Dear Colleagues

The Office of Education Research (OER) is pleased to announce its 19th Request for Proposals (RFP). Over the next year (FY2017-2018), the Education Research Funding Program (ERFP) will continue to build on the work that has been undertaken in the previous two cycles of education funding by strengthening the foundation (in terms of knowledge, capability and structure) for education research, development and innovation (RD & I) in existing and emerging niche research areas. OER will also continue to encourage efforts to design, develop and implement strategic, evidence-based, theoretically-warranted, collaborative, scientifically-rigorous and outcomes-focused innovations in schools and classrooms. The primary aims are to improve classroom practice, to enhance student outcomes, and to build organizational and teacher capacities. In this third tranche of funding, OER particularly seeks to encourage research in Scaling, Translation and Knowledge Management that may facilitate the synthesis of research findings from projects in different disciplines, as well as develop scalable pedagogical interventions to enable systemic improvement in the education system.
A. FOCUS OF RESEARCH

We invite applicants to consider submitting proposals in the following areas:

1) SUBJECT FOCUS AREA 1 – Innovation in the Learning and Teaching of Socio-Emotional Learning (SEL)

Socio-Emotional Learning (SEL)

Teaching and learning in schools occur through social interactions between students and their teachers and peers (Zins, Bloodworth, Weissberg, & Walberg, 2007). It has been argued that emotions can facilitate or impede children’s academic engagement, work ethic, commitment, and ultimate school success (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Because relationships and emotional processes affect how and what students learn, these aspects of the educational process must be effectively addressed for the benefit of all students (Elias et al., 1997).

Socio-emotional learning (SEL) is the process of learning the skills to recognize and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish positive relationships, make responsible decisions, and handle interpersonal situations constructively (Elias et al., 1997). Through SEL, students acquire skills, knowledge, and dispositions to manage themselves and relationships effectively and make responsible decisions essential for personal and social well-being. Together, these skills are expected to lead to improved adjustment and academic performance (Payton et al., 2008). According to the Collaborative for Academic, Social, and Emotional Learning (CASEL), there are five key domains of social and emotional competencies (i.e., self-management, self-awareness, responsible decision making, relationship management, and social awareness), each of which comprise several interrelated cognitive, affective, and behavioral competencies (CASEL, 2017).

Many studies have shown that effective mastery of social-emotional competencies is associated with greater well-being and better school performance whereas the failure to achieve competence in these areas can lead to a variety of personal, social, and academic difficulties (e.g., Fu, Chen, Wang, & Yang, 2016; Guerra & Bradshaw, 2008). Moreover, there is growing empirical evidence regarding the positive impact of school-based SEL programs, which have been summarized in two recent meta-analytical studies (Durlak et al., 2011; Payton et al., 2008). Results of these meta-analyses consistently showed that those participating in SEL programs demonstrated significantly enhanced social-emotional skills, attitudes, and positive social behavior, reduced conduct problems and emotional distress, and improved academic performance at post-intervention compared to students in control groups.

The preceding findings strongly suggest that school-based efforts to promote students’ SEL is a promising approach to enhance children’s success in school and life. In line with this view, the Ministry of Education (MOE) in Singapore considers SEL to be a critical part of students’ learning to prepare them to live and work as adults in the 21st century. SEL is also recognised internationally as a critical skill in the 21st century skills. Together with the core values, SEL forms an integral part of MOE’s framework for 21st century competencies and student outcomes (Ministry of Education, 2017).

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Use of Technology for SEL

While existing curricular and co-curricular programmes in school have been designed to support the development of SEL in our students, there exist potential challenges in fostering SEL. Some potential challenges in fostering SEL are:

- Lack of support for SEL outside classroom settings and in everyday situations. Students are unable to identify moments where they could apply the social and emotional skills that they have learned. Students may know what is right but do not know when and how to apply the skills correctly.
- SEL measurement is one of the main barriers to fostering SEL. Unlike cognitive skills, social and emotional skills may not be visibly observable and are only specific to certain settings. Moreover, measures of maximum performance (usually used in cognitive domain) rather than typical performance (used to measure intrapersonal and interpersonal competencies) are commonly used in SEL measurement.

