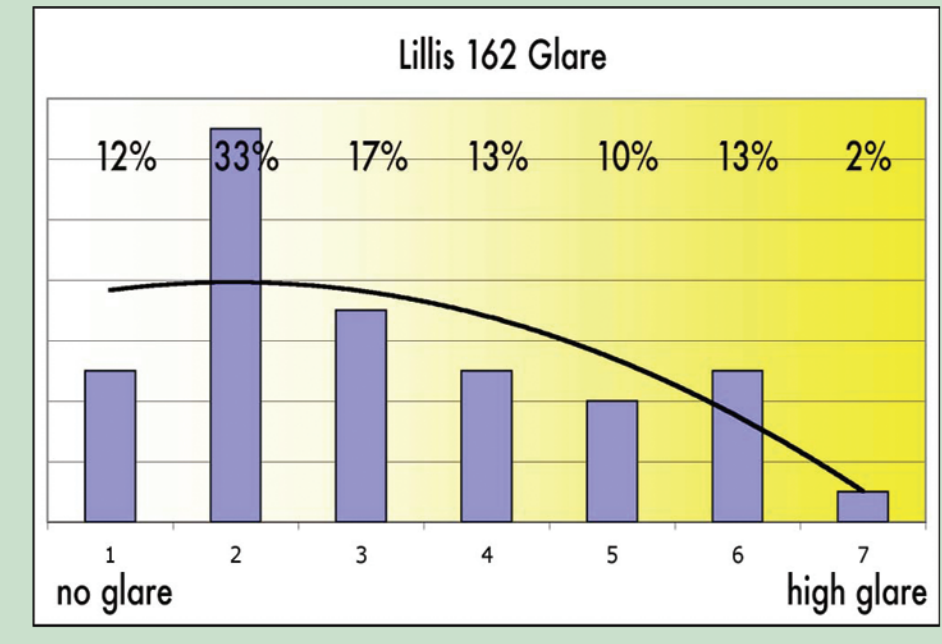
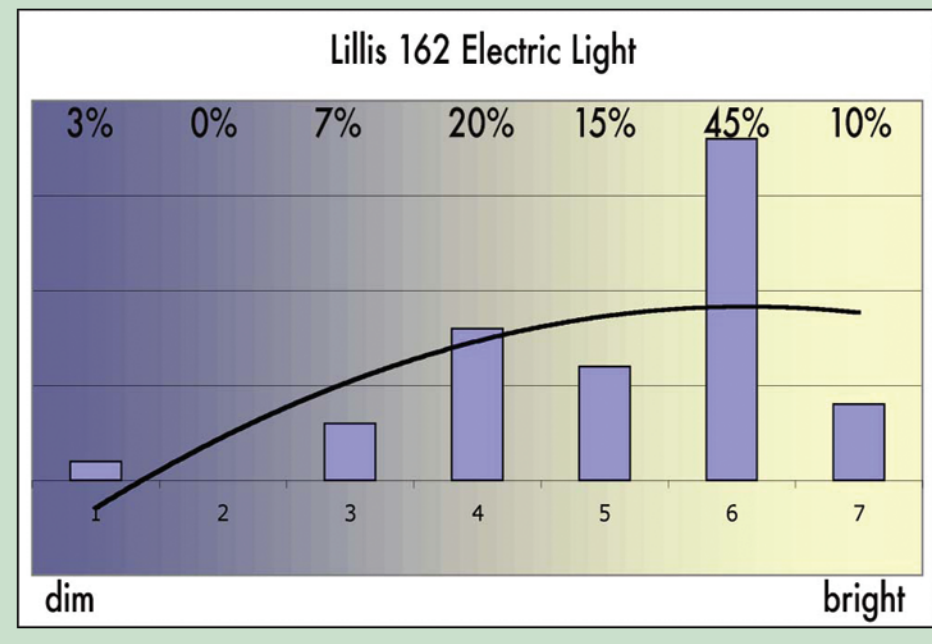
