

DISCUSSIONS FOR PRODUCT DEVELOPMENT SUPPORT AND THE DEVELOPMENT OF A TRAINING PROGRAME MAKING USE OF GAPS IN DESIGN EVALUATION BETWEEN USER GROUPS

Haruka SOGABE¹, Yoshitsugu MORITA^{1,2} and Shinsuke ISHIBASHI¹

¹User Science Institute, Kyushu University, Japan

²Faculty of Design, Kyushu University, Japan

ABSTRACT

The goals of this research are to identify the design evaluation gaps thought to exist between designers, providers, and end-users and to construct a design evaluation and diagnostic system that can apply the results to product development in a beneficial manner. One additional goal is to then use this training program in the education of design producers in graduate school. To achieve these goals, we constructed design evaluation indicators to carry out evaluations of products and spaces. By doing so, it became possible to carry out evaluation research, and we were thus able to get the system of study and investigation ready. This paper cites examples of the evaluation research and considers the practical applications of its results, and examines its validity as a training program. Thanks to this approach, it was possible to find techniques that will enable evaluation gaps to be used effectively in product development and to construct methods in setting up training programs.

Keywords: Design Evaluation, Workshop, Education program

1 OPTIMAL DESIGN EVALUATION AND DIAGNOSTIC SYSTEMS

We classified the users into the categories of designer, provider, and end-users based on their relationship with the objects. These categories are the result of emphasizing the standpoints of all users. We think there are major differences in awareness and impressions depending on whether a user creates the object, the user links the object with people, or the user involves using the object. There may be many people who can sense these differences, but there is minimal concrete research on them. Therefore, we believe that acknowledging the presence of differences in these evaluations and examining them help in the creative activities such as product development, and educating human resources who can carry out such thinking is important in making things that provide people with value. At present, it is said that with the diversification of users. progressing in Japan, understanding users as a 'mass' is no longer good enough when trying to create hit products. in Japan, understanding users as a 'mass' is no longer good enough when trying to create hit products. The mission of the designer is to uncover potential needs that people have not noticed, that is, to supply true value. However, the rise of market research has led to frequent studies of needs using

interviews and other techniques aimed at end-users. Therefore, designers are forced to make designs in line with the needs that have been thus identified. This leads to an ongoing situation in which the concept of creative activities to supply intrinsic values can not gain a foothold. It may be that the position of designers in Japan is related to one of these factors. In Japan, it is common to view the job of the designer as an occupation suited to handle only superficial matters such as colors and shapes. This is a general condition. However, at present the front line of manufacturing and making things requires human resources that can create new things in a strategic manner by understanding prerequisites or social conditions in a comprehensive manner based on flexible concepts. That is to say that this is the fundamental image of the designer. Yet there is a shortage of human resources that can undertake such wide-ranging creative activities. In fact, this may be the factor in people's unchanging awareness towards designers. Therefore, this design evaluation and diagnostic system is intended to be applied to train producer-type designers who can undertake such wide-ranging investigations.

We do not by any means think that eliminating the evaluation gaps is the way to solve the problem. What is crucial is we provide designers with effective materials that will allow them think broadly. Therefore, it is necessary for this design evaluation and diagnostic system to be a tool that can form the starting point for new creative activities by allowing us to review and make an objective evaluation of objects that we created and accept the findings of third-party evaluations.

2 FINDINGS AND EXAMPLES OF THE STUDY

We now present examples of the evaluation research that we carried out using the evaluation indicators that were constructed. One consists of the evaluation research that we carried out in three Japanese cities on five points of the prize winners of the "Good Design Award," which is Japan's premier design prize. Another consists of the evaluation research that we carried out in Paris, France and Fukuoka, Japan in a Japanese furniture production center on five points of "SAJICA" products, which is a new brand aimed at world markets. Table 1 shows an outline of each study.

As for the data resulting from the studies, a variance analysis (ANOVA) with a one-way layout (multiple comparison with Tukey HSD) was conducted in the study of the Good Design Mark. This confirmed whether evaluation gaps appeared between both user groups. Next, a variance analysis using two factors – region and standpoint (multiple comparison with BONFERONI) – was carried out in the study of SAJICA in order to examine differences in evaluations between Japan and other regions.

