

POSTER PRESENTATION 3: PHYSICAL AND MENTAL HEALTH

Improvement of the second NRC smart care space based on stakeholders' participation

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Purpose The physical environment of people with severe disabilities and older adults should be barrier-free and adaptable to various technological devices in the near future (Lim, 2013). The second Smart Care Space (SCS), a residential environment equipped with care robots and IoT devices for people with severe disabilities, older adults, and caregivers was built in 2020 in the National Rehabilitation Center, Seoul, Korea. Following the previously established first SCS, the second SCS could be used for usability evaluation and demonstration research on care robots and care devices. Through a workshop in which various stakeholders participated in the newly constructed second SCS, we would like to seek opinions on whether people with severe disability and caregivers can freely use care robots and devices for activities of daily living. **Method** A workshop was conducted with seven stakeholders (three people with severe disabilities, one facility director, one professor, one researcher, and one policymaker) using the focus group discussion (FGD) method. During a tour of the second SCS, all participants exchanged questions and answers. The various subjects' opinions derived through FGD were divided into three groups: 1) key consumers (persons with disabilities), 2) operators (heads of related facilities), and 3) experts (professors, researchers, and policymakers) who are familiar with the characteristics of residential spaces. Based on the results obtained by analyzing the responses through non-verbal/linguistic and various points of view, the opinions of the participants could be used for advancement of the SCS, so as to enhance the convenience for people with severe disabilities and caregivers in indoor environments. **Results and Discussion** Participant opinions were divided into spaces, devices, and services, as shown in Table 1. The key consumers (U1-U3) gave specific opinions on devices to be used in practice, such as the height-adjustable desk near a bed, and a robot-like side table around a bed. The operators (U4) had a tendency to give opinions on ways to use the provided equipment economically. Finally, the experts (U5-U7) provided opinions on ways to standardize the built space under reasonable regulations. Various stakeholder needs were identified. The constructed space was upgraded in stages by reflecting consumer opinions.

References

Lim, C.S. (2013) Case Study of Improving the Residential and Cultural Environment of Persons with Disabilities from a Universal Design Perspective: Focusing on the Busan Area. *Journal of Culture Industry*, 13 (3), 121-128.

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Table1. Specific implications with respect to pain points

Pain points	Specific implications
Upgrading the space	<ul style="list-style-type: none"> - Manual height-adjustable cabinet installation to take advantage of tight spaces (U4). - Developed in consideration of the difference in the activity areas for the people with disabilities and older adults (U4, U6). - Consideration of the space composition converted from a general apartment (U2). - Placement of the prototype robot in space and a review of whether it works well (U5).
Upgrading the device	<ul style="list-style-type: none"> - Setting up a table that can be used in a bed (U1, U2). - Installed so that it can be used with an inexpensive bath chair (U4). - Installation of power-sockets for charging around the bed (U2, U7). - Developing low-priced, easily available products so that everyone can use them easily (U3, U5). - Developed to localize and specifically adjust the meal robot (U4) - Need for subsidy support for high-priced devices (U5)
Upgrading the service	<ul style="list-style-type: none"> - Development of a device that can open and close front doors and windows with voice commands (U2, U3). - Development of devices that can make phone calls with voice and operate computers, YouTube, etc. (U1, U2). - Development of devices for active use of various auxiliary devices linked to IoT (U1). - Producing and distributing products with functions that users need at low prices and low functions (U5, U6).