30RFP ERFP Grant Writing Workshop (Part I: General)

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14 Sep 2023, 1-2pm

Abstract

- The objective of this workshop is to help potential grant applicants of the Education Research Funding Programme (ERFP) towards developing and submitting a successful application. The first segment of the workshop will provide an overview of how to write a grant proposal for ERFP, including key elements of successful ERFP grants. This workshop would be especially useful to those who are new or have not been successful in applying to the ERFP. Attendees are encouraged to go through the ERFP guidelines (particularly, the Administrative Guidelines for ERFP Applicants) before coming for the workshop.
- Grant Call Briefing (Sep 12, 2023) https://erfp.edu.sg/

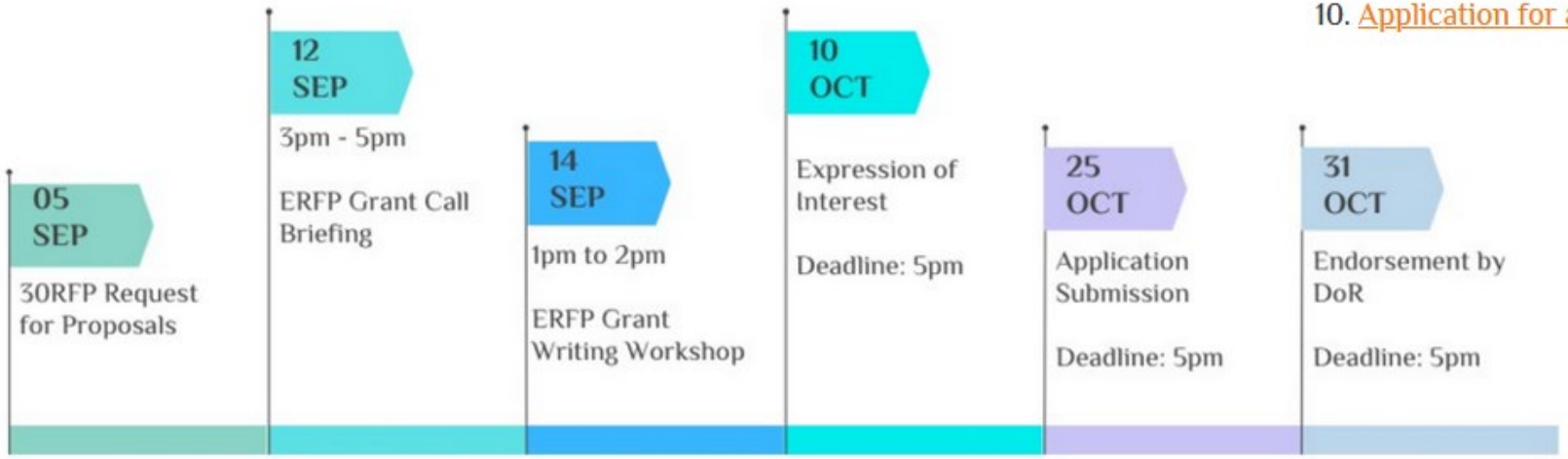
- Part I: General considerations
- Part II: Guest sharing from Dr. Huang Junsong, Associate Dean, Strategic Support & Analytics, OER, NIE

30RFP Grant Call

https://erfp.edu.sg/

1. Administrative Guidelines for ERFP Applicants
2. Self-checklist for Methodology
3. Expression of Interest (EOI)
4. Application Forms
5. ROMS Manual for ERFP Tier 1-3 & ERFP Programmatic Proposals
6. Supporting Document for resubmissions
7. Case for Support
8. Implementation Schedule, Milestones and Deliverables
9. CV template
10. Application for a MOE-Contracted Research Grant

Timeline



From 30RFP Grant Call Briefing

Case for Support - Recommendations and Contingencies

Your Case for Support should cover the following items:

Research Project	Development Project
a) Objectives of the Research Project b) Relevance to MOE and IHL Goals and Directions c) Literature Review d) Purpose of Proposed Study e) Competitive / Comparative Advantage f) Description of Principal Investigator's and Team Members' Effort Level in Project	a) Purpose b) Relevance to MOE and IHL Goals and Directions c) Review of Current Development Landscape d) Project Life Cycle e) Evaluation Phase of the Development f) Competitive / Comparative Advantage g) Description of Principal Investigator's and Team Members' Effort Level in Project

From 30RFP Grant Call Briefing

Case for Support - Tips

- Although not specified in the application form, please also include brief comments on ethical considerations and contingency plans (especially for larger projects).
- If you have engaged Research Staff who are not part of the project team to assist in the drafting of this Case for Support, please do acknowledge their effort.
- Responsibilities of all team members must be stated including Co-PIs, Collaborators and RAs.
- Teams should consider if members who contribute a very small number of hours add sufficient value to the team.
- For projects which are exploratory or where results are dependent on previous stages, the Case for Support should include comments on the budget for the respective stages and tasks.
- Programmatic Proposals should include a description of how the sub-projects are linked or in what ways they work together for greater synergy.