In each study, statistically significant evaluation gaps were found. In the survey intended for G mark products, the following were able to be said. The results revealed evaluation gaps in the case of each object that were statistically significant in terms of 4-8 indicators. There were five cases between designers and providers, 21 between designers and end-users, and 6 between providers and end-users (Table 2). An overview of the findings reveals that most evaluation gaps were between end-users and designers. In the case of the butterfly stool, there was a tendency for designers to give it a significantly higher evaluation than end-users. In the case of AIBO, the washing machine, and LCD TVs, there was a tendency for designers to give them significantly

Table 1 Survey Outline

SURVEY OUTLINE		
	G mark	SAJICA
OBJECT		
date	designer	47
	provider	26
	end user	122
	total	195
Analysis	one-way ANOVA (Tukey)	two-way ANOVA (Bonferro)

lower evaluations than end-users. We think that this may be due to the fact that furniture has relatively simple functions while electric appliances are thought to have relatively complex functions. In the case of the soy sauce dispenser was unique. There were frequent evaluation gaps between providers and designers / end-users. This suggests that providers have different evaluation standpoints toward objects.

Table2 one-way ANOVA result

Item	Indicator	1. Designer	2. Provider	3. End user	F	P	Item	Indicator	1. Designer	2. Provider	3. End user	F	P		
✈️	The item is appropriately priced. 1<3*	2.42 (0.97)	2.50 (1.09)	2.21 (0.93)	F(2,705)=151	*	✈️	Care has been given even to details 1<3*	2.37 (0.93)	2.90 (0.98)	3.08 (0.87)	F(2,683)=31	*		
	Consideration was given to universal design 1<3*	2.07 (0.85)	2.19 (1.01)	2.31 (1.00)	F(2,650)=109	*		✈️	The item has an appropriate sense of luxury. 1<3**	2.70 (0.95)	2.93 (0.95)	2.94 (0.91)	F(2,707)=41	**	
	The product has influenced society in some way 1<3**	2.91 (0.98)	2.95 (0.97)	2.56 (1.07)	F(2,663)=8.61	**			✈️	The item has a high degree of completion 1<3*	2.80 (0.93)	2.98 (1.07)	2.99 (0.94)	F(2,684)=28.5	+
	It feels Japanese 1<3*	3.24 (0.99)	3.24 (1.02)	3.04 (1.00)	F(2,718)=3.54	*				✈️	The item has an overall sense of design. 1<3*	2.78 (0.96)	3.00 (1.06)	2.97 (0.91)	F(2,704)=3.09
