



Department of Psychology
The University of Hong Kong
香港大學心理學系

Sleep
Research Clinic
and Laboratory

Laidlaw Scholar Leadership-in-Action Project Outline
**SUMMER RESEARCH PROGRAMME FOR SECONDARY
SCHOOL STUDENTS @ HKU SLEEP LAB**

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Overview

Sleep is an essential component of our daily lives, regulated by the circadian rhythm, a 24-hour internal clock that controls and sleep/wake cycle (Goel et al., 2013; Reddy et al., 2024). Since the Industrial Revolution, the pursuit of productivity has pushed us to get less sleep – by going to bed later and waking up early to work in factories (Killick, 2021). Until more recently, with the increasingly digitalised world introducing the temptation of personal electronic devices, adolescents with curious and growing minds easily get occupied with playing video games or using social media even near bedtime. This has worsened in recent years, with COVID-19 bringing lockdowns and school suspensions around the world, leading to excessive screen usage when dwelling at home most of the time, which in turn causes poor sleep quality (Bani-Issa et al., 2023) and lower health-related quality of life (Cheung et al., 2022). The lack of sleep is also demonstrated to cause various other physiological problems like type-2 diabetes, CVD (cardiovascular disease) and hypertension by sleep deprivation studies (Worley, 2018).

There is an urgent need to promote better awareness of sleep hygiene and knowledge of sleep and circadian sciences among students to nurture better sleeping habits, which could in turn affect the mental health experience of individuals (Scott et al., 2021). This is because their daily lives are not only limited by daytime commitments (at school) but also often affected by the huge homework load and lack of self-control with bedtime. Given the linkage of sleep science with psychological (and mental) health, I have chosen to work with the Sleep Research Clinic and Laboratory (“HKU Sleep Lab”, <https://sleep.hku.hk>) at the Department of Psychology, the University of Hong Kong led by Professor Shirley Xin Li. HKU Sleep Lab has a strong track record of working on adolescent sleep psychology studies. The psychology department at HKU is also ranked top three among Asian universities, making it a great hub for research and academic studies of the discipline. My previous experience with the team at HKU Sleep Lab as a research intern during semester time in Year 2 is also expected to help get the project onboard more smoothly and efficiently.

With an emphasis on promoting behavioural sleep medicine and clinical psychology research, this project includes a one-month-long research internship and mentorship programme for high school (HKDSE S4-5, GCE-AL Y11-12 or equivalent) students. Besides lectures and workshop sessions that are designed to teach the students about psychology and sleep knowledge, the program also incorporates practical research training and mentorship elements. Postgraduate-level mentors are paired with secondary school interns to assign and provide supervision on research tasks. Interns are able to take part in research to gain a first-hand experience of participants, enabling them to better appreciate the challenges and limitations one may face in research projects. They will also get the chance to work for

various projects of the lab's research, including data management, literature synthesis and reviews, as well as sleep polysomnography (PSG) and electroencephalography (EEG). It also incorporates a Designathon, utilising a novel crowdsourcing strategy that has proven feasibility (Ling et al., 2021) to source input for disseminating sleep knowledge and awareness to their peers. As a bottom-up approach that directly engages the intended audience demographic, this teamwork contest also helps inform future outreach strategies. Students will be split into groups and work on a topic under the broader theme related to sleep and circadian science promotion, then present their findings to adolescent sleep and mental health experts as well as peer adjudicators. This allows our student interns to apply the psychology and research knowledge gained through the programme through a collaborative project.

From the conceptualisation, preliminary planning, and recruitment to the actual implementation and onsite logistics of this inaugural cohort of the summer research programme, I am involved in all aspects of administrative and practical duties as the Programme Coordinator. I will work alongside with the Programme Director, who is a postdoctoral research fellow, other research assistants and student programme leaders who also serve concurrently as summer undergraduate interns at the lab who will render valuable support to the success of the programme. By exposing high school students to the world of academia and research before they enter university studies, it is hoped that they could gain practical skills and deeper understanding of psychological concepts. Through collaborating with students from various backgrounds and study streams (local versus international), they could foster teamwork and collaboration skills, while exploring potential career paths and academic opportunities in psychology. Beyond sleep and psychological sciences itself, this programme is expected to foster mental health awareness and empowering students to become advocates for mental health within their communities.

More information about the project can be found at <https://sleep.hku.hk/srpsss>. All information is accurate as of 14 May 2024.

Basic Information

I. Your full name and University of affiliation

Full name	Adrian Pang (PANG Ho)
University	The University of Hong Kong

II. University contact

Your key contact or supervisor at your University

Full name	<i>Professor</i> Siu Lun Ryan AU YEUNG
Position	Assistant Professor, School of Public Health
Department	Division of Epidemiology and Biostatistics, LKS Faculty of Medicine
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III. Title of LiA Project

Summer Research Programme for Secondary School Students 2024

IV. Organisation/charity contact

The organisation/charity you are working with

Sleep Research Clinic and Laboratory, Department of Psychology, University of Hong Kong

(<https://sleep.hku.hk>)

*Your key contact (supervisor) at the organisation/charity**

Full name	<i>Dr</i> Forrest Tin Wai CHEUNG
Position	Postdoctoral Research Fellow, HKU Sleep Lab
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V. Goals and objectives

The need or cause you are supporting: What is the specific problem, cause or opportunity you are exploring?