From 30RFP Grant Call Briefing

Case for Support – General Comments

- A focused and succinct literature review allows PIs to elaborate and justify their methodology.
- Elaborate on the methodology to show how the study will address research rigour and address the research questions.
  - See the 'self-checklist for methodology', included with the grant call documents on the website.
- Relevance
  - From the administrative guidelines "The primary aim of ERFP is to improve classroom practice, enhance student outcomes, build organizational and teacher capacities in Singapore schools, and inform MOE policies. Thus, proposals for ERFP funding must demonstrate relevance to MOE mission and goals and potential benefits to Singapore's educational institutions" (page 1).

From 30RFP Grant Call Briefing

Case for Support

(a) Objectives of the Research Project (write no more than 2 pages)

State the objectives of the research, their importance, the novelty, and timeliness of the research. If collaboration is involved, provide an assessment of the possible benefits of the collaboration. The objectives can be copied and pasted from the application form, but additional explanation is expected here.

(b) Relevance to MOE's Goals and Directions (write no more than 1 page)

Explain how the research is related to MOE's strategic research thrusts and programmes and / or how it is situated in the larger picture of MOE's research roadmap in the proposed areas. If possible, state how it fits with other, existing MOE projects in contributing to the MOE's research programmes. For alignment with MOE goals, please make explicit reference to research priorities (i.e., MOE-wide Education Research Agenda, General Education Research Agenda and/or Early Childhood Research Agenda (listed in the application form) as well as Problems of Practice/Policy if applicable. If this project is supported by the MOE Research Translation Steering Committee, please state that explicitly and attach evidence (e.g., email) as an appendix. Similarly, if the project has relevance as shown by support of schools or MOE departments, please state that explicitly and include support in the appendices.

Show links to scope, to Research Programmes, to MOE Priority Areas, to prior ERFP-funded projects

To date, no projects have been 'supported by the MOE/NIE Research Translation Steering Committee as this is a new process. Nevertheless, if your project is a translation/intervention based on a prior project, do explicitly state the link.

Fundamentals – Complete, On Time

- Late submissions will not be accepted
- Give yourself enough time!
  - Application form
  - Budget, quotations, justifications/breakdown
  - Implementation schedule & Gantt chart
  - References, proofreading, “poorly written”, “rushed”
  - Alignment across documents

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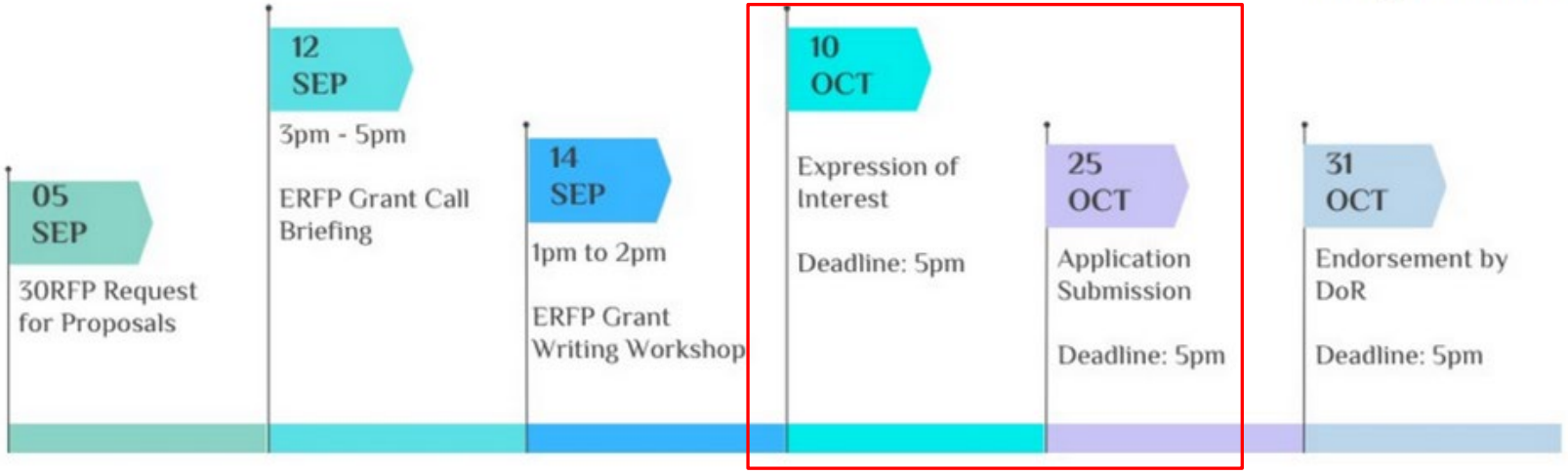