🍷	The item has a high degree of completion 1<2*, 1<3*	3.42 (0.72)	3.74 (0.55)	3.43 (0.78)	F(2,719)=3.24	*	✈️				The item has outstanding beauty 1<3*	2.42 (0.93)	2.60 (1.11)	2.63 (0.97)	F(2,706)=3.33
	The item has outstanding beauty 2<3*	3.15 (0.92)	3.41 (0.82)	3.04 (0.93)	F(2,722)=3.50	*		✈️			The item can be used for a long time. 1<3*	1.70 (0.71)	1.78 (0.72)	1.87 (0.88)	F(2,678)=3.03
	The item matches my lifestyle. 1<2*	2.92 (0.95)	3.37 (1.02)	3.07 (0.95)	F(2,704)=4.27	*			✈️		The item will remain interesting. 1<3*	1.53 (0.74)	1.68 (0.92)	1.72 (0.85)	F(2,684)=3.50
	The item creates a sense of satisfaction due to owning it. 2<3*	2.11 (1.05)	2.49 (1.23)	2.02 (1.05)	F(2,716)=3.92	*				✈️	Consideration was given to universal design 1<3**	1.85 (0.91)	1.97 (0.96)	2.18 (0.96)	F(2,635)=8.12
🍷	When I used the item, it gives users to comfort the mind and body. 1<2*, 1<3*	2.81 (0.88)	3.25 (0.81)	3.02 (0.88)	F(2,712)=6.31	*	✈️				The product has influenced society in some way 1<3*	3.52 (0.77)	3.76 (0.81)	3.45 (0.81)	F(2,716)=3.09
	Consideration was given to universal design 1<2**, 1<3**	2.86 (0.95)	3.42 (0.68)	2.95 (0.93)	F(2,659)=5.79	*		✈️			The item has a sense of good quality based on the name of the manufacturer or brand. 1<3*	3.14 (0.77)	3.17 (0.77)	3.30 (0.73)	F(2,716)=3.61
	It feels Japanese 1<3**	3.62 (0.61)	3.80 (0.54)	3.74 (0.54)	F(2,732)=3.71	*			✈️		The item is of good quality. 1<3*	3.05 (0.80)	3.31 (0.73)	3.23 (0.73)	F(2,658)=4.10
	The item has an overall sense of design. 1<3**	3.06 (0.86)	3.10 (0.89)	3.31 (0.80)	F(2,717)=6.84	**				✈️	It is possible to imagine using the chair in some 1<3*	3.26 (0.89)	3.35 (0.95)	3.45 (0.77)	F(2,719)=3.82
🍷	The item has outstanding beauty 1<3*	2.76 (0.91)	2.95 (0.92)	2.96 (0.89)	F(2,716)=3.70	*	✈️				Consideration was given to universal design 1<3*	2.41 (0.88)	2.65 (0.85)	2.62 (0.93)	F(2,648)=3.49
	The item is not influenced by the times or fashion 1<3**	2.33 (0.84)	2.59 (0.95)	2.59 (0.99)	F(2,698)=5.27	**		✈️			The product has influenced society in some way 1<2*, 1<3*	3.12 (0.85)	3.50 (0.76)	3.13 (0.87)	F(2,708)=3.34
	One can feel attachment to the object. 1<3*	2.33 (0.87)	2.31 (0.89)	2.52 (0.93)	F(2,703)=3.75	*									

