

Human Centric Lighting

How do we get our information?

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Elfack Göteborg | May 2019

















Light

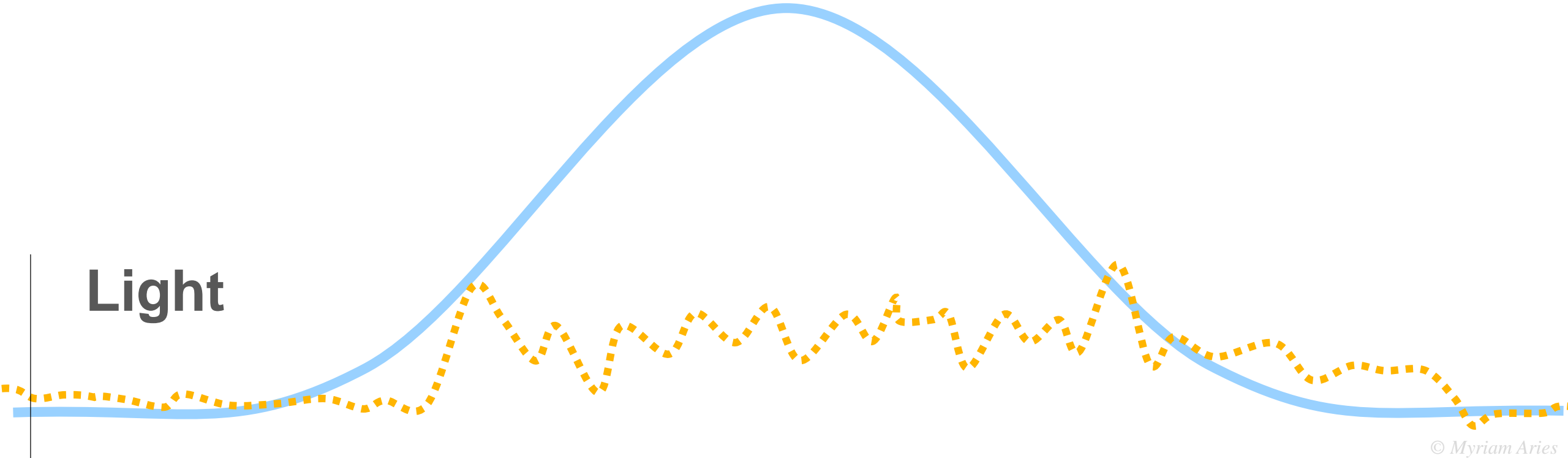
Traditional

Modern

© Various WWW-sources; graph Myriam Aries



