

RIE2030 Human Health and Potential

Science of Learning (SoL): 6th Grant Call

Webinar, 15 April 2026



RIE2030 Human Health and Potential Domain

Human Potential Programme

Human Potential as an integral part of ***Health & Biomedical Sciences research*** and its applications in RIE2030:

VISION

To advance Human Potential in **health, biomedical sciences and Science of Learning** research and its applications at **critical junctures** of an individual's life course

PRIMARY OUTCOME

An individual is provided the support and opportunity to **develop optimally at critical junctures of their life course**. This will enable the individual to **improve holistic health, wellness, and learning capacity** to contribute their best to Singapore.



Objectives and Desired Outcomes of SoL Programme

Objectives: The SoL programme seeks to support science-based research that could explicate the principles, processes and mechanisms of learning and skills acquisition in order to generate implementable and scalable interventions that improve education and skills development, and hence advance Singapore's human potential.

Outcomes

Improve teaching & learning processes with informed pedagogy and andragogy



Outcomes

Create a vibrant multi-disciplinary research community





Types of Funding Available

There are two types of funding for the SoL programme.

Type A: Use-inspired Basic and Applied Research

- To generate knowledge that can potentially lead to applications in teaching, learning and skills acquisition

Type B: Development and Translation

- To develop implementable and scalable applications for teaching, learning and skills acquisition, as well as assess their efficacy and effectiveness.



Outcome of 5th Grant Call

53 Whitepapers were received, with 26 full proposals subsequently reviewed by the SoL Expert Panel. 7 have been selected for funding.

PI / Host Institution	Project Title
Type A2 (Investigator-led Projects)	
Cheong Kang Hao (NTU)	Conversational AI for Higher-Order Thinking: A Science of Learning-Based Intervention in Secondary Education
Chen Wenli (NIE, NTU)	Optimising Learning in Human-AI Collaboration for Intelligence Augmentation (HAC-IA)
Twila Tardif (NUS)	Bilingual Children's Brain and Language Development: Literacy Exposure and Language Competence as Independent Sources of Resilience
Suranga Chandima Nanayakkara (NUS)	Designing & Investigating Adaptive Scaffolding and Nudging Strategies for Adult Learners
Type A3 (Seed Grants)	
Chen Xuejiao (IHDP, A*STAR)	Study of Mental Health & Academic Risks and Triumphs of AI in School-age Children (SMART-AI)
Tan Sok Hui Jessica (NIE, NTU)	LEGENDS: LEveraging GENAI to Empower Socially At-Risk StuDentS in Collaboration
Katherine Guangji Yuan (NIE, NTU)	Neural Synchronization: Idea Improvement with Linguistic Scaffolds



Successful proposals tend to have:

A. Research Quality & Design

1. Well-articulated academic and scientific significance, as well as potential impact.
2. Clear research hypotheses, methodology (incl. **power analysis to justify sample sizes**) and analytical plan. Details of the intended work, rather than just broad concepts, are articulated.
3. Comprehensive yet succinct literature review that clearly supports the project's aim(s).
4. Clear sense of novelty and innovation (vs. derivative/adaptive research).
5. Justified confidence (supported by evidence, incl. pilot studies and proofs-of-concept) that the proposed work can be done.
6. Rigorous research design and methodology. For example, experimental or quasi-experimental group with justified active/passive control group; if neuroscientific and AI techniques are included in the proposal, their relevance and value add to the project objectives and research design are clearly justified.



Successful proposals tend to have:

B. Planning & Execution

7. Credible and realistic research scope in the given timeframe.
8. Realistic budget that reflects the proposed scope of work.
9. PIs with strong track record as researchers. Especially for Type B1 projects, track record of close collaboration with service delivery agencies, policy makers and practitioners are viewed favourably.
10. Team members (incl. collaborators and visitors) with well-motivated, concrete and integrative roles in advancing the research objectives, and leveraging one another's strengths.