**p<.01 *p<.05 +p<.06

Table3 two-way ANOVA result

PHOTO	Indicator	Designer/Provider/End user/France/Japan													
		category					region								
		designer	provider	enduser	france	japan	designer	provider	enduser	france	japan				
🍷	X1.1 Attention has been paid right down to the item	0.033 D*P	0.667	0.669	0.508	0.477	0.909	0.359	0.672	0.658	1.000	0.181	0.774	1.000	1.000
	X1.2 The item has a high degree of completion	0.939	0.990	0.886	1.093	0.288	0.222	0.056	0.760	1.000	1.000	0.340	1.000	1.000	0.853
	X1.3 The item has outstanding beauty	0.886	0.353	0.704	0.598	0.441	0.157	0.171	0.566	1.000	1.000	1.000	1.000	0.125	0.333
	X2.1 The item could be used in a variety of ways	0.892	0.862	0.900	0.632	0.203	0.019	0.229	0.869	1.000	1.000	0.186	0.919	1.000	0.631
	X2.2 The item is compatible with a variety of cultures	0.994	0.225	0.543	0.144	0.704	0.242	0.649	0.294	1.000	1.000	1.000	1.000	0.092	1.000
	X3.1 The item's appearance is acceptable to people	0.853	0.069	0.059	1.723	0.191	0.328	0.316	0.135	1.000	0.864	1.000	0.491	0.731	0.040 D*E
	X3.2 The item offers unexpected benefits	0.587	0.144	0.951	0.288	0.112	0.054	0.205	0.874	1.000	1.000	1.000	1.140	0.000	0.000 D*E
	X4.1 The item has an original form	0.247	0.714	0.429	0.520	0.472	0.514	0.687	0.751	0.665	1.000	1.000	0.889	1.000	0.830
	X4.2 The item uses original materials	0.511	0.750	0.755	1.323	0.252	0.289	0.114	0.984	0.648	1.000	0.543	1.000	0.662	1.000
	X4.3 The item has unprecedented comfort of use	0.660	0.897	1.044	0.309	0.309	0.002	0.274	0.685	0.674	1.000	0.000	0.000	0.000	0.000
	X4.4 The item offers unprecedented benefits	0.996	0.993	0.985	1.007	0.935	0.000	0.209	0.227	1.000	0.000	0.941	0.553	1.000	1.000
	X5 The item is appropriately priced	0.523	0.878	0.229	4.382	0.039 F*J	0.000 F*J	0.894	0.173	1.000	1.000	1.000	1.000	0.402	1.000
X6.1 I had taken a liking to the item	0.994	0.679	0.891	1.391	0.240	0.241	0.534	0.044 F*J	1.000	0.657	1.000	1.000	0.239	1.000	
X6.2 I would like to buy the item	0.840	0.461	0.940	0.949	0.949	0.000 F*J	0.913	0.914	0.866	1.000	0.956	0.921	0.903	0.752	
X7.1 The item offers physical/mental comfort	0.437	0.088	0.985	0.821	0.367	0.010 D*J	0.343	0.341	1.000	1.000	1.000	0.000	0.766	1.000	
X8.1 The item has a Japanese feel to it	0.955	0.227	0.672	3.487	0.064	0.396	0.047 F*J	0.331	1.000	0.973	0.592	0.749	1.000	1.000	
X8.2 The item has an urban feel to it	0.387	0.138	0.983	0.096	0.083	0.564	0.118	0.306	0.297	1.000	0.721	1.000	0.337	1.000	
🍷	X1.1 Attention has been paid right down to the item	0.925	0.816	0.857	1.128	0.000 F*J	0.160	0.968	0.101	0.871	1.000	1.000	1.000	0.588	1.000
	X1.2 The item has a high degree of completion	0.743	0.872	0.885	11.547	0.001 F*J	0.000 F*J	0.176	1.000	1.000	0.684	1.000	0.149	0.834	1.000
	X1.3 The item has outstanding beauty	0.199	0.253	0.689	3.294	0.072 F*J	0.259	0.743	0.157	0.915	0.630	1.000	0.421	0.510	1.000
	X2.1 The item could be used in a variety of ways	0.313	0.865	0.139	7.047	0.000 F*J	0.540	0.078	0.678	1.000	1.000	1.000	0.428	1.000	0.676
	X2.2 The item is compatible with a variety of cultures	0.309	0.928	0.351	4.913	0.000 F*J	0.067	0.113	0.331	0.464	1.000	0.303	1.000	0.610	1.000
	X3.1 The item's appearance is acceptable to people	0.146	0.132	0.738	0.292	0.590	0.278	0.355	0.706	0.965	0.333	0.671	1.000	1.000	1.000
	X3.2 The item offers unexpected benefits	0.602	0.410	0.982	0.669	0.000 F*J	0.000 F*J	0.074	0.181	0.651	0.729	0.117	0.670	0.781	1.000
