



Translational Lighting Research

January 30, 2020

Bob Davis



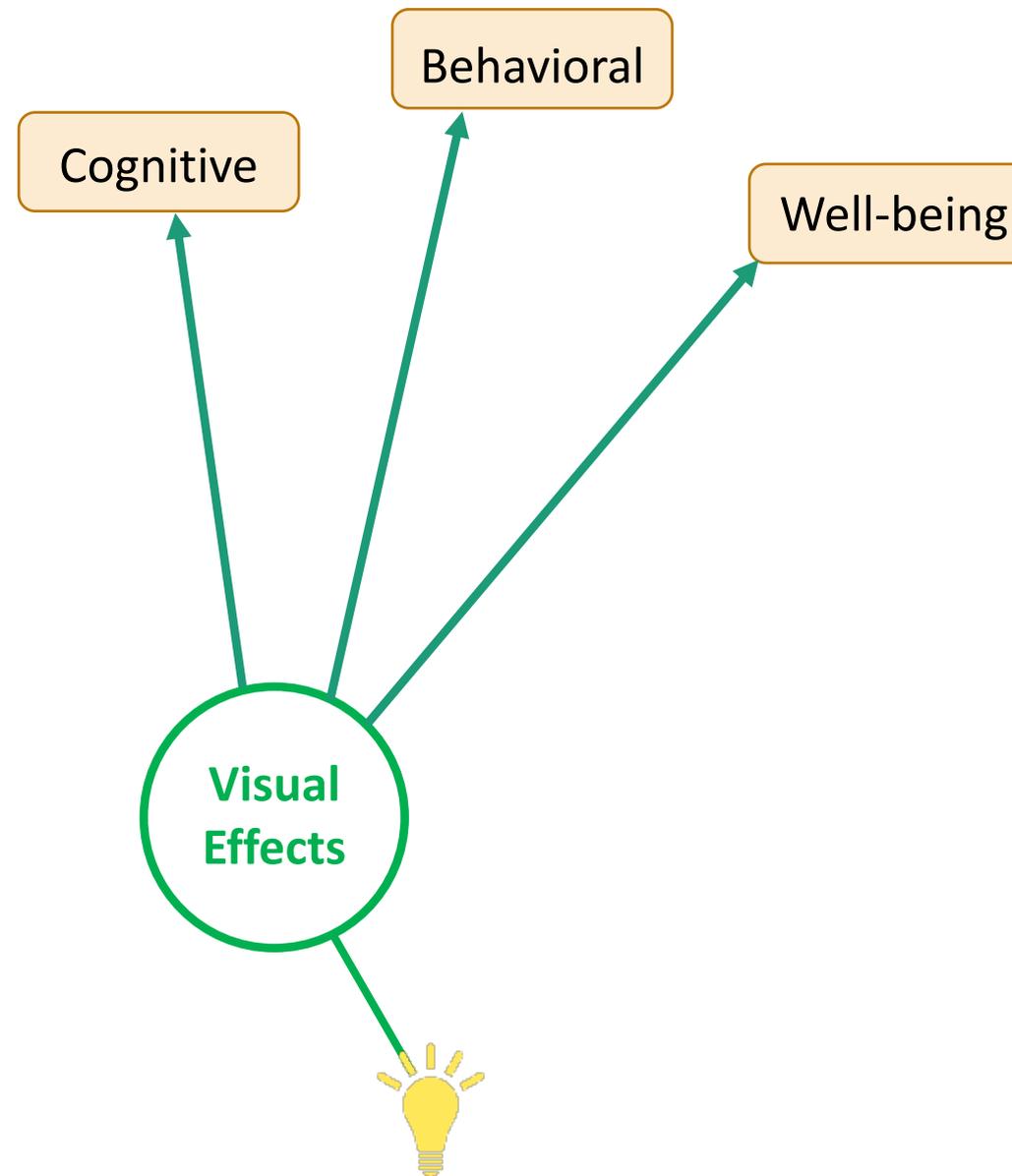
PNNL is operated by Battelle for the U.S. Department of Energy

