

Sustainability | Poster

PP - (21021) - EVALUATION STRUCTURE OF LIGHTING QUALITY AND VIEW THROUGH WINDOWS IN THE RESIDENTIAL SPACES

Kaori Arano¹; Keita Matsuda¹; Takanori Kabaki¹; Yuki Oe¹; Jun Munakata²; Mika Kato³; Naoko Sano⁴; Nozomu Yoshizawa¹

1 - Tokyo University of Science; 2 - Chiba University; 3 - Nihon University; 4 - Tokyo Denki University

Research or practical problem and objectives

Bringing daylight into the room and ensuring view are important roles of windows for the health and well-being of the occupants. Several metrics for ensuring lighting environment and view have been proposed, however, the previous study has shown that the occupants evaluate the amount of daylight more highly than the actual amount when view is good. When people evaluate their indoor environment, lighting environment and view from the window are not completely independent and are likely to influence on each other. The purpose of this study is to clarify the evaluation structure of lighting quality and view through windows in residential spaces in order to obtain basic data for establishing the evaluation method regarding lighting environment and view in the future.

Methods and process (for empirical research)

The questionnaire was administered to 371 residents to assess the impressions of the windows and visual environment of their living rooms. Using the covariance structure analysis, the pass diagrams of evaluation on lighting quality and view through windows were obtained with observed and latent variables, which were extracted through factor analysis.

Main results preview and importance (or main arguments in the case of critical reviews)

As a result of the covariance structure analysis (GFI:0.928, RMSEA:0.071), view had a significant impact on the lighting quality (standardized coefficient:0.66). The satisfaction with the visual environment through windows was most influenced by view (standardized coefficient:0.67), followed by the lighting quality (standardized coefficient:0.09). With this analysis, it was statistically clarified that the lighting quality is greatly affected by view, and that view has the greatest impact on the satisfaction of the visual environment through windows. Therefore, it may be possible to say that it is better to focus on view when designing windows in a living room. In the future, we would like to further clarify the evaluation structure of view and lighting quality through examinations in different target groups.

Palavras-chave : View, Lighting quality, Window, Covariance structure analysis, Residential spaces