	X4.1 The item has an original form	0.115	0.352	0.414	0.000	0.998	0.858	0.431	0.649	0.846	0.654	1.000	1.000	0.233	1.000
	X4.2 The item uses original materials	0.393	0.766	0.595	0.973	0.326	0.355	0.077	0.866	0.326	1.000	0.232	1.000	0.753	1.000
	X4.3 The item has unprecedented comfort of use	0.370	0.880	0.369	1.472	0.227	0.340	0.215	0.704	0.435	1.000	0.388	1.000	1.000	1.000
	X4.4 The item offers unprecedented benefits	0.816	0.624	0.442	0.454	0.502	0.703	0.291	0.823	0.965	1.000	0.468	1.000	1.000	1.000
	X5 The item is appropriately priced	0.556	0.904	0.288	7.430	0.000 F*J	0.186	0.478	0.000 F*J	1.000	0.309	0.636	1.000	1.000	0.891
X6.1 I had taken a liking to the item	0.414	0.594	0.105	1.064	0.304	0.162	0.004 F*J	0.690	0.161	0.308	0.000	0.000	0.000	0.000	
X6.2 I would like to buy the item	0.304	0.975	0.169	2.296	0.134	0.000 F*J	0.013	0.673	1.000	0.888	0.665	0.921	0.903	0.752	
X7.1 The item offers physical/mental comfort	0.727	0.947	0.537	15.858	0.000 F*J	0.000 F*J	0.184	0.518	0.296	1.000	0.088	1.000	1.000	1.000	
X8.1 The item has a Japanese feel to it	0.735	0.617	0.981	2.567	0.111	0.981	0.361	0.126	1.000	1.000	1.000	0.910	1.000	1.000	
X8.2 The item has an urban feel to it	0.358	0.366	0.786	0.000	0.983	0.564	0.118	0.306	0.293	1.000	0.721	1.000	0.337	1.000	
🍷	X1.1 Attention has been paid right down to the item	0.974	0.997	0.953	11.634	0.001 F*J	0.074	0.010 F*J	0.044 F*J	0.826	1.000	1.000	1.000	1.000	0.600
	X1.2 The item has a high degree of completion	0.925	0.584	0.957	9.221	0.000 F*J	0.142	0.001 F*J	0.173	0.291	1.000	0.649	0.644	0.459	0.000
	X1.3 The item has outstanding beauty	0.912	0.692	0.926	17.430	0.000 F*J	0.011 F*J	0.011 F*J	1.000	1.000	1.000	1.000	0.600	0.585	0.926
	X2.1 The item could be used in a variety of ways	0.727	0.667	1.000	4.425	0.037 F*J	0.118	0.222	0.570	1.000	1.000	1.000	1.000	0.282	1.000
	X2.2 The item is compatible with a variety of cultures	0.988	0.590	0.879	8.067	0.000 F*J	0.237	0.036 F*J	0.053	0.865	0.783	1.000	1.000	0.806	0.430
	X3.1 The item's appearance is acceptable to people	1.000	0.996	0.999	0.622	0.432	0.165	0.594	0.746	1.000	1.000	1.000	1.000	0.846	1.000
	X3.2 The item offers unexpected benefits	0.902	0.903	0.469	19.538	0.000 F*J	0.000 F*J	0.010 F*J	0.010 F*J	0.645	1.000	0.615	1.000	0.375	1.000
	X4.1 The item has an original form	0.900	0.215	0.756	8.127	0.000 F*J	0.040 F*J	0.018 F*J	0.224	1.000	1.000	1.000	1.000	0.588	0.129
	X4.2 The item uses original materials	0.201	0.340	0.601	6.194	0.016 F*J	0.461	0.060	0.062	0.107	0.345	0.851	1.000	0.729	1.000
	X4.3 The item has unprecedented comfort of use	0.430	0.605	0.758	7.913	0.000 F*J	0.051	0.392	0.059	1.000	1.000	1.000	0.908	0.901	1.000
	X4.4 The item offers unprecedented benefits	0.454	0.446	0.853	10.243	0.000 F*J	0.000 F*J	0.052	0.379	1.000	1.000	0.533	0.639	0.000	0.000
	X5 The item is appropriately priced	0.722	0.999	0.623	7.562	0.000 F*J	0.016 F*J	0.130	0.508	1.000	1.000	1.000	1.000	0.972	1.000
X6.1 I had taken a liking to the item	0.722	0.474	0.238	10.138	0.000 F*J	0.000 F*J	0.000 F*J	0.258	0.865	0.340	0.118	1.000	1.000	1.000	
X6.2 I would like to buy the item	0.754	0.807	0.435	21.992	0.000 F*J	0.000 F*J	0.046 F*J	0.000 F*J	1.000	0.649	0.889	1.000	0.576	1.000	
X7.1 The item offers physical/mental comfort	0.727	0.947	0.537	15.858	0.000 F*J	0.010 F*J	0.010 F*J	0.794	1.000	1.00					