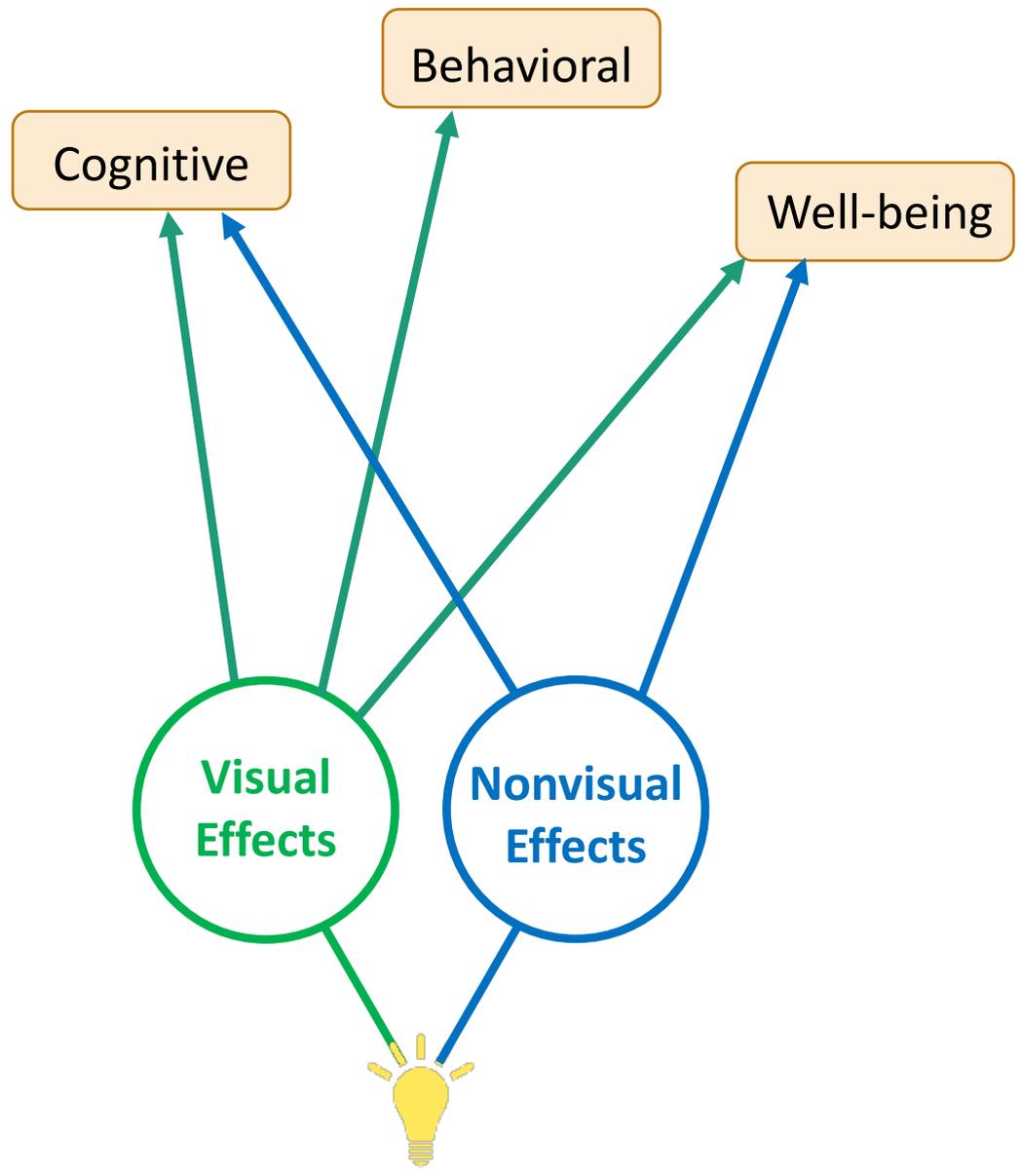


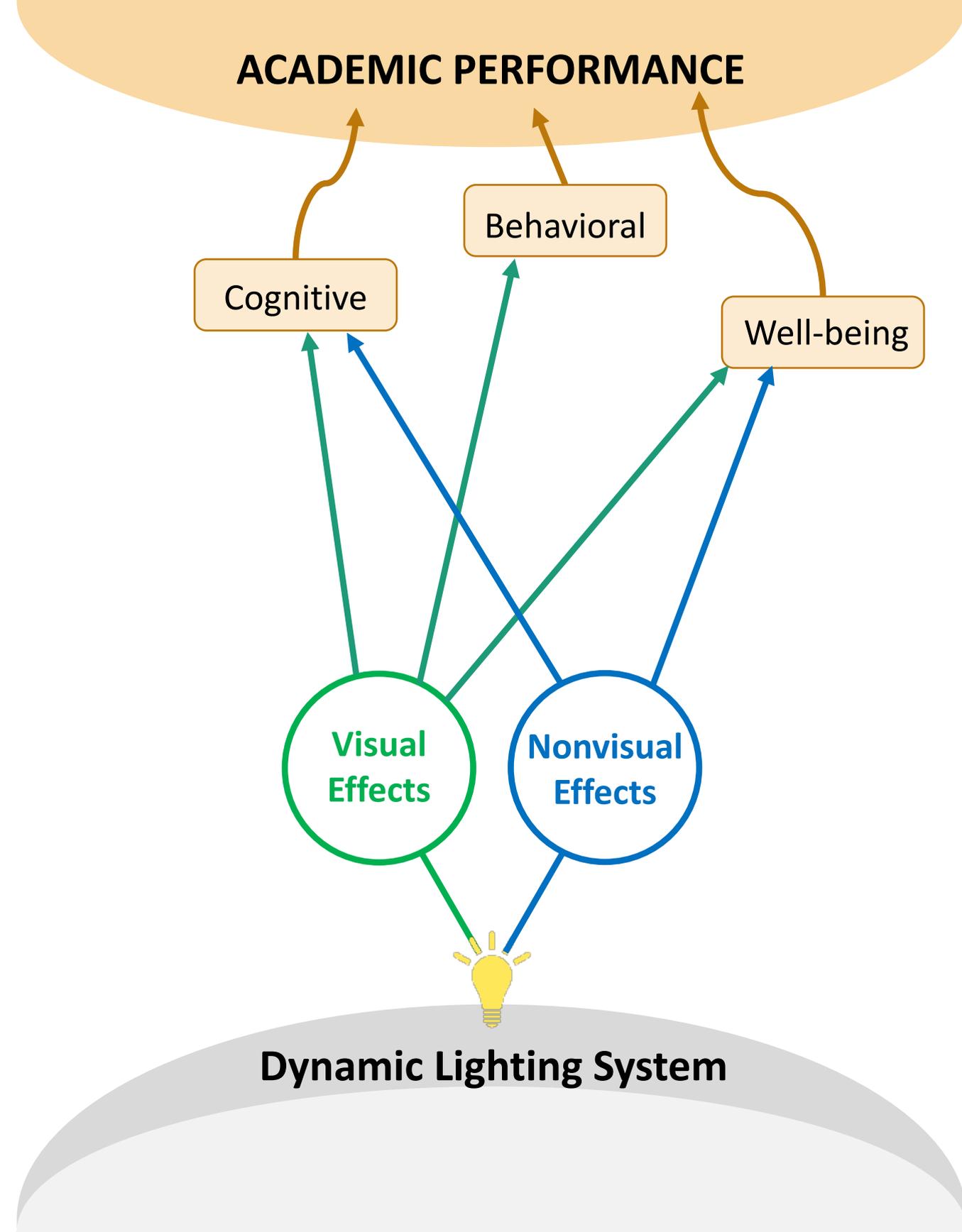
“Translational research involves moving knowledge and discovery gained from the basic sciences to its application in clinical and community settings. This concept is often summarized by the phrases "bench-to-bedside" and "bedside-to-community" research.” (Khoury et al, Genet Med, 2007)

