END USERS' KNOWLEDGE, BELIEFS, AND PREFERENCES FOR LIGHTING

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OBJECTIVE

An understanding of end users is necessary if one is to design to meet human needs. This study measured four broad concepts related to lighting to contribute to our understanding of end users in this domain: knowledge about technical aspects of lighting; beliefs about the effects of lighting on people; preferences regarding lighting; and importance of lighting.

RESEARCH DESIGN

The study was a survey of a large group of university undergraduates. Sets of questions relating to each of the four concepts were created from the literature on lighting and interviews with other subjects. The lighting types and settings deliberately referred to circumstances familiar to these subjects. The questionnaire was completed during university classes.

ANALYSIS

Descriptive statistics and inferential analyses of specific hypotheses were used to assess the state of these end users' knowledge, beliefs, preferences, and ratings of the importance of lighting and the interrelations between these variables.

KEY FINDINGS

The results show that lighting is important to laypeople and reveal that people to whom it is important desire more control over lighting. These subjects perceived that they had little control over lighting but desired much more. A large percentage of respondents believed that fluorescent lighting can be detrimental to one's health, and those who endorse these views about health effects also believe that natural daylight is superior to electric light.

CONCLUSION

Design to meet human needs will improve if better understanding is gained of the beliefs, preferences, and knowledge of the client. This report includes specific suggestions for applications and provides pointers for both designers and researchers.

The awakening environmental consciousness that receives so much media attention these days includes careful attention to the potential energy savings from innovative lighting designs (e.g., Goldstick, 1990). Designers seek new ways to put light only where it is needed and to achieve energy savings through the appropriate use of daylight. New technologies such as compact fluorescent lamps allow illuminance levels to be maintained while saving electricity, and their use has been encouraged by utility companies through rebate programs. The lighting industry has undergone revolutionary changes.

Human needs ought not to be forgotten in the rush to conserve energy and to use light in innovative ways. Ryan (1991) suggested that the coming years will bring intense debate between advocates of technological and human-needs approaches to lighting design. "People are not machines," wrote Julian (1987, p. 157), who described the state of post-occupancy evaluation of energy-efficient projects as a "deafening silence."

Research Design and Hypotheses

This paper reports the initial development of a survey tool to assess end users' knowledge about common types of lighting, beliefs about the effects of light on people, preferences regarding interior lighting, and the importance people attach to lighting. The results will be of interest to designers and to facilities managers who wish to tailor lighting design to individual needs and tastes.

Survey data establish a baseline; according to Kerlinger (1986), surveys "attempt to determine the incidence, distribu-