Light

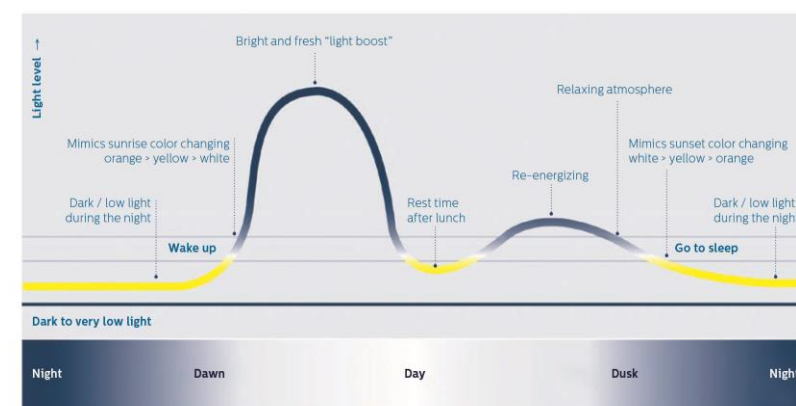
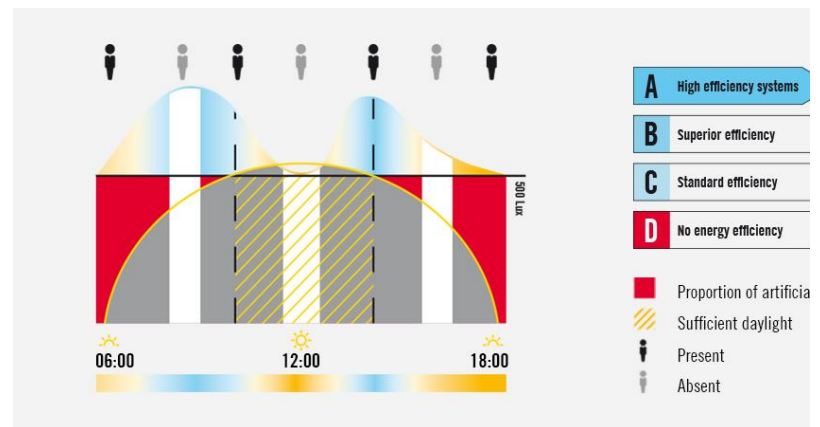
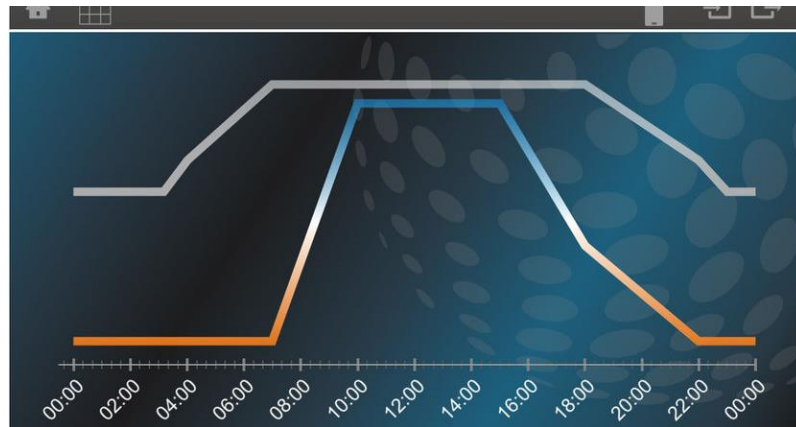
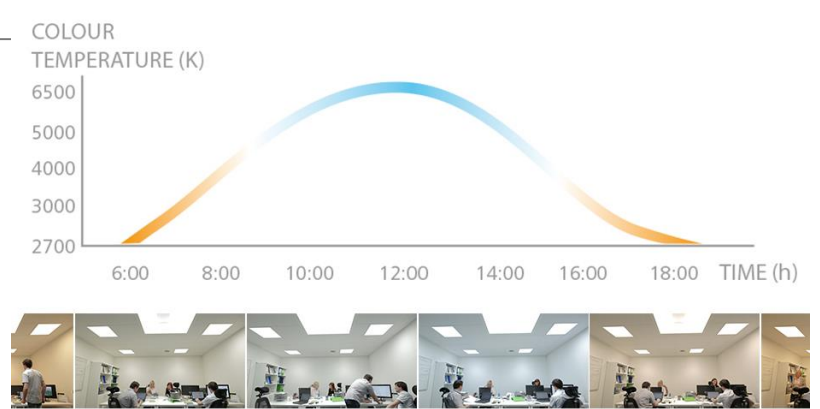
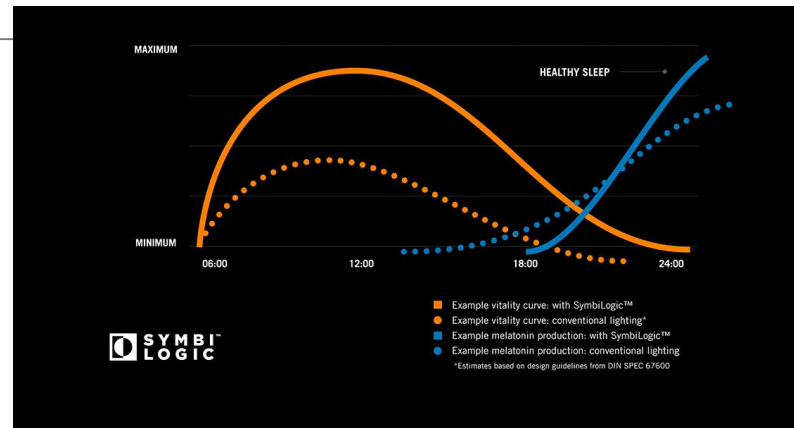
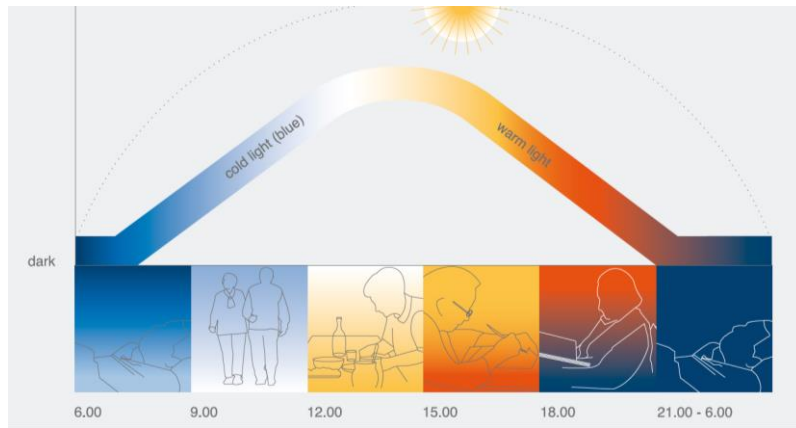