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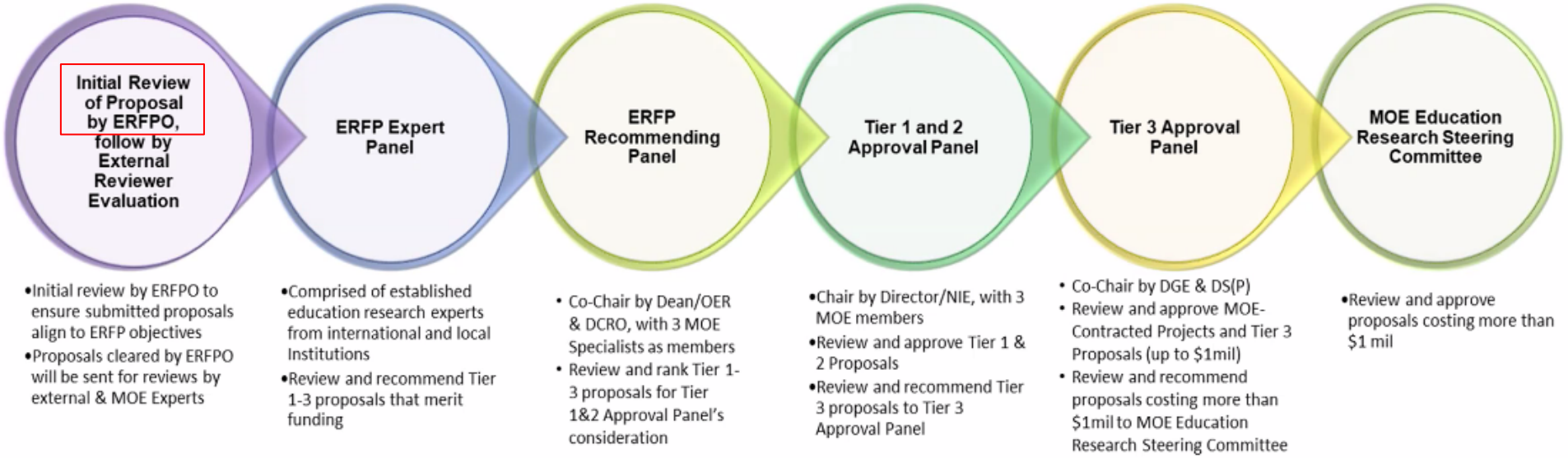
Fundamentals – Scope

Grant Application Review Process

The Approval Panel Meetings convene twice a year in tandem with the grant call cycle.



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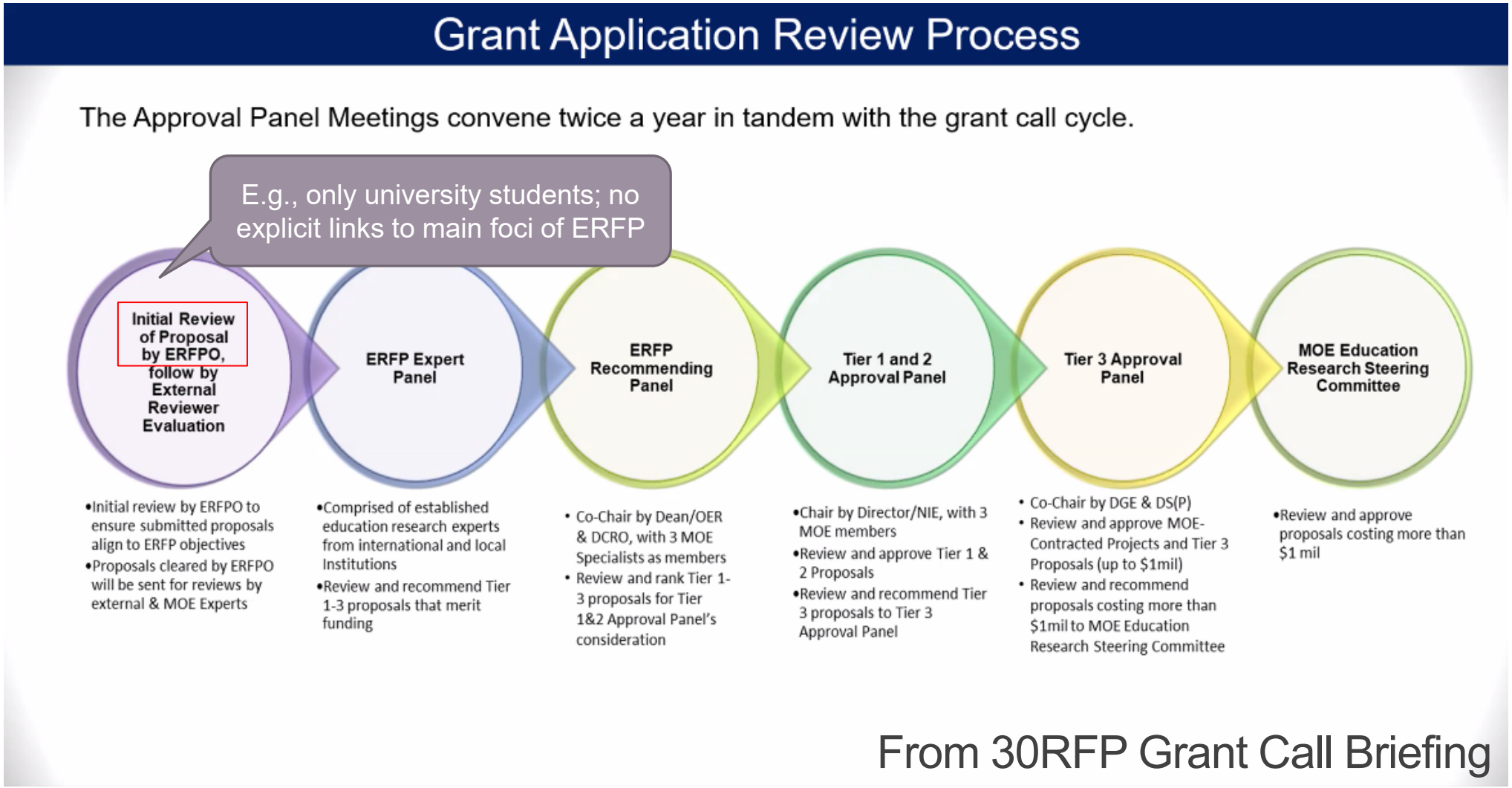
Fundamentals – Scope