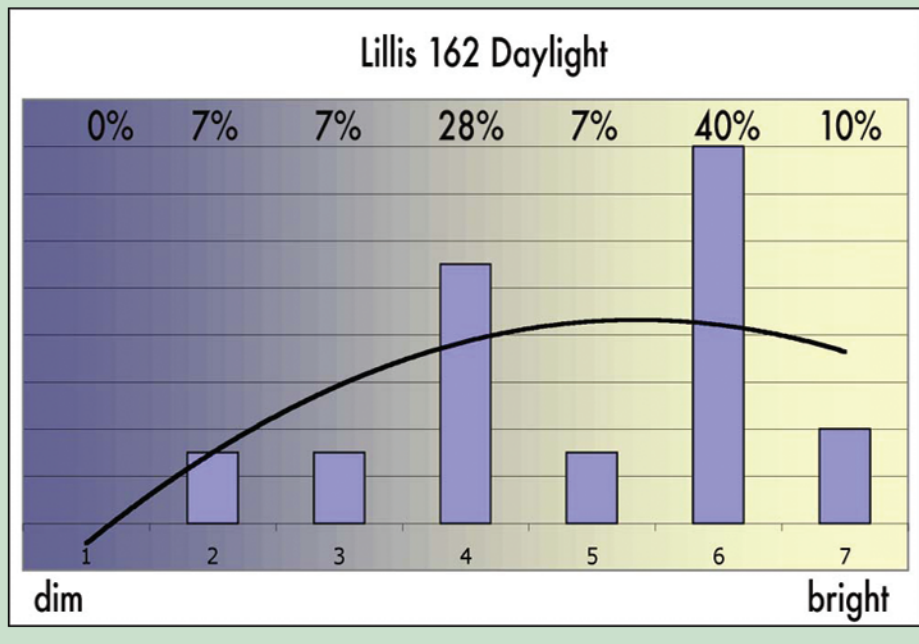
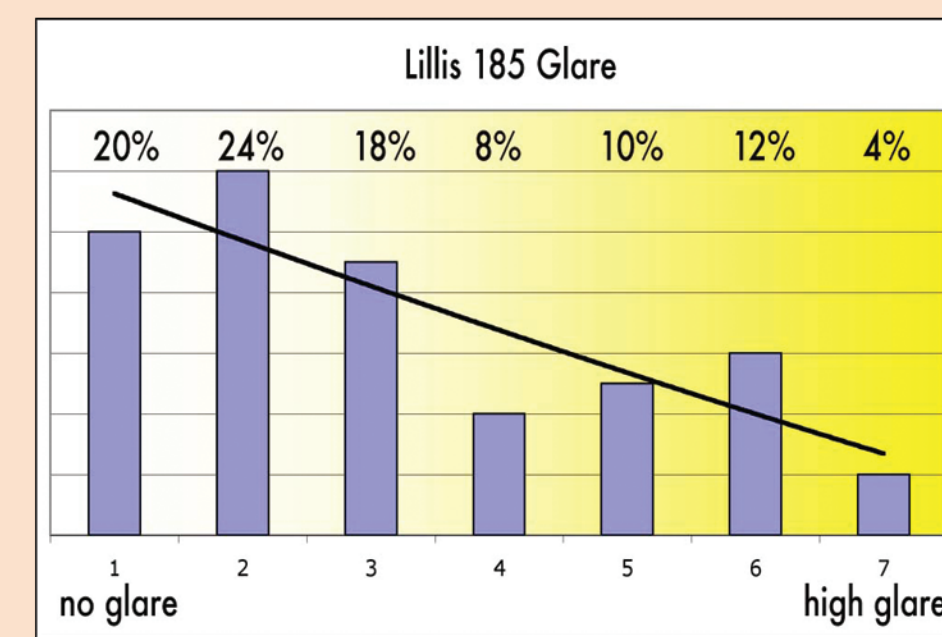
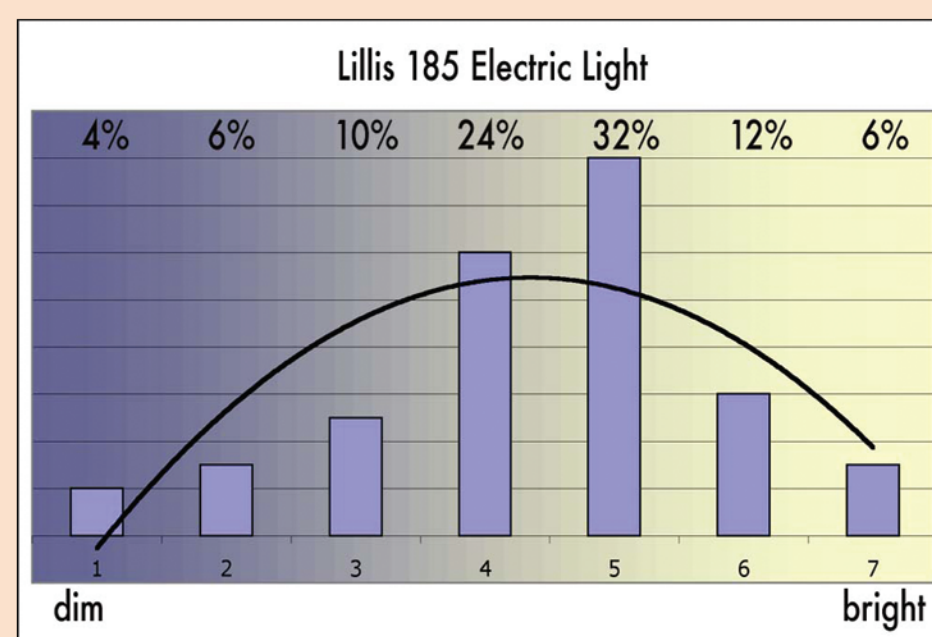