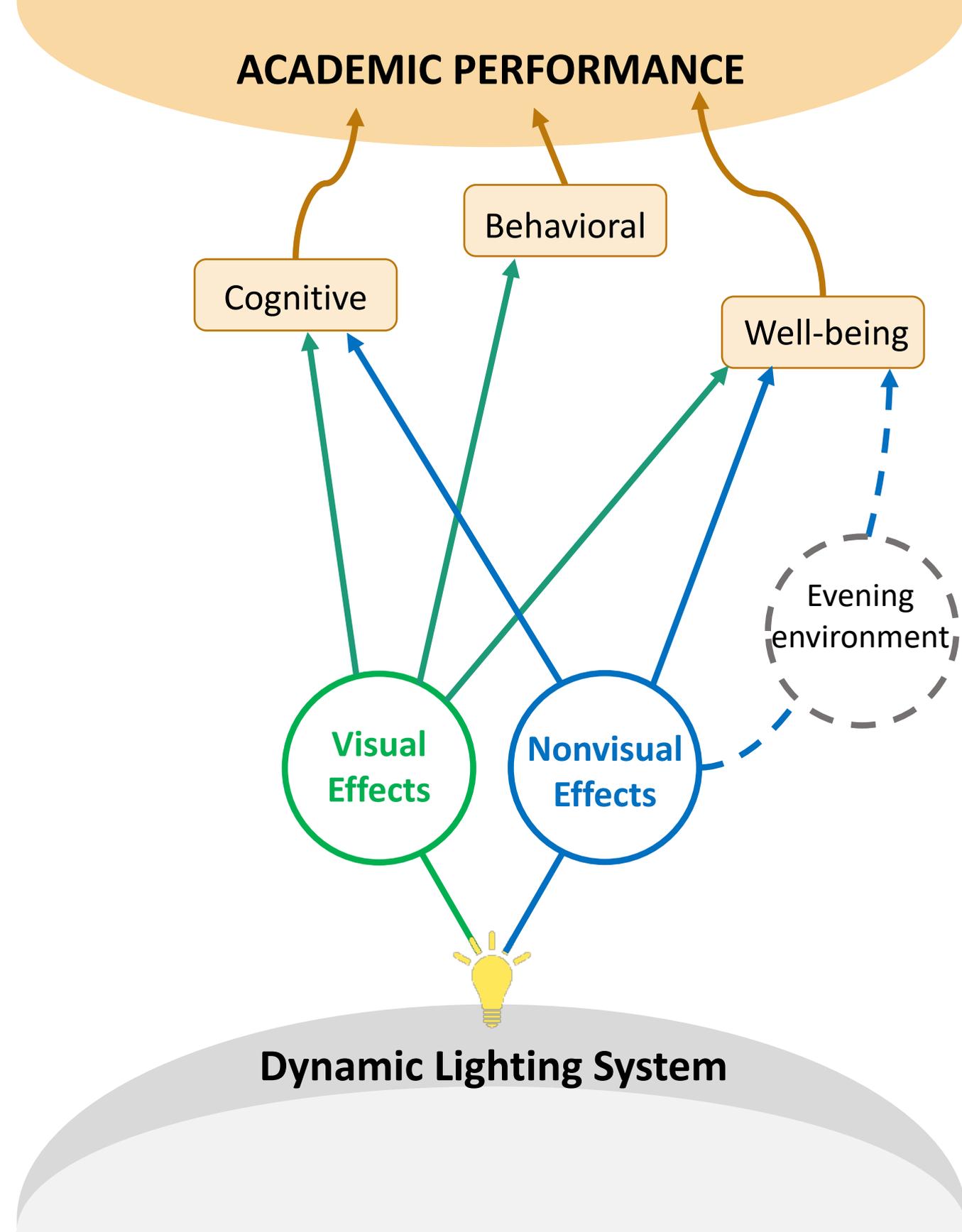
“Translational research is the process of applying laboratory research to human studies and enhancing the adoption of evidence-based practices in real-world settings to reach broad populations.” (Zoellner et al, J Acad Nutr Diet, 2015)