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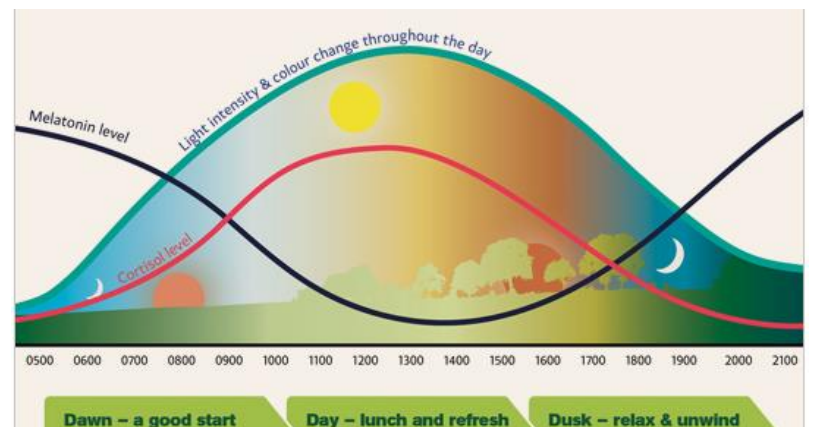
- Biodynamic lighting
- Tunable (white) lighting
- Human Centric Lighting



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Source of information?





Does HCL really improve well-being & performance?

- Literature search
 - Laboratory studies
 - Field studies

[...], the results of the third study showed **no statistically significant effect** of lighting on concentration and do not substantiate the findings of the two field studies in a controlled environment.

(Slegers et al., 2013)

Near to **statistical significance** effects of the intermittent bright light regime on mood [...] and performance [...] were found.

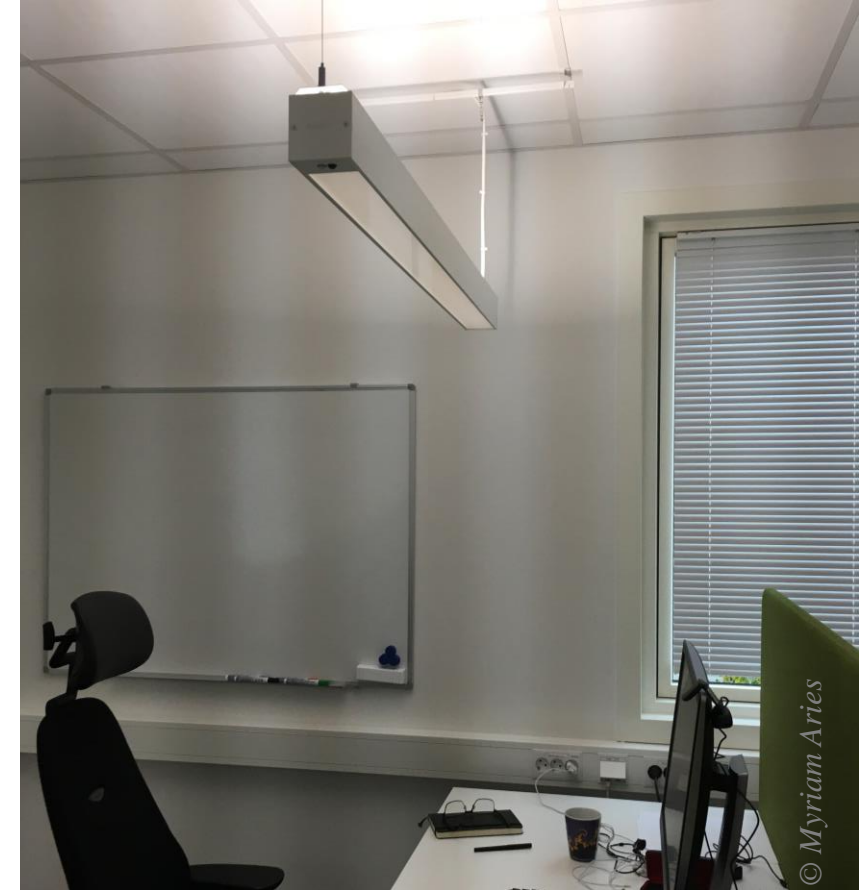
(Iskra-Golec and Smith, 2008)