Mental health and psychology have always been an important part of our lives, no less than physical health like the pandemic that just passed and various non-communicable diseases. It has become more prominent in media attention in recent years, bringing greater awareness to the general public. There is a need for greater understanding of mental health and clinical psychological sciences to build a future

community that cares about their and others' mental well-being. On the other hand, students often face difficulty getting exposure to the fieldwork they might be interested in working in in the future, and struggle with their motivation to choose particular university subjects and career pathways. The lack of relevant and accessible programmes (for example, the Summer Institute offered at HKU costs nearly 14,000 HKD for a 10-day programme) also limits access and inclusiveness towards students from different backgrounds. The society, especially universities should provide systematic support to equalise access and opportunities for students to join their immersion programmes to help them make informed decisions for future studies and careers pathway.

As sleep and circadian sciences are deeply intertwined with mental health and have significant neuropsychological implications, we hope to instil a better understanding of these topics among adolescents and empower them to become advocates for mental health within their communities. The programme provides immersive mini-lectures, experiential research work (e.g. psychological assessments), hands-on learning tasks, and more, to enable students gain in-depth knowledge of various psychological and mental health issues, as well as the world of academic research that they may be interested in joining in the future. By the end of the one-month programme, students will consolidate their knowledge and take part in a Designathon competition. This event will encourage students to develop and implement mental health promotion programme at their respective institutions.

What is the big-picture idea/vision and desired outcome of what your LiA project is trying to achieve in order to address the need or problem above?

The project serves secondary school students in Hong Kong over the summer of 2024, offering participants the opportunity to delve into the world of clinical psychological sciences research while connecting them with like-minded peers and mentors in a supportive environment. The expected outcomes include:

- Foster mental health awareness and empowering students to become advocates for mental health within their communities.
- Provide the opportunity for future university students to engage in hands-on research projects which enhance practice skills and deepen their understanding of psychological concepts.
- Collaborate with fellow students from diverse backgrounds, fostering teamwork and problem-solving.

- Students can discover potential career paths and academic opportunities in psychology through an immersive and enriching research experience.

Objectives – these represent how you will achieve your goal. Write down three to five SMART objectives outlining how you will achieve the overall goal.

Overall objective: To lead a summer programme and supervise secondary school students on projects that advocate for mental health and wellbeing. The programme also aims at building competencies and experiences in clinical psychological sciences research and fostering collaborative skills for secondary school students. The SMART objectives related to achieving the overall goal is as follows:

- Effective communicator: I have to convey the key messages to my fellow lab team members (Managers, RAs, research post-grads/postdocs and faculty) as well as the participants. To the participants, besides arousing their interest and introducing the various topics within a limited amount of time before they wander off or ignore e.g. our community street booths, I must also communicate as a mature ‘staff member’ (to students) and be authoritative enough to build authority and trust at the same time.
- Collaboration and team thinking: as I have to work with other peers and team members together to successfully implement these events, and cooperate with different external stakeholders like local residents, and venue partners, an effective and collaborative mindset is a must.
- Research and project management skills: given the certain extent of self-directedness and initiative required to guide the project, I have to be able to manage the timeline of the project and complete deliverables in time, so that the programmes can be rolled out smoothly and successfully. Sufficient understanding of the students’ needs can also only be obtained by thorough and thoughtful investigation (research) of the status quo, as well as knowing more through their personal statements or interview performances.

VI. Working Plan

List any challenges, barriers or risks to achieving your objectives

- The various academic backgrounds of high school participants (e.g. local HKDSE versus international curriculum like IB and GCE-A Levels) could contribute to different styles of learning and collaboration. The disparity between academic backgrounds implies a varying level of understanding of psychological concepts and research methods – it is apparent that the local

Hong Kong curriculum lacks such type of content. This makes it hard to have a single unified approach to pedagogy and facilitation of the various interactive sessions.

- The longer programme duration, compared to other typical programmes that are offered by HKU (e.g. the Summer Institute is typically 10 calendar days long) makes it harder to continually keep the participants interested. The somehow monotonous nature of certain research tasks (e.g. data entry) may not appeal to students or may not meet their initial expectations. The complexity of maintaining variety and interesting content in the programme activities adds a layer of difficulty in successfully curating enjoyable sessions throughout the month-long programme.
- High school/secondary school students are still less experienced with teamwork and have limited, or immature skills to meet the demanding challenge of a 24-hour designathon. Crises may arise from hostility or lack of understanding or empathy between groupmates, which are all difficult to tackle. Adolescents are prone to quarrels due to the sense of ideal self and it leaves a huge burden to us as event organisers to look after both the mental and physical wellbeing of participants on site and defuse any tricky situations where necessary.