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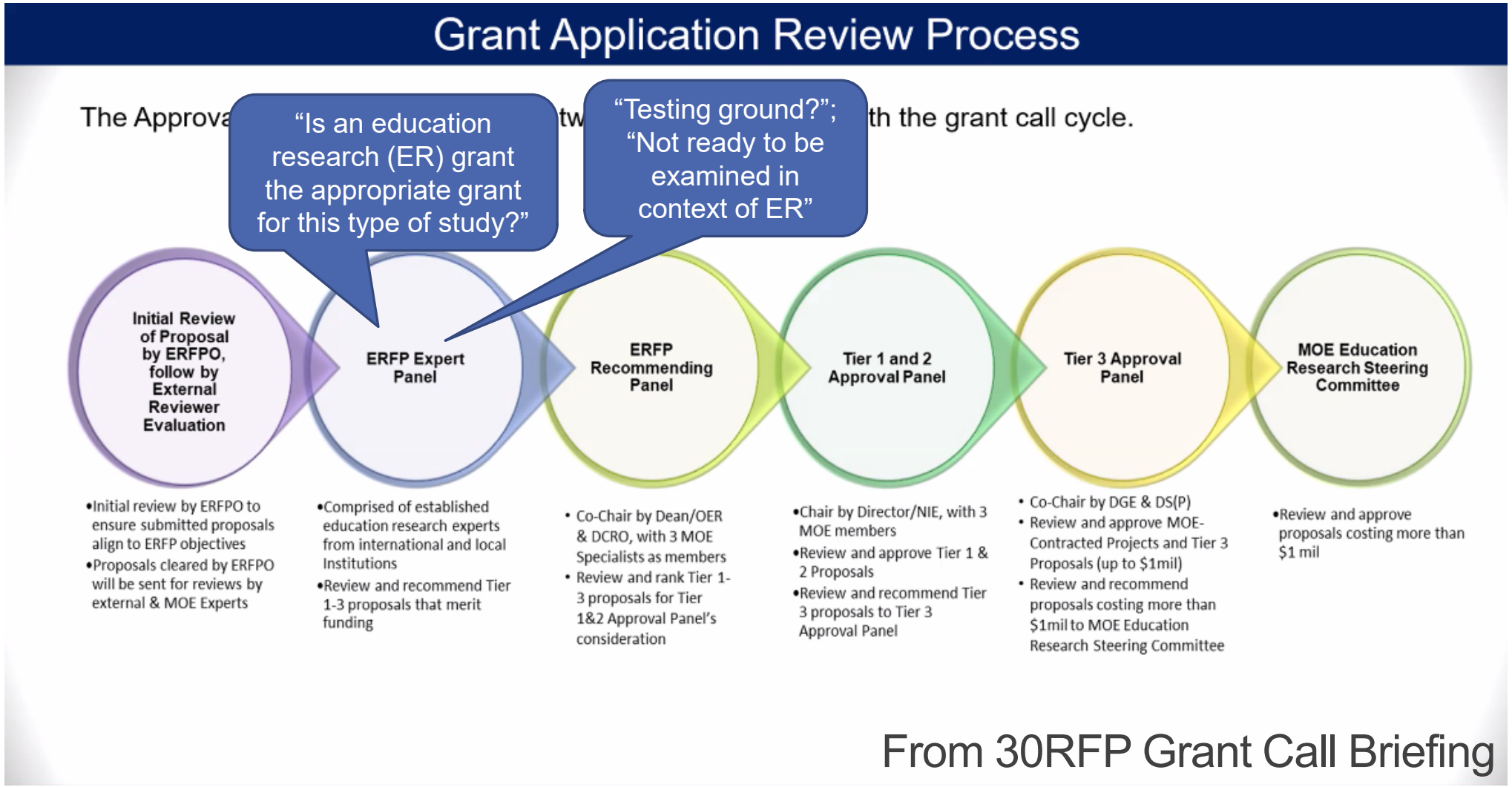
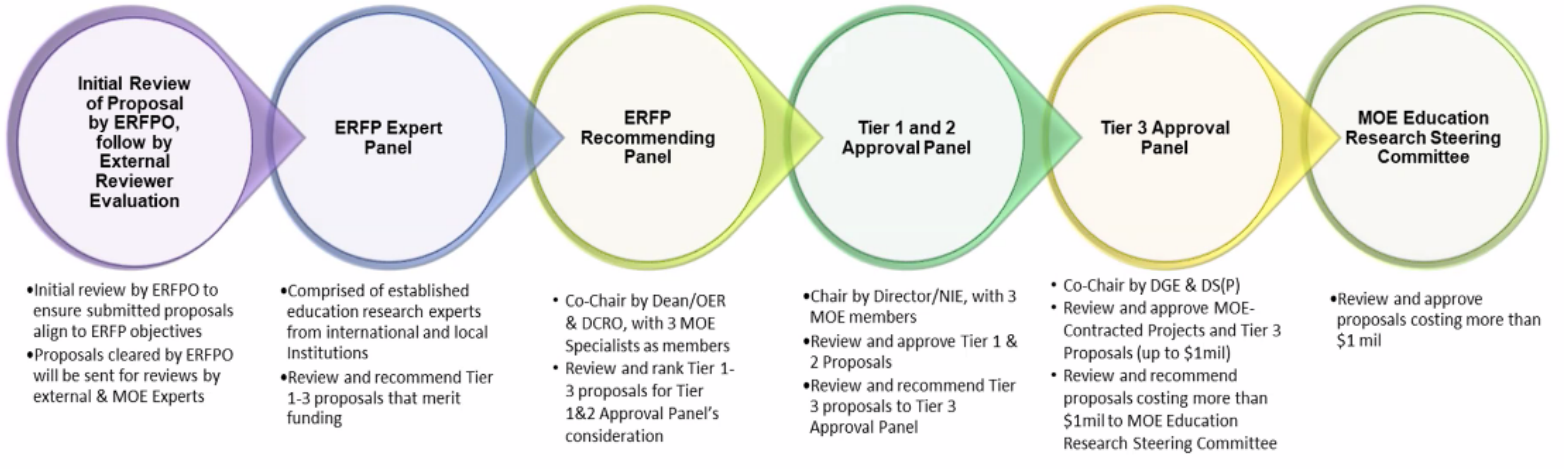