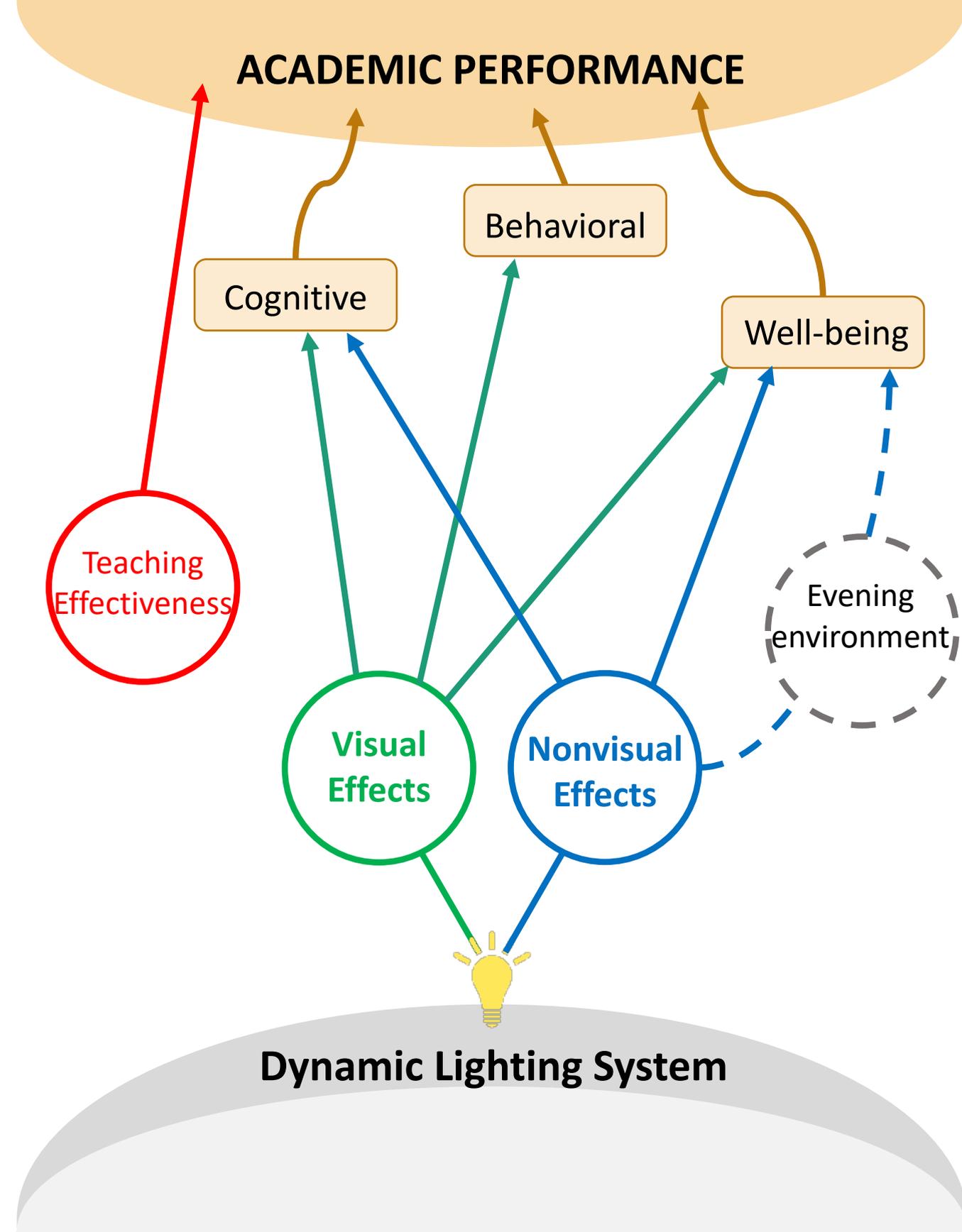
72 -- 560 -- 34 million

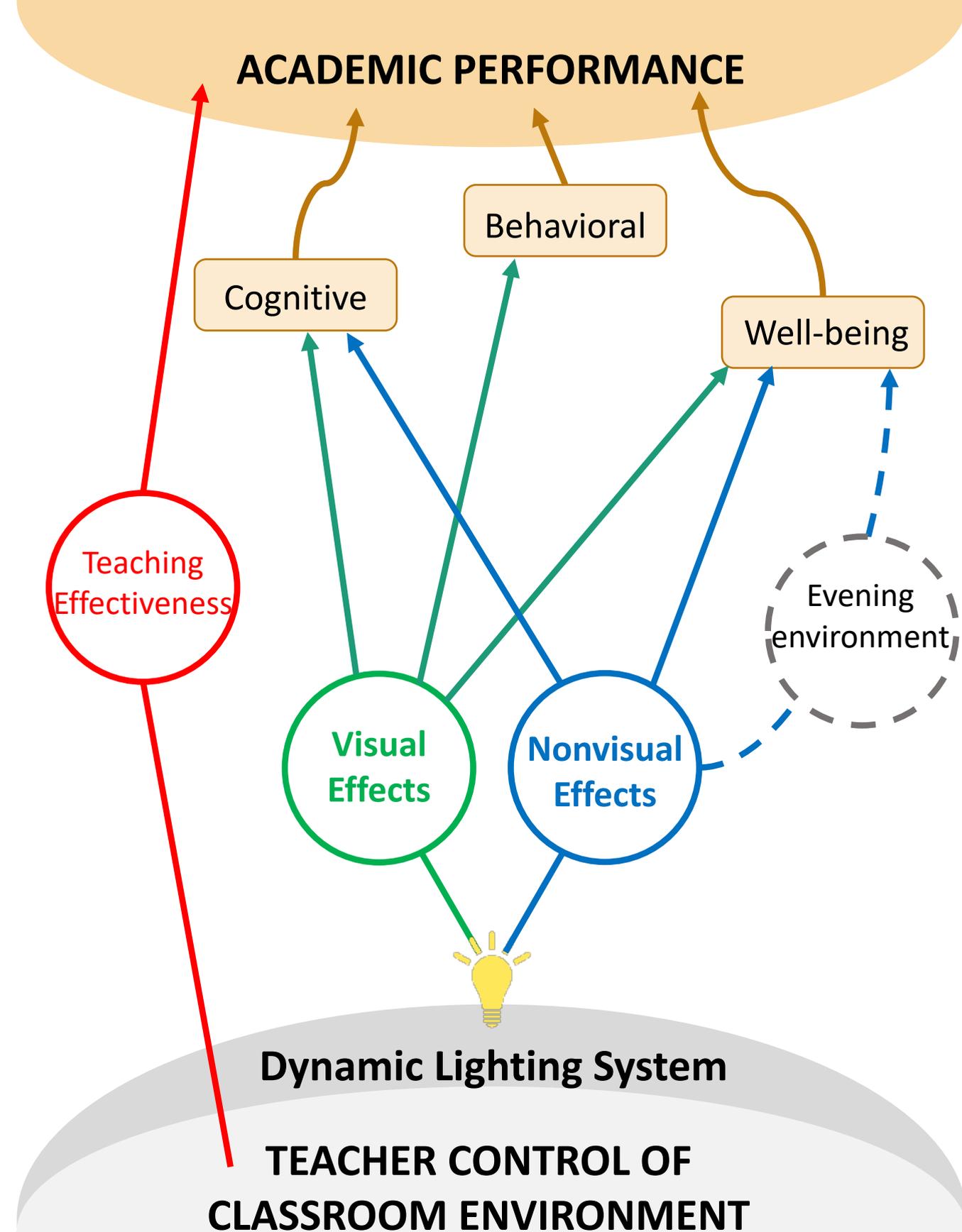












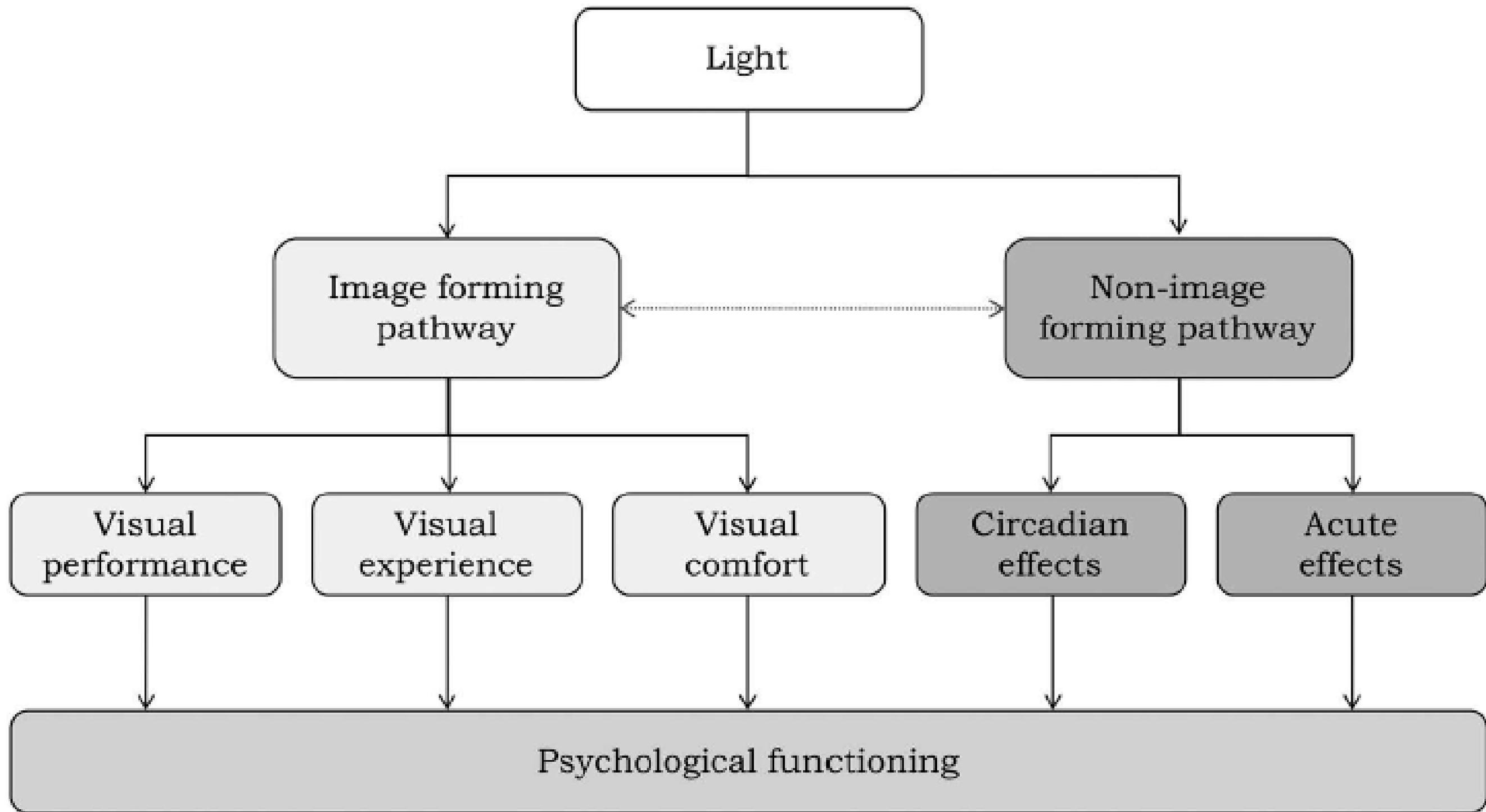


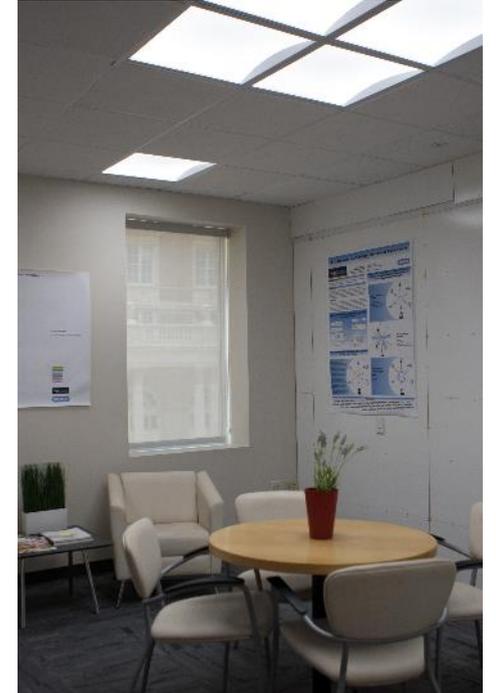
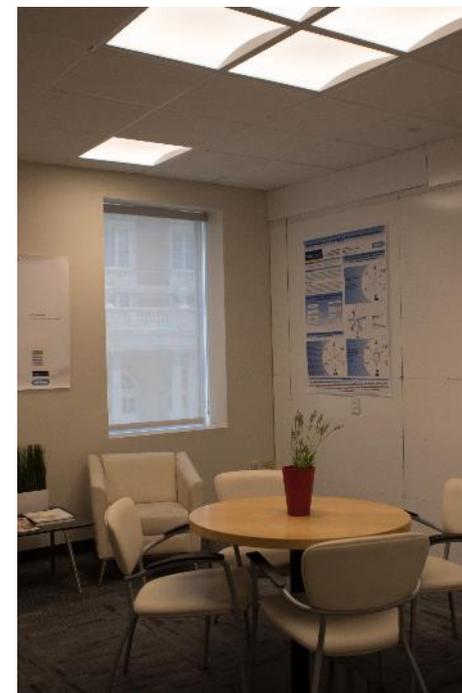
Fig. 1. Pathways of light relevant to psychological functioning. Adapted from de Kort and Veitch (2014).

Patient Room Mock-Up

SimTigrate Design Lab



- Task difficulty