More can be done in terms of harnessing technology to complement and extend SEL learning and teaching. For example, to overcome the under-utilisation of technology in SEL, there may be a need to raise the awareness among teachers about the potential benefits of using technology in SEL teaching beyond improving classroom management, to raise the importance teachers and school leaders placed on SEL as compared to foundational literacies, to internalise the definition of SEL, to develop a reliable metric to measure SEL, and to make available a myriad of SEL tools and programmes that teachers can adapt and adopt based on their student and classroom needs.

Fostering SEL through innovations such as games

Contemporary movements toward social and emotional learning (SEL) has sparked new education foci on ‘learning to be’ and ‘learning to live together’, often referred to as ‘social and emotional intelligence’ or ‘emotional literacy’. This has often been incorporated into a more general focus on student well-being, developed from increasing knowledge about the protective factors that enhance students’ resilience and good mental health (Hromek & Roffey, 2009). Situated within landscapes of shapeshifting social, economic, political, and workspace trends, it becomes imperative for learners to acquire a broad set of skills, both cognitive and interpersonal, that will enable them to thrive in a rapidly evolving, technology saturated world (Deming, 2015). Social and emotional skills such as creativity, flexibility, and adaptability to navigate complexities become increasingly important complements to foundational academic skills such as literacy and numeracy, starting at the earliest stages of development and continuing through secondary schooling (Luo, Li, & Boccardo, 2016). Specifically, SEL may focus not only on the acquisition of knowledge and skills, but also in developing and shifting identity, values, beliefs, attitudes, and epistemologies which include

- abilities to recognize and label personal feelings, strengths, and values
- knowing how to regulate and express feelings effectively and safely
- having a prosocial orientation to others, which is not bound by prejudgment
- being able to read and take account of the emotional content of situations
- being responsible to oneself and others and making ethical decisions
- being able to set goals in both the short and longer term
- problem-solving skills, especially in the domains of personal coping and interpersonal relationships
- focusing on the positive
- respect for others, including valuing diversity
- treating others with care and compassion
- good communication skills
• knowing how to establish, develop, and maintain healthy relationships that promote connection between individuals and groups
• being able to negotiate fairly
• having skills to deescalate confrontation and manage conflict well
• being prepared to admit mistakes and seek help when needed and
• having personal and professional integrity demonstrated by consistently using relational values and standards to determine conduct.

With the growing interest in SEL comes the need to identify programs and teaching and learning practices that effectively engage learners. Experience-based learning platforms such as games afford novel and unique opportunities for learning that are characterized by personal agency, authorship, reflexivity, and identity becoming trajectories (Jamaludin, Kim, & Hung, 2012). In providing a forum for the development of the skill-sets, attitudes, and values that build resilience and maintain well-being, games reify a highly motivating approach for skilled facilitators to create a safe, fun environment, where social connectedness and meaningful participation are likely to occur. Digital games, for example, holds enormous promise to help foster 21st-century skills, including social and emotional skills, through personalizing learning, engaging the disengaged, complementing what happens in the classroom, extending education outside the classroom and providing access to learning to students who otherwise might not have sufficient educational opportunities” (Luo, Li, & Boccardo, 2016). Non-digital games, such as board or card games, can function as psychoeducational tools used to teach skills and strategies for dealing with SEL issues such as learning anxieties, regulatory behaviours, anger management, sportsmanship etc., effectively facilitating prosocial skill development and emotional regulation (Hromek, 2007). Prior studies have shown that while there are a variety of strategies for teaching SEL, games can be especially effective because of the engaging factors, wide reach that can impact many students at once, and underlying analytics that can be designed to identify game players’ progress, strengths and weaknesses, through sustained game play (Palmer-Scott, 2015). Similar veins of neural research have also identified games as vehicles that can seed sustained changes in neural circuits that matter for complex behaviours, such as empathy, instantiated in interconnected brain networks (Davidson & Begley, 2012). While there are a multitude of possibilities within and between the fields of SEL and innovations such as games, some suggestions applicants can consider when submitting their research proposals include the following topics and themes:

a) Curriculum and pedagogical practices of SEL
b) Innovation development for SEL e.g. Game-based Learning as vehicles for social emotional intelligence
c) SEL literacies of the 21st century
d) Neuroscience perspectives of SEL
e) Teacher education for SEL
f) Teacher professional development – SEL, Innovations for SEL
g) Leadership and/or Apprenticeship for SEL
h) Assessment of SEL using technologies
i) SEL Interventions - Design, Development, Translation, and Impact
j) Systems-oriented research on SEL
k) SEL outcomes among pupils
Examples of how technologies have been leveraged for the teaching and learning of SEL are also listed in the table below. Proposals that explore the use of technology for SEL and other related areas will be useful in advancing social emotional learning and teaching in Singapore schools.