From 30RFP Grant Call Briefing

Fundamentals – Audience

- Mix backgrounds, familiarity, concerns



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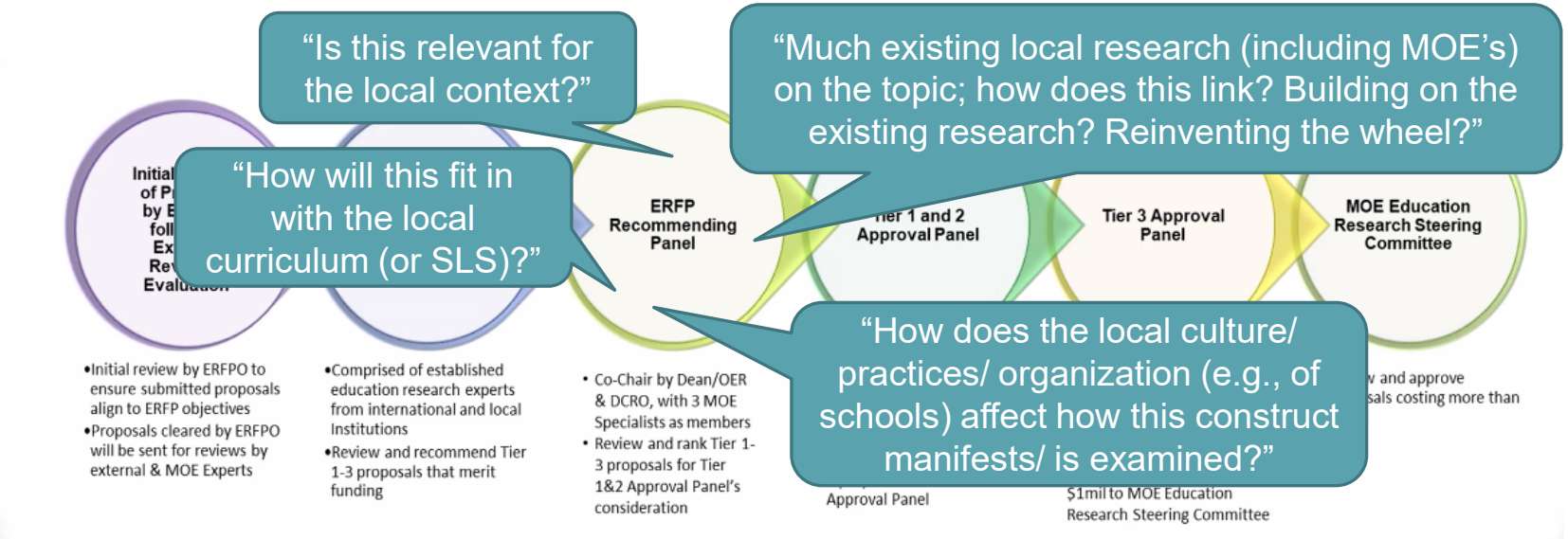
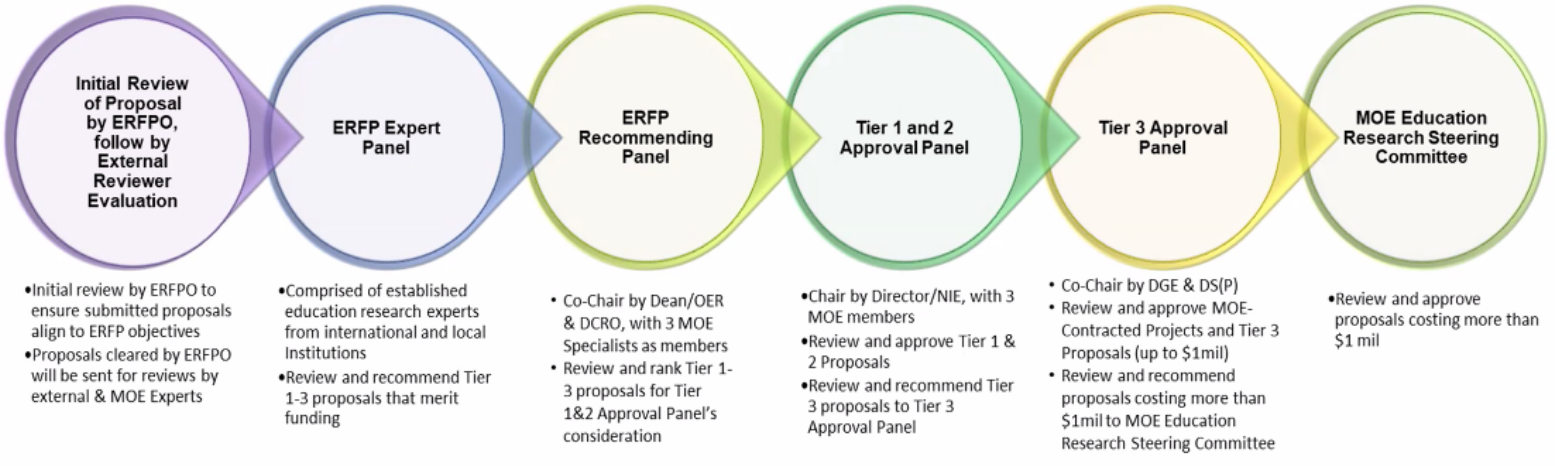