Ideas to overcome barriers or challenges

- To address the disparity between academic attainment and prior knowledge in our participants, I shall strive to include both fundamental concepts to cater for the needs of local students; while appropriately adding in more advanced content from the university level to allow those more able learners to delve deeper into the topics introduced. These might involve more details in the statistical theories, like the central limit theorem that lies as the basis in null hypothesis significance testing, which is not taught in the HKDSE, albeit incompletely in the M1 (mathematics extended module one) syllabus. Coming from the local DSE stream, I shall also do some basic research on the curriculum of our international school participants to remain sensitive to their level of expertise and constantly adjust the way I deliver the lecture and workshop content where necessary.
- As the onsite-level decision-maker throughout the programme implementation, and being responsible in part for strategic decisions with other senior lab staff, I should make good use of my experience as a student to help diversify the topics covered and ensure suitability of the programme content.
- As I will have met the students at least once during the interview process for selecting a shortlist of applicants, I shall group participants while considering their personality, way of working and possible interests. Where necessary, I will also adjust the grouping or intervene in possible signs

of conflicts to avoid larger disagreements in the future. Most importantly, as a leader and key representative on-site to the participants, I should remain open-minded and receptive to their feedback and/or grievance to allow timely adjustment of programme arrangements, especially to cater for their different individual needs.

Milestones & Significant Activities

Period	Start Date	Milestones	Details
Pre-programme	30-05-2024	Promotion & Recruitment Programme Meetings	<ul style="list-style-type: none"> - Pitch deck to schools - Online interviews - Offer extension
Week 0	24-06-2024	Final Preparation	<ul style="list-style-type: none"> - Group/mentor assignment - Lecture/workshop schedule
Week 1	01-07-2024	Induction & Lecture/Workshops	<ul style="list-style-type: none"> - Research methods - PSG/EEG workshops
Week 2	08-07-2024	Lecture/Workshops & Internship	<ul style="list-style-type: none"> - Abnormal psychology, sleep and cognition - Prescreening/measurements - Promotional Outing
Week 3	15-07-2024	Internship	<ul style="list-style-type: none"> - Mentorship & supervision - PsychoEd social media - Promotional Outing
Week 4	22-07-2024	Internship & Designathon Competition	<ul style="list-style-type: none"> - Research supervision and briefing/training sessions - Designathon competition - Closing Ceremony
Week 5	29-07-2024	Programme Evaluation	<ul style="list-style-type: none"> - Focus group evaluation - Post-event questionnaires
Post-programme	05-08-2024	Other Miscellaneous Admin.	<ul style="list-style-type: none"> - Souvenir pack distribution

References

- Bani-Issa, W., Radwan, H., Saqan, R., Hijazi, H., Fakhry, R., Alameddine, M., Naja, F., Ibrahim, A., Lin, N., Naing, Y. T., & Awad, M. (2023). Association between quality of sleep and screen time during the COVID-19 outbreak among adolescents in the United Arab Emirates. *J Sleep Res*, 32(1), e13666. <https://doi.org/10.1111/jsr.13666>
- Cheung, M.-C., Yip, J., & Cheung, J. P. Y. (2022). Influence of Screen Time during COVID-19 on Health-Related Quality of Life of Early Adolescents. *International Journal of Environmental Research and Public Health*, 19(17), 10498. <https://www.mdpi.com/1660-4601/19/17/10498>
- Goel, N., Basner, M., Rao, H., & Dinges, D. F. (2013). Circadian rhythms, sleep deprivation, and human performance. *Prog Mol Biol Transl Sci*, 119, 155-190. <https://doi.org/10.1016/b978-0-12-396971-2.00007-5>
- Killick, A. (2021, June 30). *Waking up in the middle of the night? Thank your pre-industrial ancestors*. <https://www.cbc.ca/radio/spark/waking-up-in-the-middle-of-the-night-thank-your-pre-industrial-ancestors-1.5990900>
- Ling, R., Sit, H. F., Balaji, S., Lam, A. I. F., Latkin, C. A., Tucker, J. D., & Hall, B. J. (2021). Crowdsourcing to design a marketing package to promote a WHO digital mental health intervention among Chinese young adults. *Internet Interventions*, 25, 100397. <https://doi.org/https://doi.org/10.1016/j.invent.2021.100397>
- Reddy, S., Reddy, V., & Sharma, S. (2024). Physiology, Circadian Rhythm. In *StatPearls*. StatPearls Publishing.
- Scott, A. J., Webb, T. L., Martyn-St James, M., Rowse, G., & Weich, S. (2021). Improving sleep quality leads to better mental health: A meta-analysis of randomised controlled trials. *Sleep Med Rev*, 60, 101556. <https://doi.org/10.1016/j.smrv.2021.101556>
- Worley, S. L. (2018). The Extraordinary Importance of Sleep: The Detrimental Effects of Inadequate Sleep on Health and Public Safety Drive an Explosion of Sleep Research. *P t*, 43(12), 758-763.