Some examples of the use of technology for SEL are:

1. Digital Games

Some learning principles are built into good digital games to develop social and emotional skills:
- “Psychosocial Moratorium” Principle: learners take risks in play space where consequences are lowered
- Identity Principle: learners reflect on their real-world identities, virtual identities and projective identities.
- Self-Knowledge Principle: learners learn more about themselves by recognising strengths, needs and values in the virtual world.
- Multiple Routes Principle: learners learnt how to make responsible choices to make progress within the game.
- Affinity Group Principle: learners socialise and bond with other learners through shared goals and practices.

2. Advanced analytics

Advanced analytics are used in support of the use of interactive and engaging computer game formats for stealth assessment of children’s social skills. For example, in Zoo U, the content was deliberately developed to elicit children’s behaviours and dialogue choices were recorded to assess social skill competencies.

3. Wearable Technology

Wearable technology helps to develop self-awareness and management in the following ways:
- Students can identify and recognize possible emotions outbursts
- Wearable technology provides prompts to help students de-escalate the situations
- Wearable technology increases students’ abilities to interact with the environment more naturally

4. Augmented reality

Augmented reality has the potential to:
- engage, stimulate and motivate students to explore learning content from different perspectives
- cover content that is not feasible within traditional classroom settings
- foster collaboration among students
- create authentic learning environments

5. Affective computing

Authorable virtual peer technology supports autistic children’s reciprocal social communication with their peers. Children developed social and communication skills such as asking questions, responding and sharing information.
Useful references:
Please download the list of useful references here.

2) SPECIAL FOCUS AREA 2 - SYSTEM STUDIES IN PEDAGOGIES & EDUCATIONAL OUTCOMES - CORE RESEARCH PROGRAM

[Note: While we welcome proposals in all subject disciplines (both academic and non-academic skills) and 21CCs (see more details below), for the 19th Request for Proposals, we are specifically interested in proposals in the content areas of Mother Tongue and Science Education.]

The System Studies in Pedagogies and Educational Outcomes CORE Research Program is one of NIE/OER’s 28 research niche areas. It focuses on understanding what goes on and what works in Singapore’s classrooms – more specifically, the Instructional Core (City, Elmore, Fiarman & Teitel, 2009). The Instructional Core comprises

“the teacher and the student in the presence of content … it is the relationship between the teacher, the student, and the content—not the qualities of any one of them by themselves—that determines the nature of instructional practice, [even though] each … has its own particular role and resources to bring to the instructional process” (City et al., 2009, pp. 22-23).

In other words, while the characteristics of the teacher (e.g. pedagogical content knowledge, attitudes and beliefs), the student (e.g. motivation and prior learning experiences), and the content (e.g. knowledge/skills/ values/attitudes to be learned, cognitive demand, and learning task) are important factors separately, what is most important are the interactions between teachers and students with the content, as it is these interactions that fundamentally determine the nature of the actual learning and teaching that take place in the classroom (see Figure 1).
The nature of the learning and teaching in the classroom in turn determines the quality of the pedagogical practice and its impact on learning outcomes. Hence, improving the Instructional Core must be at the centre (or “CORE”) of all educational interventions and improvements. It is of interests to the MOE and schools to gain a better understanding of what works in the Instructional Core in our classrooms and schools as a critical step in the next developmental stage of our education system. In the context of CORE, the three elements of the Instructional Core will be interpreted as follows:

**Student**, as characterised by aspects such as grade levels (e.g. lower primary, post-secondary), stream [e.g. Express, Normal (Academic), Normal (Technical)], student ability (e.g. low progress learners), and home background factors (e.g. socio-economic status);

**Content**, as primarily characterised by the knowledge, skills, attitudes, and values to be learned by the student, in both (i) subject-specific disciplines (e.g. English, Mathematics, Science, and Social Studies); and (ii) non-subject specific desired outcomes of education (e.g., 21st Century Competencies, such as citizenship, inventive thinking, and critical thinking); and

**Teacher**, as characterised by aspects such as classroom practices/pedagogy (e.g. inquiry-based learning, flipped classroom, and direct instruction), instructional strategies (e.g. group work), and teacher profile (e.g. years of experience and beliefs).