Fundamentals – Audience

- Mix backgrounds, familiarity, concerns
- Write in a way that is clearly comprehensible across disciplines
- Explain assumptions (e.g., discipline/context specific)
- Define jargon and explain specific methodologies/ techniques/ equipment
- Include enough information to inspire confidence



Fundamentals – Clarity and Sufficient Detail

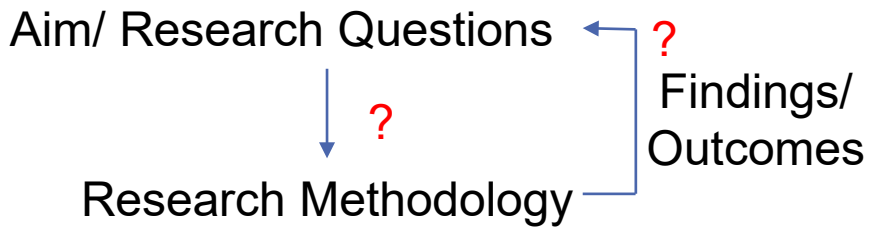
- *What* you are trying to do
- *Why* are you doing it
- *Why* are you doing it this way
- *How* you will do it
  - **Methodology**
  - Who is involved and how (Team & roles/contribution)
  - How long (Implementation Schedule)
  - How much (& why) (Budget)
- What you will have to show for it (Outcome/ Deliverables)

Conceptual clarity; Project type*

Merit

Rationales (e.g., framework, method, instrumentation)

Sufficient detail; Operational clarity



Demonstrate:

- Merit & value-proposition
- Rigor (Conceptual & methodological)
- Feasibility

* Project Type

PART I: DETAILS OF PROJECT TEAM

1. PROJECT OVERVIEW

a)	**Principal Investigator**	Enter name & appointment
b)	**Project Title**[1]	Enter project title
c)	**Category of Project**	☐ Research[2] ☐ Development[3]

4d. RESEARCH METHODOLOGY

i.	**Research Method**	☐ Qualitative	☐ Quantitative ☐ Mixed
ii.	**Type of Study**[15]	☐ Foundational/Baseline/ Exploratory ☐ Efficacy ☐ Scale-up	☐ Design and Development ☐ Effectiveness

o)	**Type of Application**[11]	☐ New ☐ Resubmission[12] Enter Title of Previous Application *Note: If there is a substantial change to the resubmitted proposal, for example, a change in methodology and research questions, PI may wish to consider submitting the proposal as a new application.*

For **resubmission**, please upload the response to committee template that describes and explain the changes made to the proposal in direct response to the review committee's comments from the previous round.

Is the proposal still coherent? Is it still what I want to do?