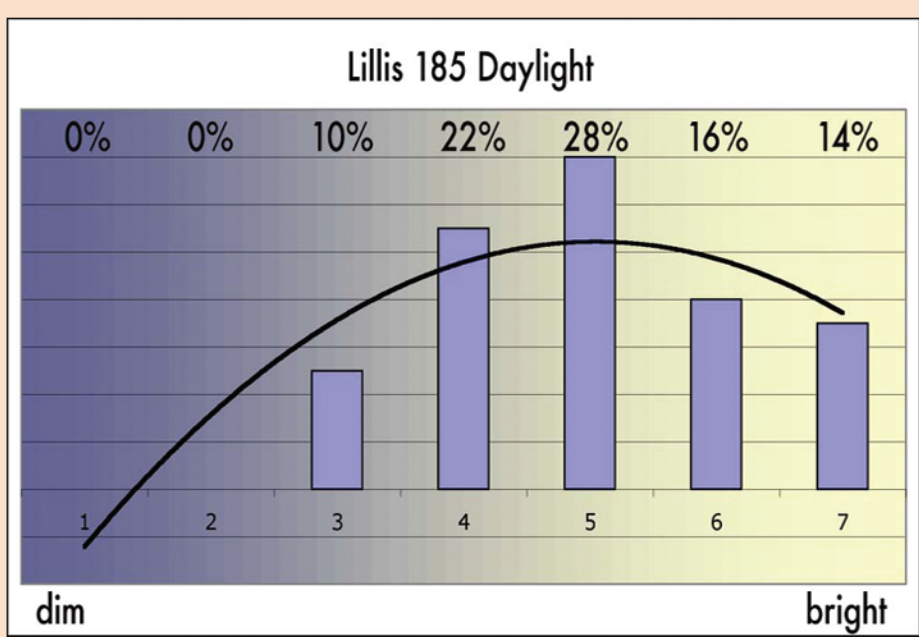
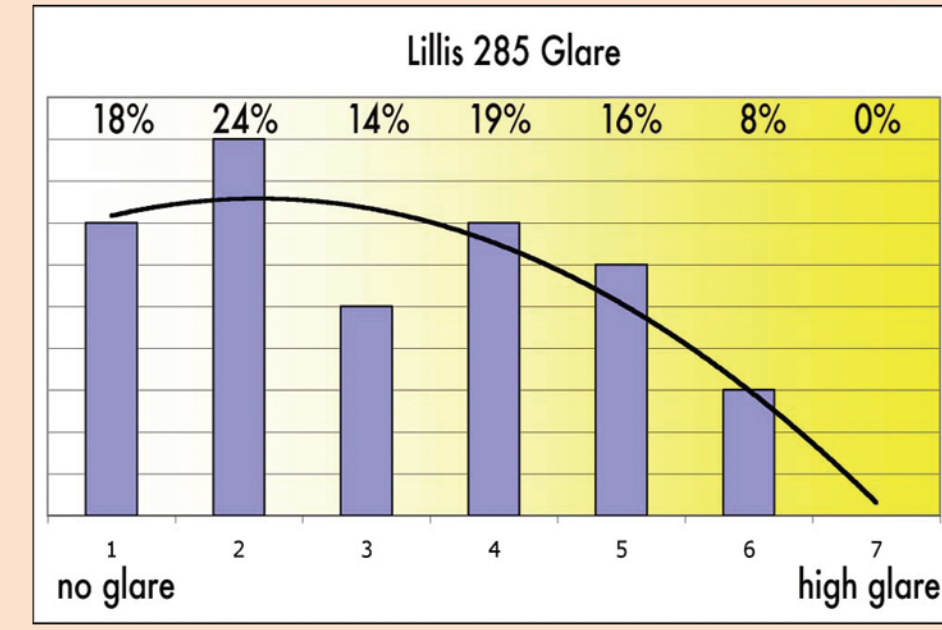