More fundamentally, because the interactions among the three elements in the Instructional Core are what determine the nature and quality of instruction and learning,
they would be the focus of all CORE research projects. These interactions are depicted by arrows in Figure 1:

**Teacher-Content interaction.** This denotes the process in which the teacher uses content knowledge (i.e., the “what” of teaching), pedagogical knowledge (i.e., the “how” of teaching), and pedagogical content knowledge (i.e., the “how to teach specific what” of teaching\(^1\)) to “package” the content to be learned in a way that will facilitate student learning. This includes aspects such as the sequencing of content, the design of specific learning activities, and the development of instructional materials to be used, which together determine the design of teaching and learning.

**Teacher-Student interaction.** This denotes the actual enactment of the planned teaching and learning experiences in the classroom by the teacher and the actual responses of the students.

**Student-Content interaction.** This denotes the student’s engagement in the learning experiences, designed and presented by the teacher in the classroom.

Finally, these three elements interact in an **environment** comprising the immediate context of the Instructional Core (e.g., classroom processes, school characteristics, and institutional practices). \(^2\)

The following are **broad research directions** for CORE:

a) To describe and measure patterns of pedagogical practices in Singapore schools;

b) To explain the factors affecting the pedagogical practices;

c) To measure the impact of pedagogical practices on student outcomes, taking into consideration student/classroom/school characteristics; and

d) To identify opportunities for the improvement of pedagogical practices through informing the design of an intervention strategy.

**Figure 2** illustrates schematically how these broad research directions relate to the Instructional Core. First, CORE will observe the instructional core to describe and measure the patterns of pedagogical practices (Point a). The factors affecting these practices (Point b) can be found within both the instructional core and the environment. From our observation of the Instructional Core, we can then measure student outcomes (Point c) and then identify opportunities for improving pedagogical practice (Point d).

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\(^1\) This includes knowledge of common misconceptions and difficulties of students in specific topics, and how to address students’ particular learning needs in a specific classroom context.

\(^2\) The immediate context of the Instructional Core is in turn affected by the broader mesoscopic (social, economic, and political) and macroscopic (global and historical) contexts.
The following are broad research questions for the CORE program:

a. How do teachers teach in Singapore?
   i. How well does the enacted curriculum match the planned curriculum?
   ii. What are the pedagogies commonly adopted in Singapore classrooms? What are the key features of these pedagogies, especially in terms of what distinguishes them as unique to Singapore?
   iii. How do teachers implement new pedagogical practices adopted by MOE (e.g., inquiry-based learning; assessment for learning)? How much, if at all, do they adapt the practice taking into account the local contexts of their classrooms (e.g., student profile)?

b. Why do teachers teach the way they do? What factors explain the variations in pedagogical practice in Singapore (e.g., teacher characteristics and capacities; institutional rules and organisational practices; student characteristics, behaviours and beliefs; cultural traditions and norms; subject disciplinarity)?

c. How effective are the teachers? Specifically, how does the enacted curriculum impact student learning? Which pedagogical practices are more effective and which are less effective?
1. Why are they more/less effective, for what (i.e. content of learning, including subject disciplines, 21CC and non-academic skills) and for whom (i.e., student characteristics such as grade level, stream, and home background)?

2. How do the commonly-adopted pedagogies impact student learning? Where they impact student learning positively, what makes them effective in the Singapore context?

3. What are the key factors influencing the enactment of effective pedagogical practices (e.g., characteristics of teachers; immediate environment of the instructional core such as the classroom processes, school characteristics, and institutional practices)? What are the mechanisms that make these pedagogical practices effective?

4. How do the effective pedagogical practices, and the factors that make them effective (e.g., teacher characteristics), vary by the content of learning (e.g., subject disciplines; 21CC; non-academic skills), student characteristics (e.g., grade level; stream; home background) and teacher characteristics (e.g. preservice and in-service teacher learning, experience, belief and perception)?