The [...] study demonstrates a potential benefit of a variable lighting installation in indoor office accommodations with respect to subjective mood and activation, although this was **not accompanied** by unambiguous advantages in the profile of markers of the circadian rhythm.

(Hoffmann, et al., 2010)

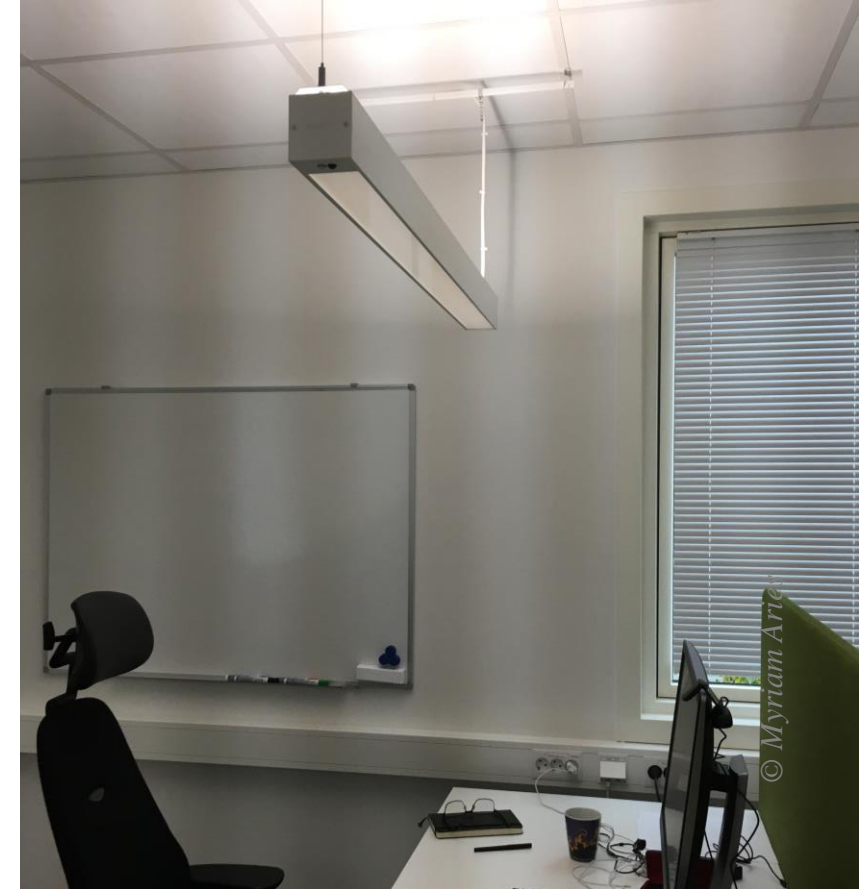
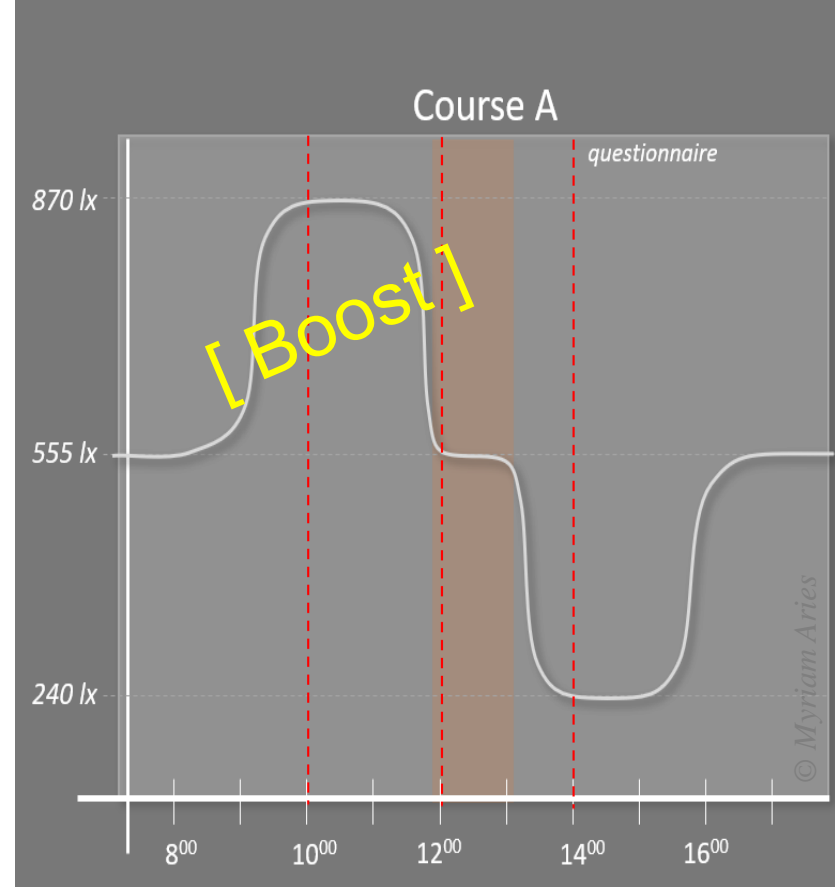
Questionnaire data suggest **no significant differences** for need for recovery, vitality, alertness, headache and eyestrain, mental health, sleep quality, or subjective performance, although employees were more satisfied with the dynamic lighting.