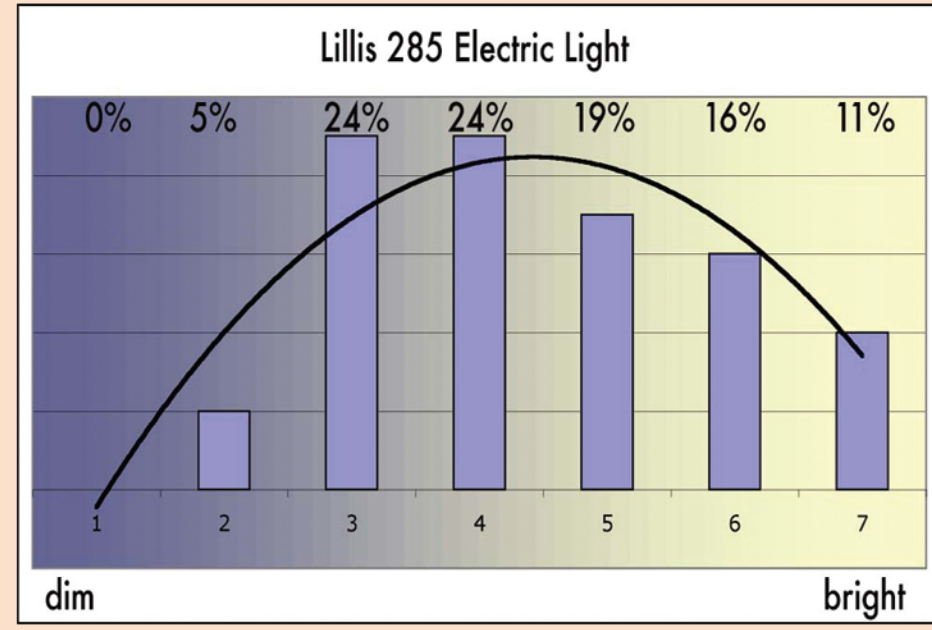
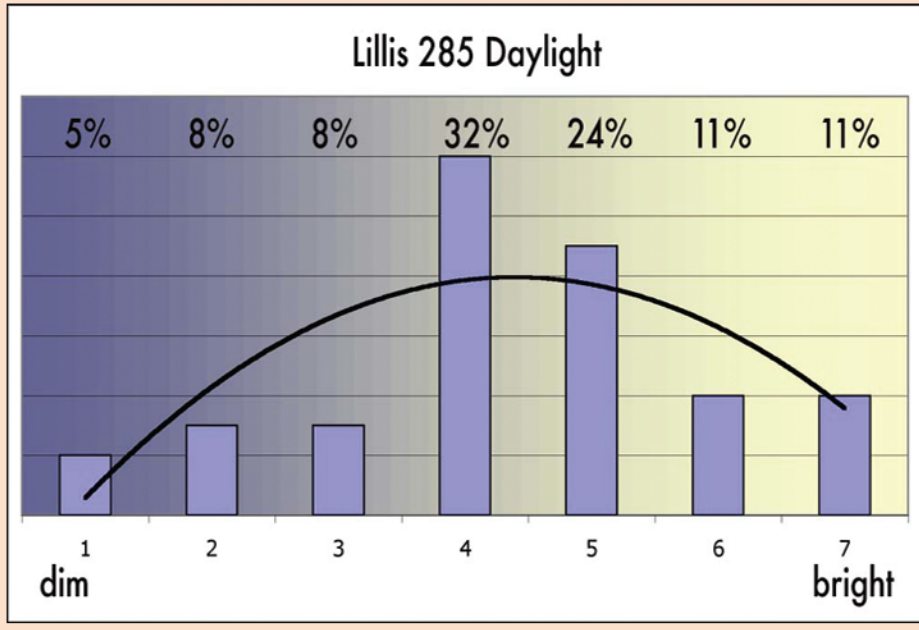