Fundamentals – Clarity and Sufficient Detail

- *What* you are trying to do
- *Why* are you doing it
- *Why* are you doing it this way
- *How* you will do it
  - **Methodology**
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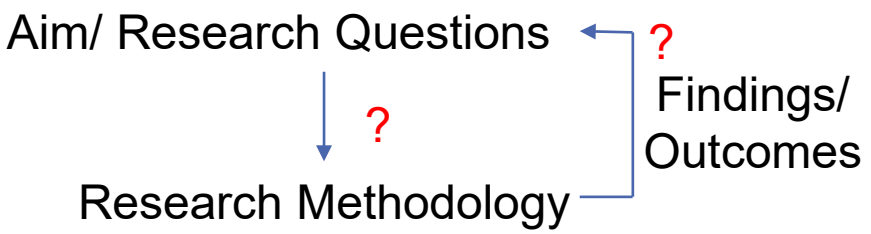


Demonstrate:

- Merit & value-proposition
- Rigor (Conceptual & methodological)
- Feasibility

Common Issues

COMMON REVIEWER/ PANEL COMMENTS

SUGGESTIONS/ TIPS

A. Merit and value-proposition

- ✓ Establish **international**, scholarly interest and theoretical contribution; connect with larger literature
- ✓ Demonstrate value and relevance in **local** context (social, cultural, educational)
- ✓ Highlight alignment with funder's interest (MERA, GERA, ECRA)
- ✓ Reflected in deliverables; quantify (Tier expectations)
  - ✓ International publications/ conferences
  - ✓ Practice/ policy dissemination
  - ✓ Access & sustainability of products, resource packages or tools developed
- ✘ Low potential for international impact
- ✘ Low pragmatic relevance/value for local education

"Can be more ambitious in number of publications"

"Dissemination plans to schools/ MOE?"

"How can this app/ tookit be accessed/ used after the project?"

A. Merit and value-proposition

- ✓ Up-to-date and comprehensive literature review
  - ✓ Include relevant international and local work
  - ✓ Focused but comprehensive literature review
  - ✓ Demonstrate clear understanding of field
  - ✓ Surface gaps; highlight value-proposition
- ✓ Articulate how the proposed project links to, builds on and adds to relevant existing local research. Will it benefit to collaborate?
- ✘ Outdated literature
- ✘ Omits important relevant international work
- ✘ Omits/ replicates existing local work
- ✘ Unclear value-proposition; existing alternatives/ reinventing the wheel?

Useful resources

- Past projects https://www.ntu.edu.sg/nie/research/research-publications

- NIE Digital Repository https://repository.nie.edu.sg/index.jsp

A. Merit and value-proposition

- ✓ Discussions with relevant stakeholders (e.g., teachers/ branches in MOE)
  - ✓ Understand value/ utility/ landscape (programmes/ initiatives/ existing research or developments)
  - ✓ Check assumptions
  - ✓ Surface gaps; highlight value-proposition
- ✓ Reflect presence of prior discussions in CfS

"Have they spoken to x MOE branch?"

- ✓ Especially (but not limited to)
  - Development, scaling/ translation (even if future) is involved. E.g., integrating with Student Learning Space (SLS) → Write in to understand and explore SLS features
  - Curriculum
  - SEN and other interventions
- ✓ MOE collaborators?
- ✘ Duplicate effort?
- ✘ Need ground understanding

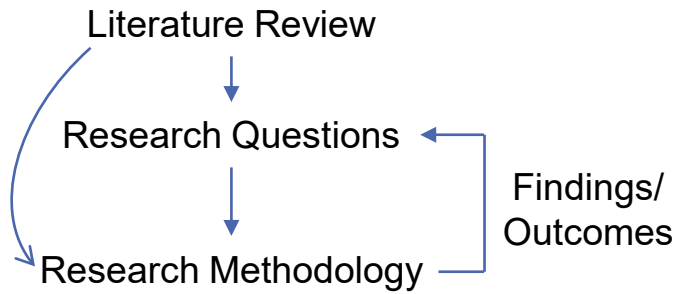
"Needs to connect with x MOE branch"

"How will this fit in with the local curriculum (or SLS)?"

➢ Contact to connect: grants@erfp.edu.sg

B. Conceptual Issues

- ✓ Up-to-date, focused but comprehensive literature review, including relevant international and local work
- ✓ Clear correspondence between literature review and research questions (RQs) and methodology
- ✓ Clear rationale/ justification for superiority of chosen approach
- ✓ Lay out assumptions and limitations
- ✘ Outdated literature; omits important relevant work
- ✘ Unclear why a certain theory/ framework/ model/ approach/ perspective is (and should be) selected over others; a priori rejection of alternatives
- ✘ Research questions (RQs) need to tie in with literature; RQs need to be refined/sharpened with updated literature (likewise, methodology)



B. Conceptual Issues

- ✓ Define constructs clearly. Use terms consistent with the larger, international scholarly literature or articulate linkages. Do not assume implicit knowledge.
  - ✓ Keep in mind varied backgrounds of proposal's audience
  - ✓ Give illustrative examples where appropriate; define jargon esp. when esoteric/ technical
  - ✓ Use consistent terms in your proposal
  - ✓ Theoretical/conceptual and operational definition (→ methodological implications)
- ✗ Unclear what is being studied; key constructs not clearly defined; inconsistent terms
- ✗ Terms that are too "local"; how is it connected to existing knowledge/ literature
- ✓ Describe necessary background work or knowledge required. Do not assume implicit knowledge.
  - E.g., Start-up/planning grants, previous studies
- ✗ Pilot / previous study needs to be briefly described; what were the relevant findings? How does the current study differ? Instruments—psychometric info.?