Next, in the study of SAJICA products, many evaluation gaps were found that are thought to be caused by regional differences. (Table 3) Evaluation gaps connected with regional differences were found in the responses "The item could be used in a variety of ways" and "The item is compatible with a variety of lifestyles" in the case of three products, and in the response "The item is appropriately priced" in the case of all four products. Looking at the results overall, there is a tendency for evaluation gaps due to regional differences to be found frequently among designers. The evaluations were significantly higher at French sites. Since this trend was observed among providers and receivers, and evaluations in France were in general high than in Japan, it appears that Japanese designers in particular conducted more rigorous and strict evaluations of the products in the study than French designers. Moreover, a great many regional differences were found in each standpoint regarding the chest, product KM26. The use of this product was not clearly identified. It was regarded as a product type whose use is to be left to the users to decide. In view of the findings, it seems that the many evaluation gaps can be due to the Japanese providers who judged that this product was not suitable for the general Japanese consumer, and the French providers, who thought it was interesting that it was left to the user to decide how to use the product.

3 CONSTRUCTING A METHOD FOR MAKING USE OF STUDY FINDINGS

In order to make use of the materials suggested by the findings derived from the study when developing something new, as described above, it is important for designers to first recognize that this is data that they can utilize. Moreover, in order to train and educate human resources who can make things that provide new values, it is important to think about methods of providing materials that facilitate such a multi-angular way of thinking rather than supplying materials in a format that only caters to the needs of end-users. Consequently, a decision was made to hold a workshop on the findings derived from the study in order for the people who are engaged in making things to examine matters from their various viewpoints.

The workshop was different from the usual style of one-directional transmission of knowledge; the participants were able to get bidirectional benefits by participating and experiencing themselves. The most suitable method was deemed to be a method that allowed designers to understand and discuss the study results and students to discuss them. Several designers were invited, and test workshops were held on the various findings. We decided to see if the designers were able to see meaning in examining evaluation gaps and whether they were able to consider it interesting.

3.1 Outline of the Workshop

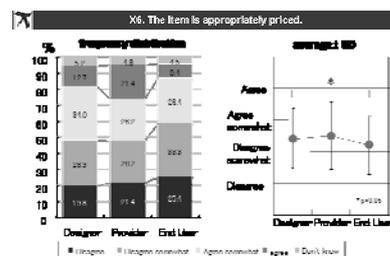
Fifteen product designers were invited to examine the findings of the study of the Good Design Mark, and ten persons, including architects and graphic designers, were invited to examine the findings of the study of SAJICA. The groups created consisted of around seven persons, including the authors and project-related parties, and one facilitator was stationed in each group. The on-duty hours of the participants amounted to about 180 minutes. Of these, about 90-120 minutes were spent in group work.

The workshops examined the indicators in which there were evaluation gaps and investigated the factors involved. Table 4 presents an overview of each workshop. The workshop on the Good Design Mark divided its subjects into two categories – one pair consisting of a washing machine and a household appliance and the other pair consisting of daily necessities, the soy-sauce dispenser and a chair – and the group work time spent on each pair was set at about 40 minutes. In the workshop on SAJICA, the

first half consisted of 30 minutes spent examining the evaluation gaps between standpoints and the second half consisted of 40 minutes spent examining evaluation gaps between regions. In the group work, the ideas of each participant was written down on Post-it notes and attached to simili paper, and the participants contributed their thoughts and ideas regarding it. In order to examine causative factors, the materials presented to the participants were presented in graph format so that they could understand the evaluation gaps visually. (Figure 1) Following the end of the group work, each group's views were summarized and announced. Following this were overall discussions. After completing these activities, each participant was asked to fill out a questionnaire study about the workshop. Questions are 1) the data (graphs, tables, visuals, and other data) presented in this workshop, 2) the format (proceedings, time allocation, group allocation) of the workshop, 3) other matters noticed at the workshop.

Table4 WORK SHOP outline

CASE	G-m ark	SAJEA
Participant	7*3group	7*2group
Object		
Problem	Consileation of the gap between standpoints to which designer is related	Consileation of the gap between standpoints Consileation of the gap between regions



3.2 Discussions of the findings of the workshop

As part of the workshop, voice recorders were installed at all tables and these devices kept records of all dialogs. An examination of the validity of the activities was conducted on the basis of the dialogs extracted from the voice records and the questionnaire study carried out after the end of the workshop.