- Comfort
- Naturalness
- Appropriateness



Betti Ruth Robinson Taylor Neonatal Intensive Care Unit



- Programmed system functioning
- Use of controls
- Staff evaluations



Boulder Community Health Behavioral Health Unit

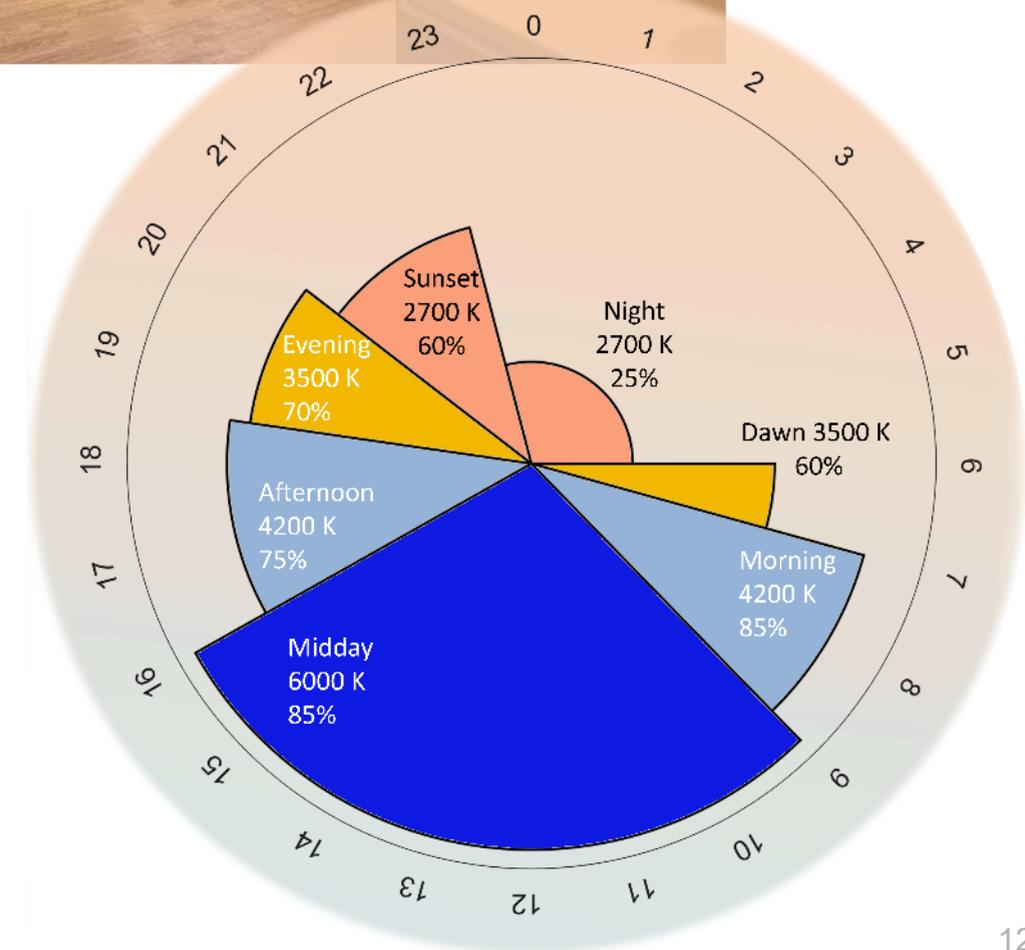


BOULDER ASSOCIATES

ARCHITECTS



- Staff evaluations
- Length of stay
- Amount of sleep
- Emotional state
- Mental state
- Behaviors



