

# Effects of Design–Medical Institution Collaborative Renovation Project on Hospital Staff Awareness of Improved Environments

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## ABSTRACT

This study explores how the design–medical institution collaborative renovation project between the Tsukuba Medical Center’s staff and University of Tsukuba’s Faculty of Art and Design design students increased the hospital staff’s awareness of improved hospital environment. This study focuses on the renovation project implemented in March 2016 that aimed to improve the ‘gloomy’ atmosphere of the Department of Nuclear medicine’ by renovating’s waiting room for patients by providing new lighting design. Observation and semi-structured interviews were employed. Twenty-four hospital staff members who had full, partial, and no participation in the renovation project were recruited. Consequently, collaborative process between the design students of the University of Tsukuba and the hospital staff provided a unique opportunity to reconsider the ordinary situations at hospital facilities. Accordingly, design–medical institution collaborative projects can be means to improve hospital organization and environment.

## 1. INTRODUCTION

Hospitals are expected to promote regional cooperation and community-based integrated care systems as well as develop alongside other institutions. Furthermore, hospital organizations must progress towards Total Quality Control for care. As such, improved hospital environments must be practised through cross-sector collaboration. However, the concept of design–medical institution collaborative projects is still in its early stage in Japan (Art Meets Care, 2014). This study aims to explore the significance of cross-sector collaborative renovation projects to hospital staff’s awareness of better hospital environment.

The Tsukuba Medical Center has introduced several design–medical institution collaborative renovation projects in its common spaces to provide a better and cosy environment for patients since 2007 (Herbeth L, 2016; Iwata, 2016; Saito, 2016). A total of 21 projects have been accomplished with students of the University of Tsukuba’s Faculty of Art and Design. This work focuses on the collaborative renovation project implemented at the Department of Nuclear medicine in March 2016 that aimed to improve the ‘gloomy’ atmosphere of its waiting room for patients (see Figure 1). Moreover, it was conceived to assist in the design education of University of Tsukuba’s design students and enhancement of the hospital staff’s motivation towards further collaborative projects. The two-year project involved nine meetings and two workshops between the design students and hospital staff members to discuss the spatial and environmental problems of the waiting room (see Figure 2). As the lack of proper lighting in the room was identified as the main

problem, the project designed a new ceiling luminary that would provide indirect and warm illumination.

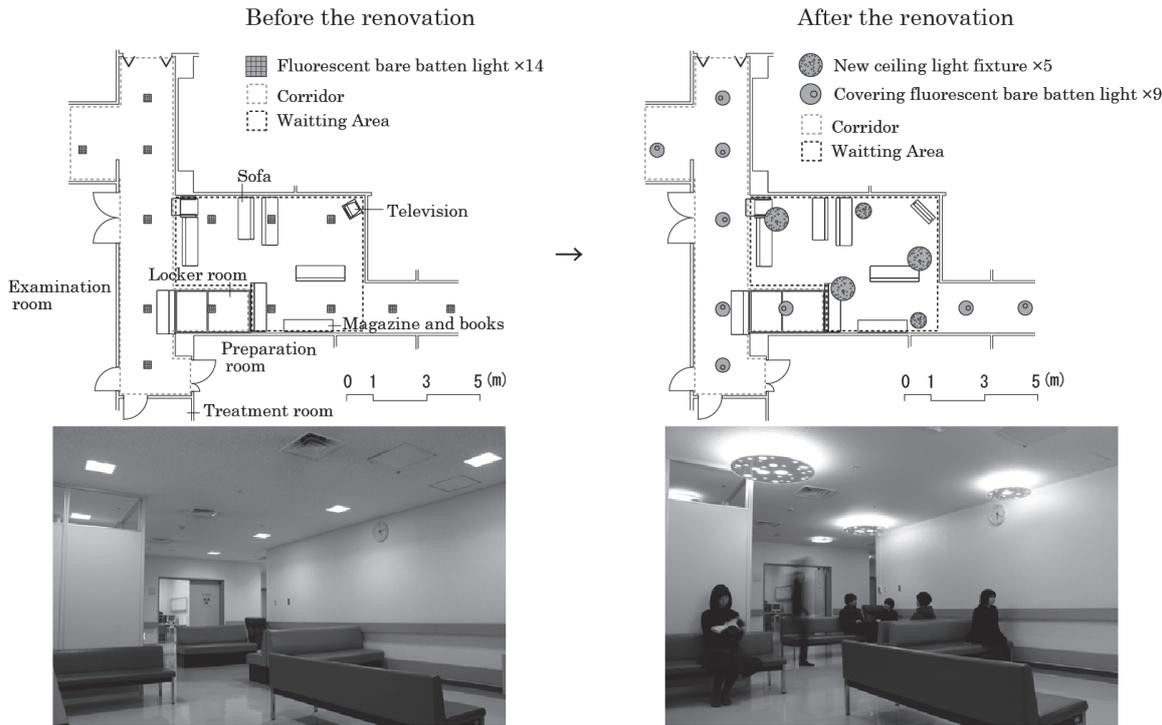
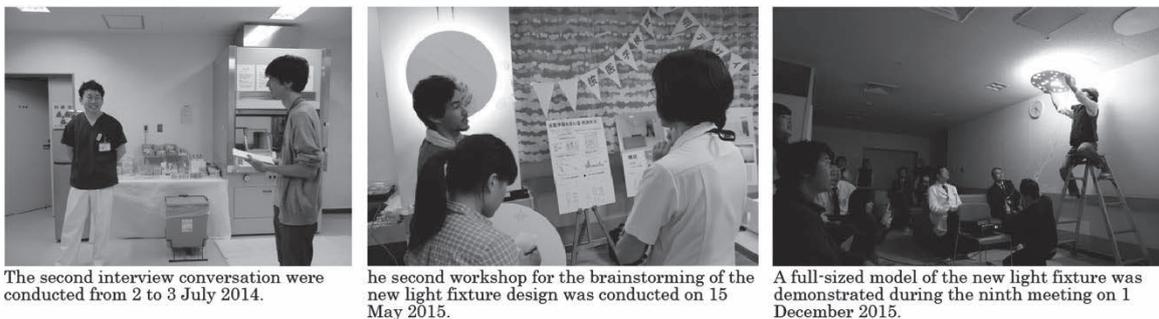


