation steps, and irritating measure were also recorded. All measurement improved at the six tasks. Layout change and control knob were found to contribute to 'Air-wash' function (disinfecting and deodorizing through using air or ozone in stead of water), of which the average completion time became 37.0 % of the conventional model. **Conclusion** The display of the operation panel used on the test model was improved furthermore according to the result of the second experiment, and was employed on the new model that was released in February, 2008.

References

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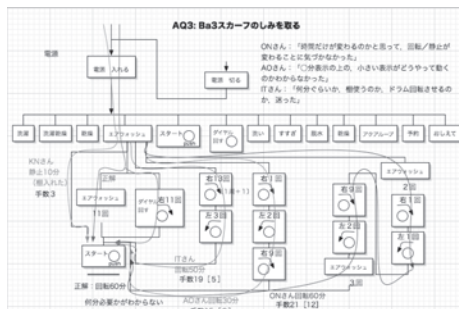


Figure 1 Hierarchical task analysis



Figure 2 Released model



Figure 3 Improved operation panel model