7:00 AM – 2:00 PM

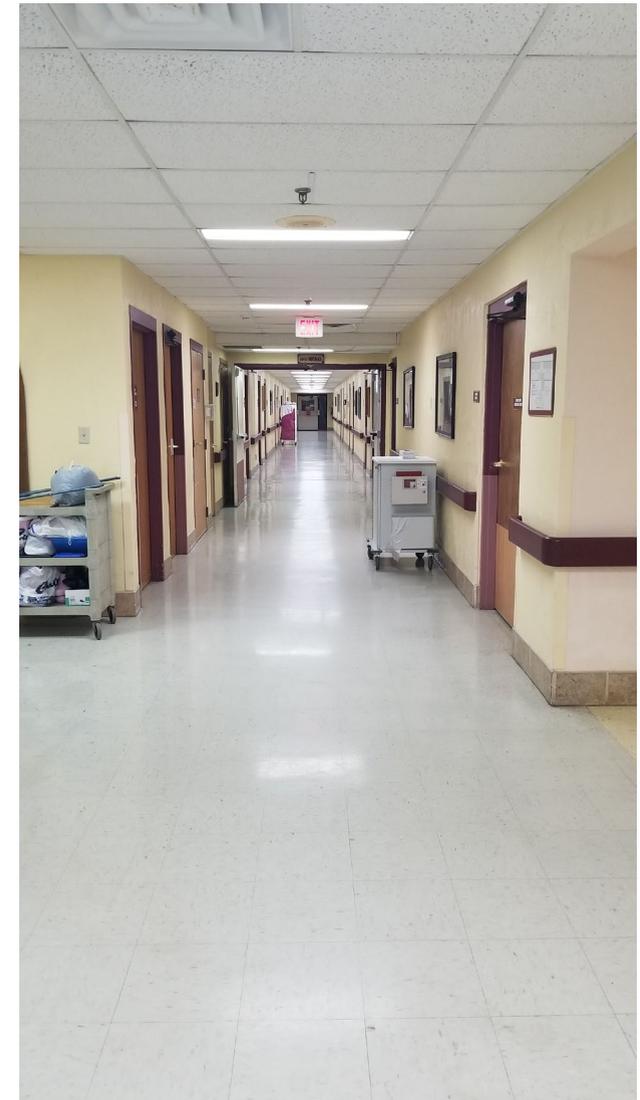
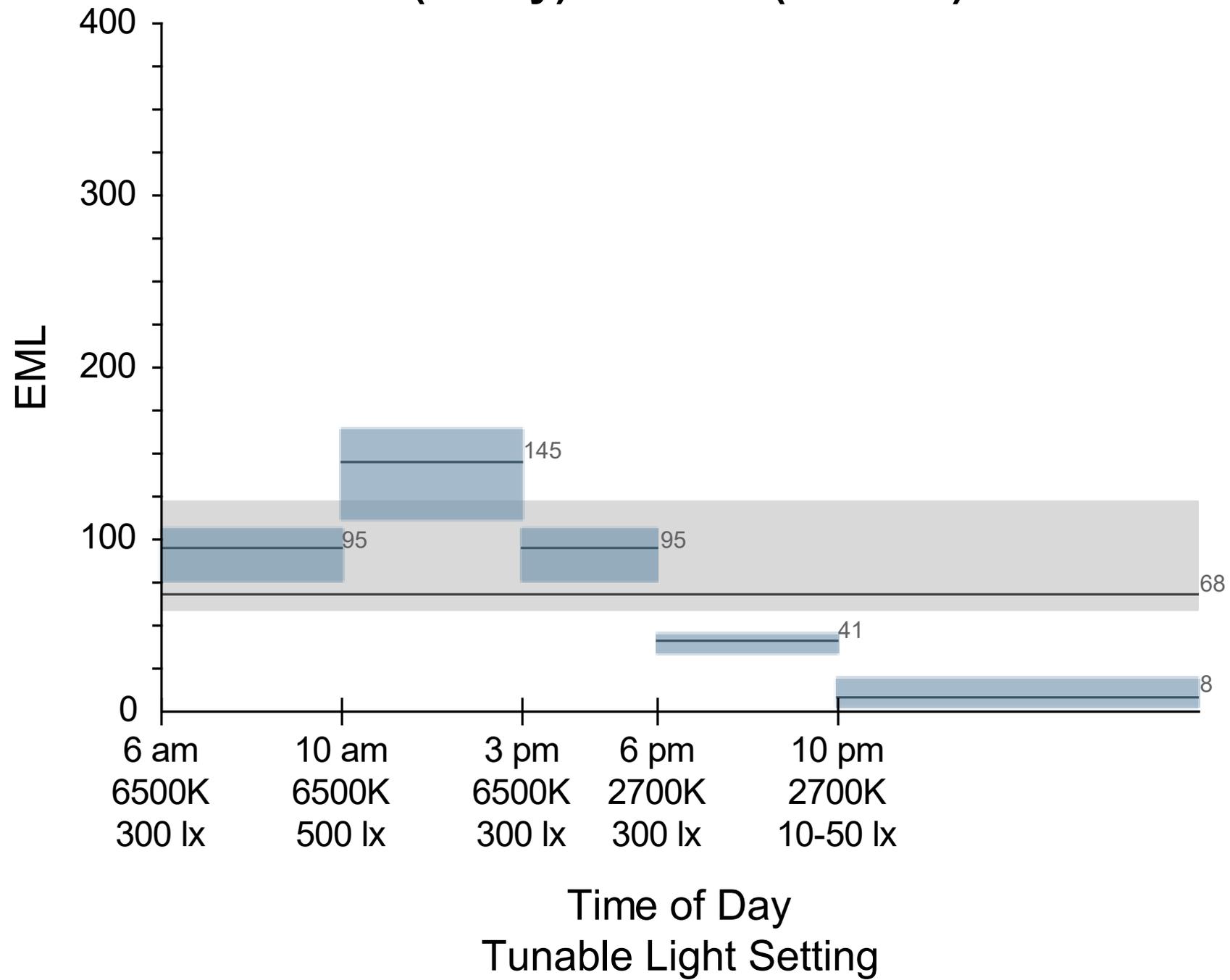
2:00 PM – 6:00 PM

6:00 PM – 7:00 AM

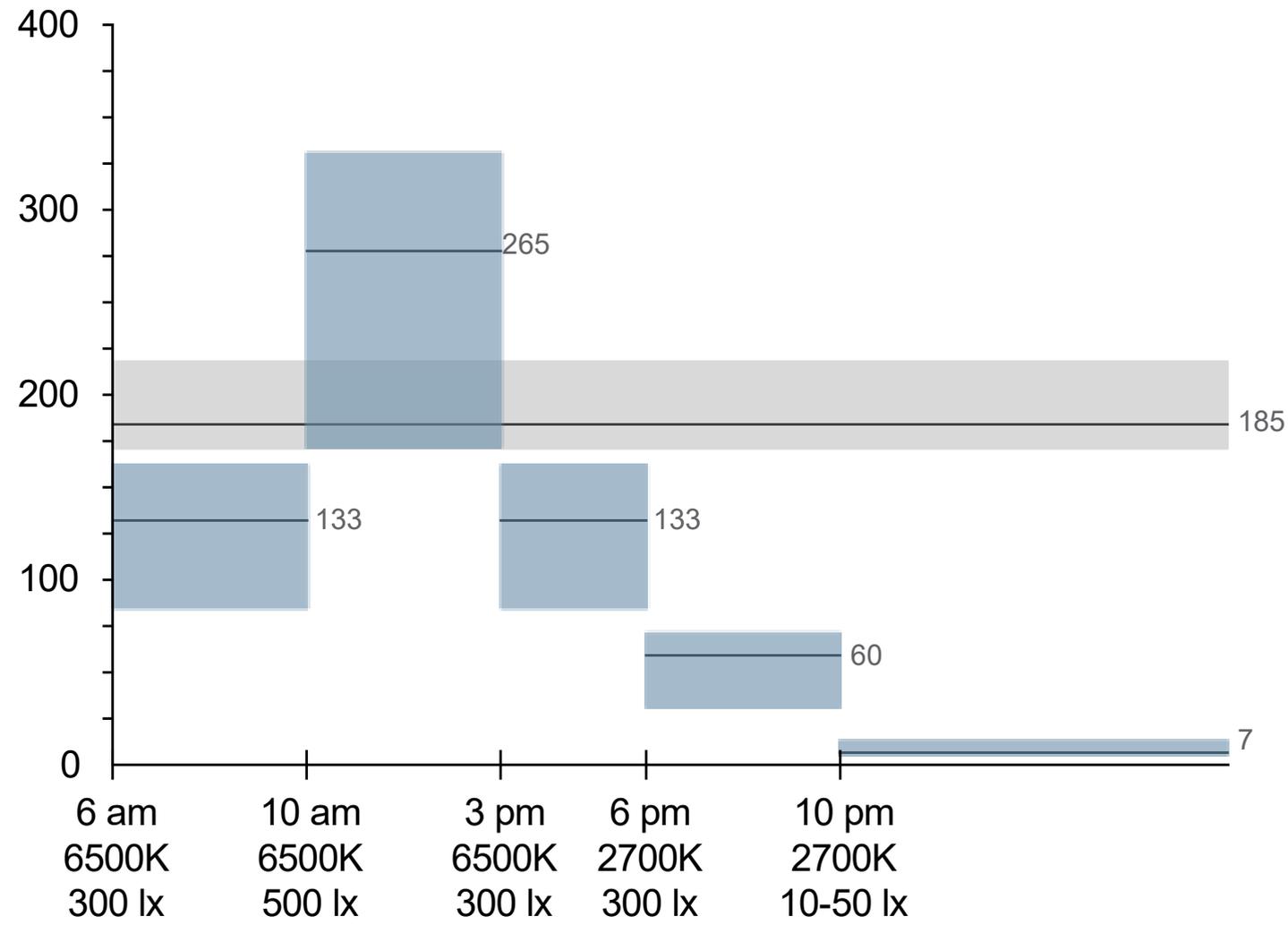
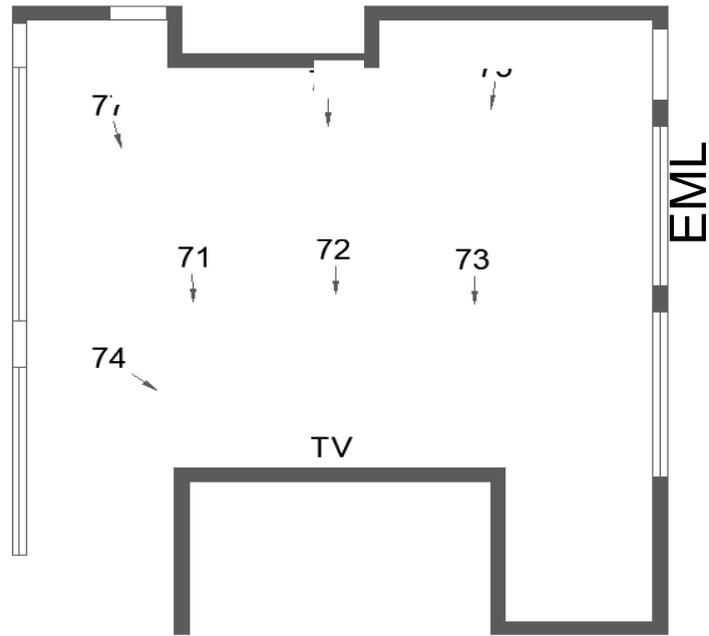
- Number of falls
- Sleep medications
- Sleep time & quality
- Agitation behaviors