North Side



South Side



Lighting levels in all rooms reflect trends towards "bright", and may be compared to the results of daylighting studies found in the study by Sarah Chapin and Jaime Shen: relatively variable lighting levels in all classrooms were found, and opinions reflect those levels. Northern and southern orientation seems to be an important factor, especially where glare is concerned, as direct light on desk surfaces was observed in 185 and 285. Perception of daylighting, electric lighting and glare levels was highly dependent on the interaction of all three within each room; these are difficult variables to isolate due to their subjective perception.

Daylighting Electric Lighting Glare

Conclusions

Gathering opinions on human comfort is often hard to evaluate; variables involved are very difficult to isolate. In the case of this survey, implementation occurred both at the start and end of classes, and this issue of timing may have had an effect on the way students felt and answered the questionnaire. The survey did not include questions regarding respondents' previous activities, clothing levels, or adaptive behaviors, which might affect perception of room and their own temperatures. This kind of information would have proved very useful in further illuminating issues of thermal comfort in the lecture hall and in north facing classrooms where a distinct temperature difference was perceived.

In all cases, the questionnaire would have benefited from a follow up question as to the degree of comfort the respondent experienced with current levels of lighting, in a range from "uncomfortable" to "comfortable". The survey will have been further improved by asking respondents to write their seat number to pin point locations, to for example, correlate temperature with location in lecture hall 282 or in terms of lighting levels and glare in case study classrooms.