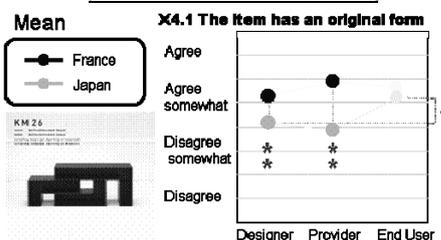


Figure1 Material

First of all, we were able to find out that the data that was presented in order to discuss the resulting evaluation gaps that were assumed to be issues had look quantitative and qualitative problems. As for the qualitative problem, since designers usually don't have opportunities to assess findings of statistical analyses they first needed time to understand what the graphs were indicating. Moreover, even when they understood the significance of the graphs, we found that statistical levels of significance of 5% or 1% had no meaning to the designers when they discussed of factors causing evaluation gaps. This is because in their approach, they do not look only at gaps that are thought to be statistically significant; instead, they proceed by taking into account the results of all the indicators that were used in the study. This is also related to quantitative problem of the data. Some of the participants voiced the opinion that there is a limit to what can be discussed only from the data that showed uniform, statistically significant evaluation gaps. Some of the participants voiced the desire to conduct discussions after learning the significance probability of all indicators. In view of the above factors, as opposed to getting participants to understanding the graphs that were prepared on the basis of prescribed ideas, it is more important to establish methods that allow the participants to easily understand, carry out discussions, and examine the method of presentation and the quantity of the data. Next, time was often an issue related to the progress of the workshop. Overall, many participants pointed out that the time allotted for the workshop

was short in relation to the volume of issues. The allocation of time was closely related to the volume of issues. Therefore, although we can not make a sweeping judgment, we extrapolate that the participants had a relatively ongoing interest in issues concerned with the discussion of factors causing evaluation gaps in group work. Lastly, the workshop activities themselves made a generally favourable impression, at least as far as the questionnaire results indicates. Moreover, there was a great deal of insider talk about the objects in the dialogs during the group work simply because the participants were designers. This suggested that the manner of conducting the discussion allowed the participants to enjoy communication with one another while not necessarily addressing the issues. After the end of the workshop, the participants showed interest in participating in the next workshop. Therefore, each of the participants in these activities seems to have learned something.

4 CONCLUSION

It was possible to extract many issues and tasks from the workshop. Moreover, we believe that we were able to secure certain evaluations from the participants regarding the workshops where factors causing evaluation gaps were discussed. In the future, we will improve the extraction of issues and repeat the examinations, focusing on developing what will become one problem-solving program, including the staging of workshops for other parties, other than designers. Currently, we are conducting workshops with similar techniques for students learning design, and we are engaged in testing what kind of differences appear in the findings when the same design issues are imposed. These experimental tests are aimed at student groups that conduct workshops and student groups that do not. If, as a result of this experiment we can verify the efficacy of the workshops, we think such workshops can become a practical tool to facilitate a wide range of thinking in design education.

By means of this approach, we were able to assess the kind of reaction of designers in general.

REFERENCES

- [1] Sogabe, H., Morita, Y. and Ishibashi, S. Research on Design Evaluation Indicators Drawn from the Good Design Award Jury Members' Comments. *16th International Conference on Engineering Design (ICED'07)*, pp. 27-28 (The Design Society, Paris, France, 2007).
- [2] M.F.story,MS,IDSA,J.L.Mueller,MA,IDSA,M.Montoya-Weiss,PhD,*COMPLETION OF UNIVERSAL DESIGN PERFORMANCE MEASURES*, Proceedings of the RESNA2001 Annual Conference.
- [3] http://www.design.ncsu.edu/cud/pubs_p/pudperformproduct.htm

Acknowledgements

This research was undertaken as outsourced work from the Ministry of Education, culture, Sports, Science and Technology (science and technology advancement adjustment expense; referred to as Kyushu University User Science Institute.

¹Haeuka Sogabe
Kyushu University
4-9-1, Siobaru, Minami-Ku, Fukuoka-City
815-8540, Japan
sogabe@design.kyushu-u.ac.jp
+81 92 553 9457

²Yoshitsugu Morita
Kyushu University
4-9-1, Siobaru, Minami-Ku, Fukuoka-City
815-8540, Japan
morita@design.kyushu-u.ac.jp
+81 92 553 4533