C. Innovation & Impact

11. For Type B projects, effectiveness/efficacy of proposed developments based on prior studies conducted locally or overseas are demonstrated.
12. Appropriate project scale. Researchers new to this field are encouraged to consider smaller focused proposals (e.g., Types A3/B3 or A2/B2) to establish feasibility before applying for larger-scale grant types.

SCIENCE OF LEARNING

6th Grant Call

- Proposals must address at least one of the six Challenge Statements which are based on existing problems in practice and policy.
- We encourage inter-disciplinary proposals, including those that leverage artificial intelligence and technology to augment human cognitive abilities and support learning.



Challenge Statement 1 - Function and Performance

How might we leverage SoL to ensure that students are well prepared and ready to learn in school?

- Efforts can include understanding the mechanisms of cognition and learning in areas such as literacy, numeracy, and translating the understanding into interventions. In particular, how to level-up students, especially those from disadvantaged backgrounds, in their early school years (e.g., from Primary 1-4)?



Challenge Statement 2 – Overall Well-being of an Individual

How might we leverage SoL to build and strengthen our students' social and emotional skills, and mental health and well-being so that they are effective in facing life's challenges throughout the different milestones in their lives, especially during the puberty and adolescent period?

- Efforts focussing on affect and psycho-social development can include:
 - Understanding the mechanisms and processes of teaching and learning of social and emotional skills, and translating the understanding into programmes promoting well-being.
 - Understanding the mechanisms and processes in areas such as emotion and psycho-social functioning and well-being, and translating the understanding into interventions especially for adolescents and young adults.



Challenge Statement 3 – Transfer of Adult Learning across Context

How might we leverage SoL to:

- ensure effective transfer of learning from one domain to another and from one context to another?
- ensure that what our students/ workers learn in PET and CET can prepare them for their future jobs in workplaces that will be constantly changing throughout their life-course?
- Efforts can include programmes and/or interventions to help workers contextualise skills acquired to the changing requirements of their current workplace. In particular, how can we help our workers better transit across job roles or industry domains?



Challenge Statement 4 – Adult Learning and Ageing

How might we leverage SoL to enhance acquisition and retention of learning across adulthood (particularly for learners in their 40s and 50s)? In particular, how do changes in brain structure, physiology and social emotional states across the adult lifespan impact how adults learn and acquire skills and how the changes can be leveraged to enhance motivation to learn and upskill?

- Efforts can include:
 - Boosting adult learners' cognitive and brain functioning essential for adult learning and productivity, e.g., using AI-related tools, harnessing neural activity feedback, or designing interventions that increase activity levels.
 - Enhancing delivery of training across different modalities, e.g., workplace learning, hybrid courses, short vs long-form courses, and identify what types of skills are more “CET-able” to older learners.



Challenge Statement 5 – AI in education

How might we leverage SoL to understand the impact of technological applications (incl. artificial intelligence (AI)) on the acquisition of skills and knowledge, and to inform the development/assessment of existing and emerging technology-enabled interventions that optimise learning outcomes for students and workers across diverse fields?

- Efforts may focus on the use and impact of readily available applications in learning and skills acquisition and can include:
 - Understanding the effects (beneficial/detrimental) of use of Generative AI/Large Language Models (LLMs) on the performance and functioning of learners, as well as their development, including the developing brain.
 - Harnessing AI within learning environments to enhance the learning (e.g., accelerate/deepen knowledge and skills acquisition, improve recall accuracy and transfer of learning) and augment abilities in different settings (e.g., in and outside of classrooms and workplaces).



Challenge Statement 6 – Learning Contexts and Environment

How might we leverage SoL to optimise development, learning and functioning of individuals in different life-stages in rapidly changing contexts and environments (including work settings)?

- Efforts can include:
 - Understanding the effects of different learning environment (e.g., classroom design or workplace design), and of the material environmental factors (e.g., design, architecture, blue-space, and greenspace), and/or sociocultural factors, on neurological, psychological and physiological development, performance and functioning of students/workers.
 - Understanding the effects of digitalisation of learning contexts on neurological, psychological and physiological changes across learners' lifespan.