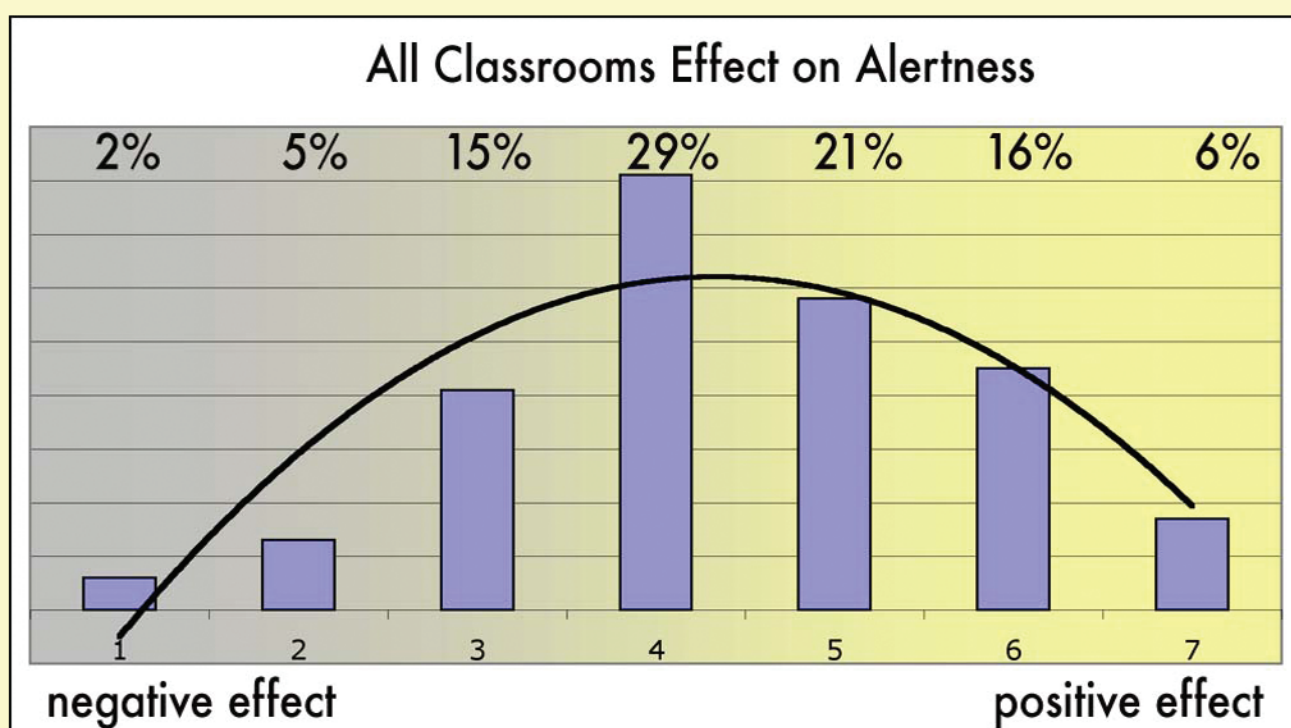
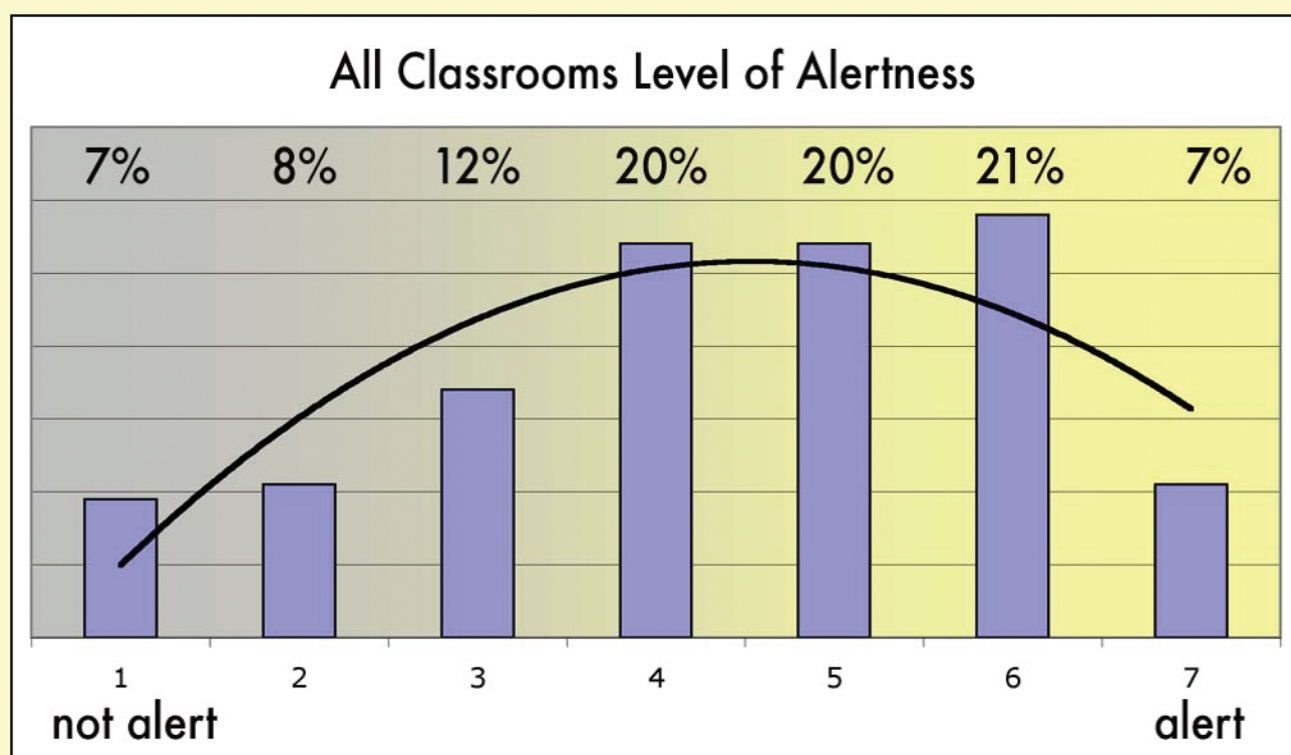
While the analysis of information gathered from this study concentrated on those issues approached in other case studies, namely daylighting (Chapin and Shen, 2005) and thermal comfort (McKelvey, 2005), discussion of other environmental quality parameters queried in the survey would be extremely useful. The role of gender in perception, as well as the number of days a week respondents take classes in Lillis Business Complex would also be interesting to follow up on.