HALLWAY

Hall B (Study) & Hall A (Control)

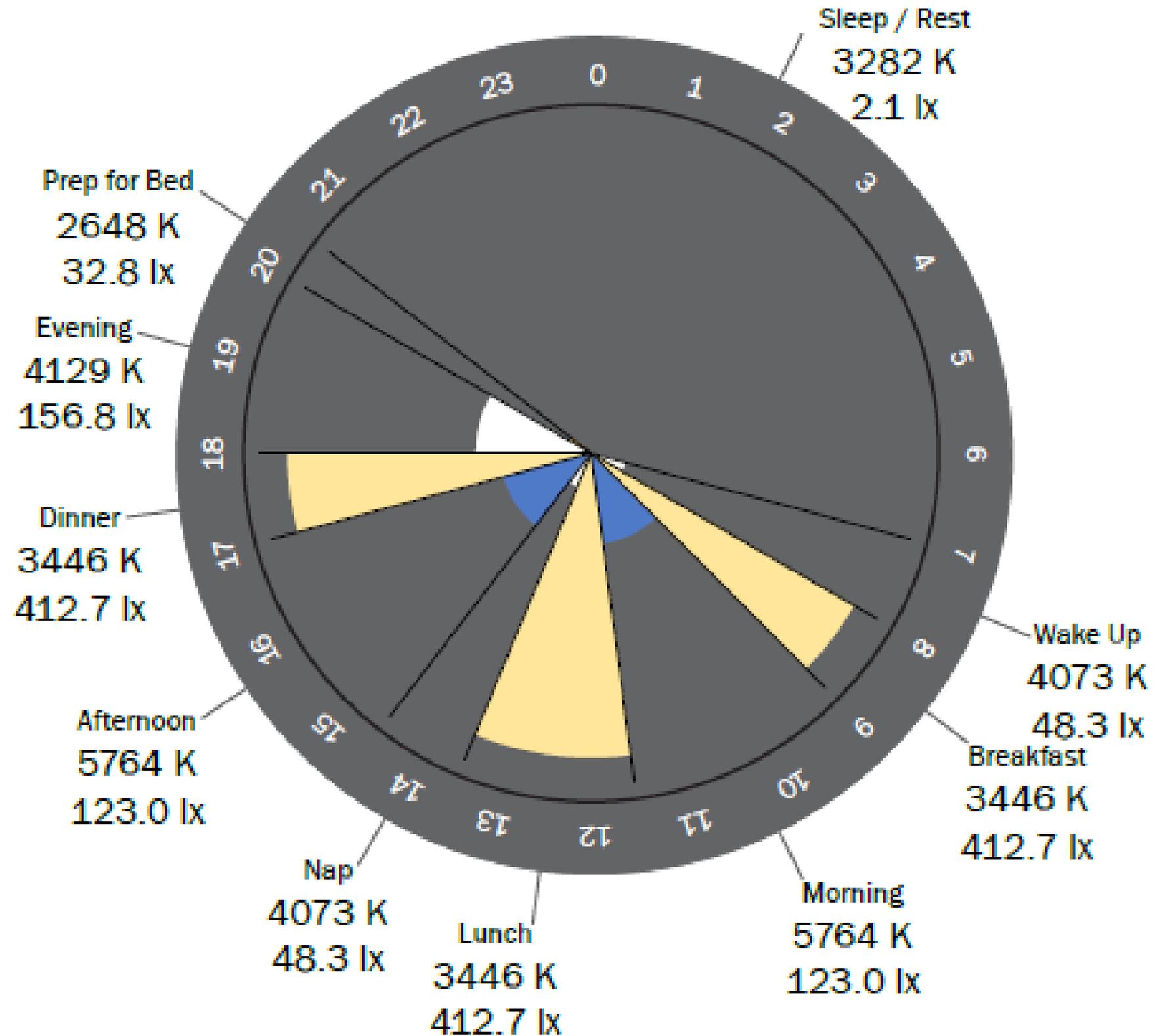


ACTIVITY ROOM

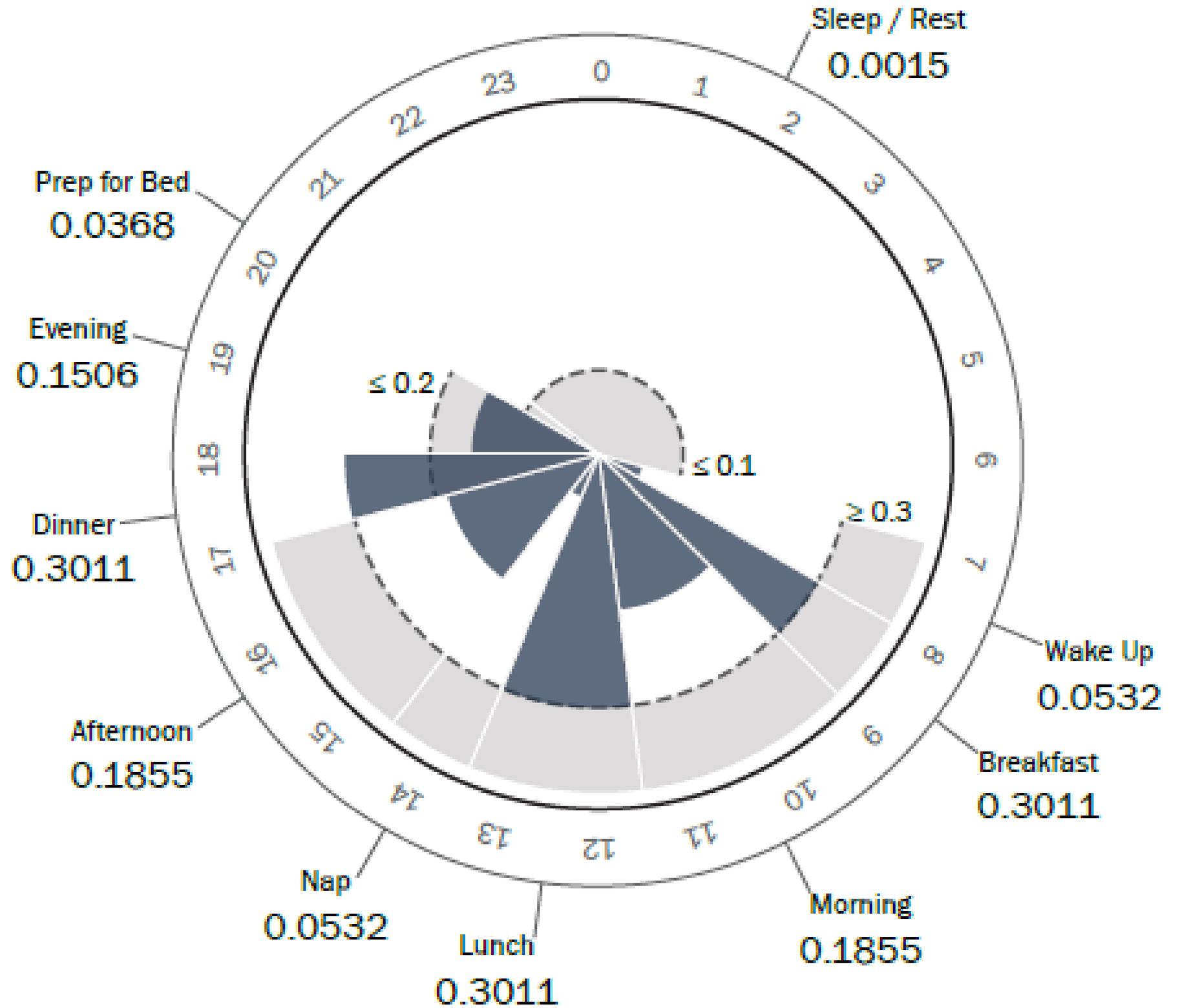


Time of Day