Figure 1. Photos and plans of the pre and post renovation of the waiting room for patients at Tsukuba Medical Center's Department of Nuclear medicine



The second interview conversation were conducted from 2 to 3 July 2014.

he second workshop for the brainstorming of the new light fixture design was conducted on 15 May 2015.

A full-sized model of the new light fixture was demonstrated during the ninth meeting on 1 December 2015.

Figure 2. Renovation process

## 2. METHOD

This study employed observation and semi-structured interviews. Twenty-four hospital staff members participated in the interviews. Nine of the participants were part of the supporting committee for the design activity; twelve were from the Department of Nuclear medicine; and three from the others. The participants were categorized into three types based on their participation, namely, full, partial, and no participation. All of the participants who were part of the supporting committee fully participated in the renovation process. Those who belonged to the concerned department had a mixed type of participation, whereas all three other participants partially participated. The participants' answers to the question as regards their perception of the waiting room before the renovation, after the renovation, and the collaborative process(see Table 1).

### 3. RESULTS AND DISCUSSION

The results of this study are as follows. First, although 67% of the participants considered the old waiting room to be gloomy and desolate, 33% deemed it as normal and ordinary. The latter was composed of participant nos. 5, 7, 10, 13, 14, 15, 16, and 20. Participant nos. 10, 13, 14, 15, 16 (radiation technology instructors) and 20 (a nurse) stated their general lack of concern for the waiting room environment before renovation. Meanwhile, participant nos. 5 (a medical affairs staff member) and 7 (a nurse) did not consider the waiting room environment as part of their concern but of radiation technology instructors. Second, all participants were surprised with and confirmed their positive impression of the renovation results. However, only 67% demonstrated interest in further renovation of the other environmental elements (e.g. furniture, wall, and bulletin) of the same or other waiting spaces. Third, 63% of the participants considered the collaborative process during the renovation project as an opportunity to introduce a fresh perspective into hospital environment. However, only four (17%) and 11 (46%) participants deemed it as an opportunity to, respectively, activate hospital organization and be a platform for hospitality discussion. All of the participants who indicated the latter two opportunities participated in the renovation process. The radiation technology instructors, who did not consider hospitality for patient environment as their concern, shared their belief in the importance of an improved environment in discussions and workshop sessions with design students.

Table 1. Participant data and interview results

	Participants				Perception of the pre renovation waiting room		Perception of the post renovation waiting room		Perception of the collaborative process		
	No.	Post	Type of Job	Type of Participation	Gloomy and desolated	Normal and ordinary	Positive impression	Interest in further renovation	Provision of a fresh perspective into hospital environment	Activation of hospital organization	Platform for a hospitality discussion
Supporting committee for design activity	1	EC	Dr	Full	○		○	○	○	○	○
	2	OW	PS	Full	○		○	○	○		
	3	OW	PS	Full	○		○	○	○		
	4	OW	PS	Full	○		○	○			
	5	AC	MA	Full		○	○	○	○		○
	6	OW	FS	Full	○		○	○	○		
	7	AC	NS	Full		○	○	○			○
	8	EC	CW	Full	○		○	○			○
	9	AC	NS	Full	○		○	○	○	○	○
Department of Nuclear medicine	10	CS	RT	Full		○	○		○		○
	13	EC	RT	Sev		○	○	○	○		
	14	AC	RT	Sev		○	○		○		○
	15	CS	RT	Sev		○	○				○
	16	CS	RT	Sev		○	○				○
	17	CS	RT	Sev	○		○				○
	18	AC	NS	Sev	○		○	○		○	
	20	CS	NS	Non		○	○	○	○		
	21	CS	NS	Non	○		○				
	22	CS	NS	Non	○		○	○	○		
	23	CS	MA	Non	○		○	○			
24	CS	MA	Non	○		○		○			
Others	11	EC	Dr	Sev	○		○	○	○		
	12	EC	NS	Sev	○		○	○	○	○	○
	19	CS	NS	Sev	○		○		○		○
Total					16 (67%)	8 (33%)	24 (100%)	16 (67%)	15 (63%)	3 (13%)	11(46%)

Notes: The semi-structured interviews were conducted from 6 April to 11 May 2016. The process of the interview was approved by the Ethics Committee of Tsukuba Medical Center and consented by each interviewee.

Legend

Post: EC=executive, OW=office worker, AP=administrative clinical staff, CS=clinical staff, Type of Job: Dr=doctor, PS=publicity staff, MS=medical affairs staff, FS=facility staff, NS=nurse, CW=care worker, RT=radiation technology instructors, Type of Participation: Full=full participation, Sev=partial participation, Non=no participation

#### 4. CONCLUSIONS

Consequently, collaborative process between the design students of the University of Tsukuba and the hospital staff provided a unique opportunity to reconsider the ordinary situations at hospital facilities. Moreover, the collaborative project triggered the development of new perceptions of common environments. Thus, the idea of collaborative projects can be a part of hospital organization.

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