It is hoped that further improvement of the survey instrument based on these lessons learned can be combined with case studies conducted in the summer months at Lillis Business Complex, where there are indications of comfort issues, especially in terms of thermal comfort, for further study.

Because the Lillis Business Complex includes innovative and energy-efficient features in building design including daylighting, natural ventilation, lighting, temperature and ventilation controls, the complex serves as a rich testing ground for perceptions of these innovative features and their effectiveness in achieving human comfort. A questionnaire on perception of light, temperature and air quality can illuminate the effectiveness of the original design intent: to use energy-saving passive systems coupled with technology to support a sustainable, healthy and comfortable learning environment. Quantitative information on opinions of environmental quality might further assist in the evaluation of the complex, and also serve as a model for the design and planning of future facilities. Sustainable design is a growing field in architecture, in both importance and scope, as energy and material resources for new buildings diminish. Buildings which strive towards goals of sustainability should be evaluated for future improvement of standards, and for continued innovation in architectural design. It is hoped that this small study will be a step towards painting a fuller picture of the perception, and the possibilities, of sustainable design.

References

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Level of alertness and any effect of the environmental qualities on alertness appeared neutral, tending towards "positive effect". This might lead to the inference that students are generally satisfied with environmental qualities in Lillis classrooms studied, due to a relatively larger response that rooms have a positive effect. Individual comments praised the qualities of the complex, and also acknowledged that personal factors affected alertness.



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