Types of Funding Available

Type A – Use-Inspired Basic and Applied Research

Sub-Type	For	Budget
A1	Large-scale research projects, with sub-projects.	Up to \$5M (including 30% IRC) per award, for up to 5 years
A2	Research projects	Up to \$2.5M (including 30% IRC) per award, for up to 5 years <quantum increased>
A3	Seed grants for proof-of-concepts and/or support young investigators	Up to \$500K (including 30% IRC) per award, for up to 3 years

Type B – Development and Translation

Type	For	Budget
B1	Large-scale development and translation projects with sub-projects.	Up to \$5M (including 30% IRC) per award, for up to 5 years
B2 <new>	Projects to develop and test implementable applications	Up to \$2.5M (including 30% IRC) per award, for up to 5 years
B3 <new>	Seed grants for early-stage translation, proof-of-value and/or support young investigators	Up to \$500K (including 30% IRC) per award, for up to 3 years



Research Approach

We encourage PI to propose **use-inspired basic and applied research** that:

1. **Provide rigorous and relevant evidence** to inform policy making, programme design, implementation, and practice for public, private and people sectors.
2. **Include supporting findings** from pilot studies or preliminary research where appropriate.
3. **Employ multi-disciplinary approaches** leveraging methods in neuroscience, cognitive science, social sciences, and education research and/or methods employing recent advances in fields like data and computational sciences and AI.
4. **Relate to Singapore's socio-cultural contexts** and compare local trends to international research findings.
5. **Foster collaboration** with potential users to promote translation of research into policy or practice and scaling of interventions.



Research Approach

We also encourage PI to propose comprehensive and **systematic reviews** that:

1. **Evaluate existing research** in domains relevant to the Challenge Statements and identify areas for further studies.
2. **Conduct meta-analyses and/or meta-syntheses** to deepen understanding of learning mechanisms, processes, performance, and learning.
3. **Demonstrate methodological rigour** with clearly defined synthesis parameters and justify how the meta-analysis and/or meta-synthesis contribution to SoL objectives.
4. **Is part of a multi-phasic study**, starting with the meta-analysis and/or meta-synthesis followed by empirical studies.

Note: Literature reviews do not qualify for funding.



General Evaluation Criteria

1. **Relevance:** The relevance to at least one of the Challenge Statements.
2. **Potential Impact:** The potential benefits of the research to education (including adult training and skilling) in Singapore and in advancing Human Potential.
3. **Collaborations:** Leverage and enhance existing research capabilities in the broader research landscape in Singapore.
4. **Capability-Building:** Potential to boost and catalyse the development of local SoL research capabilities in Singapore.
5. **Technical Merit:** Scientific and intellectual rigour, potential to create new and important knowledge, and appropriateness of research design and methods. The effective use of innovative and interdisciplinary approaches will strengthen the proposal.
6. **Quality of Research Team:** Capabilities and track record of the proposed research team.
7. **Execution:** Coherence in the proposed execution plans, feasibility of carrying out the research within the given timeframe, and the cost-effectiveness and value for money of the research.

Other considerations:

Proposals that involve multi-disciplinary and/or multi-institutions will be given prioritised consideration as one of our goals is to develop a vibrant SoL research community in Singapore.



Eligible Institutions

- The following Institutions may apply for the SoL Grant:
 - Autonomous Universities
 - A*STAR Research Institutes
 - Polytechnics and Institute of Technical Education
 - CREATE entities
- Institutes/schools would apply through their host university, e.g.,
 - IAL through SUSS
 - NIE and LKC Medicine through NTU
 - Duke-NUS through NUS, etc



Timeline/ Next Steps

Application for 6th SoL Grant Call

~July: Whitepapers

~Nov/Dec: Full Proposals

- Request for Proposal, administrative guidelines, templates, etc, will be made available through the Offices of Research.
- Whitepapers and Full Proposals must be submitted to the Ministry of Education (MOE) through the Host Institution.



Q & A