(de Kort & Smolders, 2010)



Field study

Two groups in two different open office rooms



Field study

Two dynamic light patterns: High -> Low and Low -> High



Laboratory study

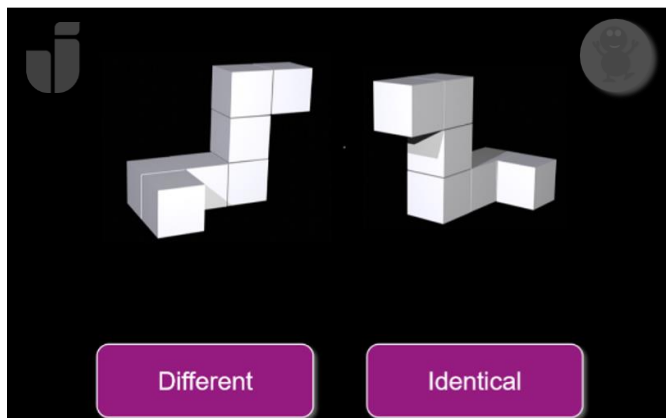
Two dynamic light patterns: High \rightarrow Low and Low \rightarrow High



Does HCL really improve well-being and performance?

- Results laboratory study¹
 - Morning light boost affect students' mood
 - Not beneficial for cognitive performance
 - Afternoon light boost too late for benefits

Effect of lighting
or
Learning curve?



¹ Aries, M.B.C., Beute, F., Fischl, F., 2019, Students in good mood appear slower and less accurate, Proceedings CIE 2019 29th Quadrennial Session, June 14-22, Washington, USA

To conclude...

- What is the source of the information?
 - Specify!
- What is the effect that was investigated?
 - Check!
- What was the result of the research?
 - Check!



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