Useful References on Core Research Program


3) PROGRAMMATIC RESEARCH

Programmatic research is defined by an over-arching project research theme which focuses on a key educational issue, problem, phenomenon or outcome, along with a number of themes – specific research studies that address important aspects or components of the issue, problem, phenomenon or outcome. It therefore has a common strand or focus, supported by a common theoretical framework, and undertakes a coherent, comprehensive, multi-faceted approach to understanding and addressing the issue, problem, phenomenon or outcome. For more information about Programmatic Research, please download document here.

4) OER/NIE’S 28 NICHE RESEARCH AREAS

In the 3rd tranche of ERFP, research is organized into 28 niche areas within 6 research programs. Niche research areas include ‘existing’ or extensions of work established in the first and second grant cycles as well as emerging areas of research focus.
OER is committed to supporting prospective research teams through the grant writing process. We encourage interested applicants to discuss their ideas and plans with the respective and relevant research conveners in their content- or subject-area. Click here for more information on the 28 niche research areas and who to conduct. If you require further information or other assistance, please contact the OER Research Support Unit and we will do our best to find someone who can help.

Applicants with interest in educational research that lies outside the 28 niche research areas are also encouraged to submit proposals – these are eligible for funding on the basis of their quality and the funds available for the current call.

OER encourages research collaborations among colleagues within NIE [i.e., Academic Groups (AGs) and Research Centres (RCs)]; as well as with colleagues at the MOE and other higher learning institutes. OER may offer help to applicants in establishing such collaborative ties.

### B. ADMINISTRATIVE MATTERS

**i. Expressions of Interest**

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<tr>
<th>For ERFP Application</th>
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<tr>
<td>Applicants interested in applying for ERFP grants should indicate their expression of interest as early as possible, but <strong>before 11 September 2017</strong> via Research Operation Management System (ROMS).</td>
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<td>ROMS will be open to prospective applicants from <strong>10 August 2017</strong>.</td>
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**ii. Submission Details**

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<th>For ERFP Applicants</th>
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<tr>
<td>All applications for a Research or Development Grant must be done through ROMS.</td>
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<tr>
<td>The submission deadline is <strong>9 October 2017</strong>. However, you are to submit your application by <strong>2 October 2017</strong> to your Reporting Officer for endorsement via ROMS.</td>
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<tr>
<td>For ERFP Programmatic Research applications, please submit the softcopies of the endorsed full proposals to <a href="mailto:oergrant@nie.edu.sg">oergrant@nie.edu.sg</a> by <strong>9 October 2017</strong>. To complete the process, a signed hardcopy of the application must be submitted, no later than <strong>12 October 2017</strong>, to OER Research Support Unit.</td>
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**iii. Briefing Session for NIE Faculty**
Applicants are encouraged to attend a briefing session to find out more about this RFP and the grant application and evaluation processes.

**Date**: Thursday, 17 August 2017  
**Time**: 9.30am to 11.00noon  
**Venue**: NIE5-01-04 (Seminar Room)

Applicants who are interested to attend the briefing session, please RSVP your attendance [here](#) at as soon as possible.

**iv. Budget Consultation Sessions**

The Research Support Unit (RSU) will be organizing individual budget consultation sessions for potential grant applicants from 15 Aug to 3 Oct 2017. Applicants will be able to clarify budgeting guidelines and seek advice on budgetary matters during these sessions. Applicants may prepare the draft Case for Support and Budget (via ROMS for ERFP projects and via OERRG3B template for MAF projects) and bring them along to the sessions. All sessions will be scheduled at NIE5-01-TR502. Only the sessions on 29 Aug, 5 and 7 Sep 2017 will be held at NIE7-01-TR712. We encourage applicants to sign up for their preferred session by clicking the following link: [http://doodle.com/poll/6m3dfqi4qfs6m7vd](http://doodle.com/poll/6m3dfqi4qfs6m7vd). Please indicate your full name and email when you sign up.

**v. Useful Resources and Contacts**

All application forms and guides are available in the NIE Portal ([http://portal.nie.edu.sg/](http://portal.nie.edu.sg)):

Login > Services > Academic > Research > NIE Education Research Funding Programme (ERFP).

For clarification on ERFP application, please email us at: [oergrant@nie.edu.sg](mailto:oergrant@nie.edu.sg).  
For clarification on MAF application, please email us at: [oer.maf@nie.edu.sg](mailto:oer.maf@nie.edu.sg).

We look forward to your submission. Thank you!

Best Regards  
Office of Education Research