Tunable Light Setting

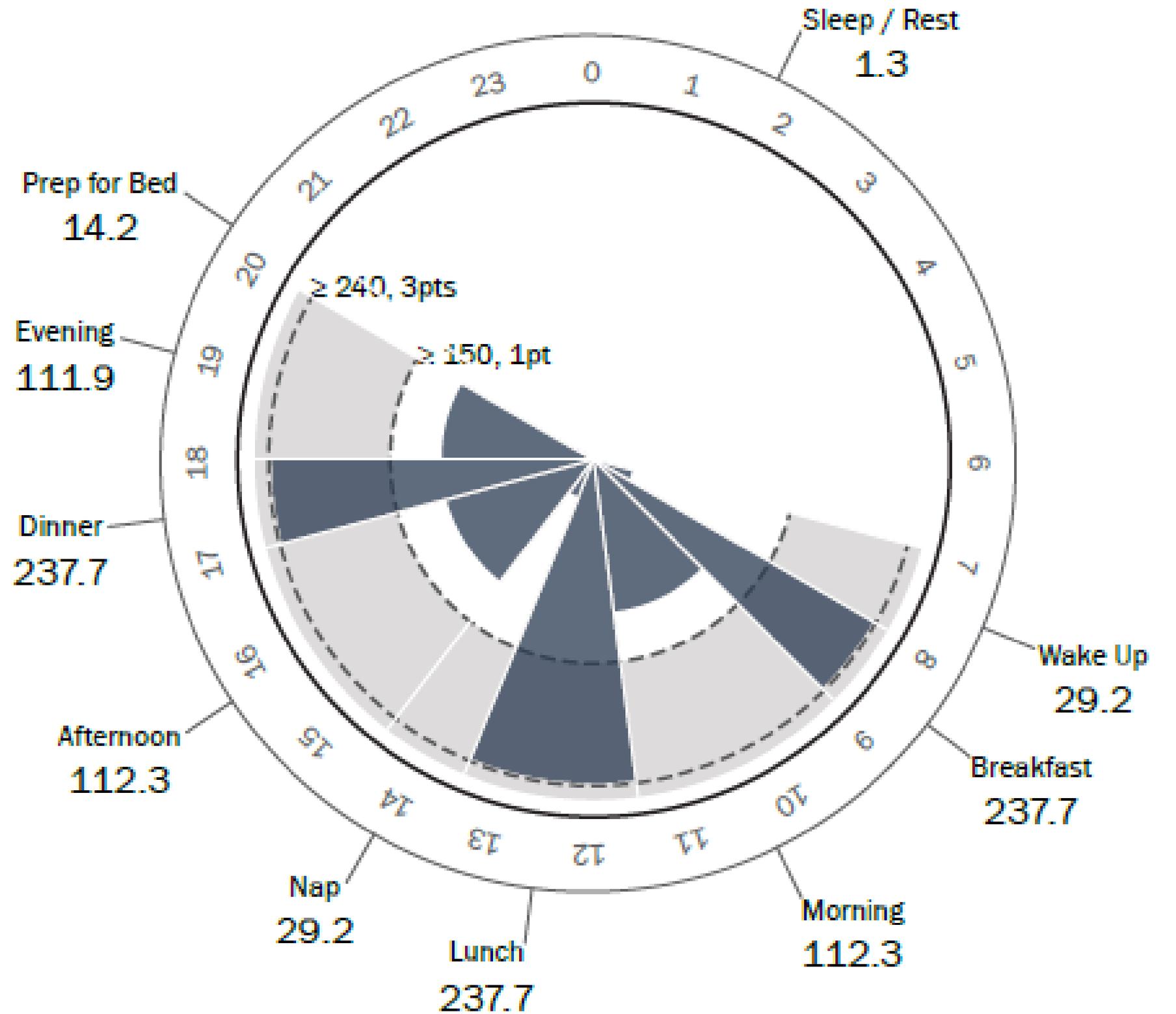
Measured Light Settings



CS



EML





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