C. Methodological Issues

- Provide more methodological details
- Clarify how the data reflect the construct of interest
- Psychometrics -- Are the instruments valid/ reliable? Have they been validated locally? Are they appropriate for the target population?
- Clarify how the data will be analyzed
- Clarify how the different sources of data will be integrated and analyzed to address the RQs
- **Multi-phased / programmatic (PP):** How the phases/ sub-projects are connected and feed into one another; how they contribute to the RQs
- **Development projects:** Clarify design principles & evaluation criteria
- Clarify how the sample will be selected; justify sample size for power and/or generalizability
- Subject burden & ethical concerns (esp. interventions, AI, recordings)

C. Methodological Issues

- ✓ Clear operational definition of construct and justification/support for methodology in literature review
  - ✓ Integrative, multi-modal: clear benefit of adding data (e.g., HRV)
  - ✓ For relatively new methods/analysis, provide layman explanations/ examples where appropriate
- ✓ Participants (Who? How many? Why?)
  - ✓ Sample characteristics and **selection**; sample **size** (power analysis, generalization)
  - ✓ Small samples, if exploratory, clearly state as such (do RQs need to be revised/scoped?), qualify impact and implications of findings accordingly
- ✓ Instruments/ Materials
  - ✓ Explicitly state and justify your instrument and dependent measures (i.e., data; e.g., HRV).
  - ✓ Demonstrate good understanding of the psychometric properties of instruments/ measures: e.g., has validity and reliability been established in relevant populations?

C. Methodological Issues

- ✓ Design & Procedure
  - ✓ How the data will be collected
  - ✓ What is the data collected
  - ✓ Feasible and realistic? Contingency plans (e.g., recruitment/ analysis)?
  - ✓ Subject burden & ethical concerns
- ✓ Analytical plan
  - ✓ How the data will be analyzed and **how will results answer the RQs**
  - ✓ How **different sources** of data will be integrated and analyzed to address the RQs
  - ✓ Power
  - ✓ Qualitative; Meta-synthesis

"Unclear what exactly will be observed"

"Will they be able to recruit this sample size from these profiles? What is the recruitment plan?"

C. Methodological Issues

- ✓ Multi-phased / programmatic
  - ✓ How the phases/ sub-projects are connected and feed into one another; how they contribute to the RQs
  - ✓ PP: Advantage of being programmatic vs. separate studies
  - ✓ PP: **How is the sum more than its parts**
  - ✓ Use Figures to illustrate linkages
  - ✓ Timeline and budget -- Consider phased release of funding; mark out clear phases with interim deliverables/ outcomes that can be evaluated at ERSC
- ✓ Development projects
  - ✓ Design principles & evaluation criteria. Detail the method/approach of the development process of the deliverables/objectives as well as evaluation plan

C. Methodological Issues

✓ Use tables, figures if required

Instruments; Psychometrics

Table A1. Measures

Notes.
α Cronbach's alpha; *r* test-retest reliability

Domains	Sub-domain	Constructs	Instrument/ Task	From/ Time	Admin mode	Age range	(Relevant) Psychometrics
ABC	EFG	XYZ	XX • 3 timed tasks: 1 min per task, 48 items each task • From <X standardized test>	Child/ 3 min	Paper-pencil	6 - 17+	Reliability coefficients for school-age samples are generally consistent: *r* coefficients show good stability over time (.82 - .89). **Used in <Previous local study>** (4-7 yo), correlations between XX subtests and YY [1] = .74 [2-4]

Analytic Plan

Table B1. Specific Research Questions Contributing to the Overarching Research Questions

Domain	**RQ**	**Data**	**Analysis**	**Required *N (based on power analysis…)***	**Additional brief rationale**
Acad.	1. Does the …..?	**Predictors**: Measure 1, Measure 2, Measure 3; **Moderators:** Measure 4, Measure 5, Measure 6; **Outcomes**: Measure 1	SEM: GMM to identify … predictors and the three moderators (44 parameters). If needed, the role of each moderator can be investigated separately (27	min *n* = 540	There is evidence of a strong predictive relationship …. (e.g., <ref>)…we do not have local data ….

Notes. **Analysis:** .. GMM, growth mixture modeling…
References
……

D. Feasibility Issues

Team

- ✗ Does the Team possess the required expertise?
- ✗ Need to include someone with xxx expertise
  - ✓ For system-wide/policy-research links: policy officer
  - ✓ For practice/schools-research links: teachers, school leaders
  - ✓ For interdisciplinary research links: other local IHLs, international collaborators, consultants, etc.
- ✓ State unique roles and contribution of team members; availability to contribute
  - ✗ Large team with overlapping expertise, clarify roles and contribution

D. Feasibility Issues

Budget

- ✓ Tied to methodology (sample size, equipment, instruments, procedures)
- ✓ Prudent; value-for-money; sufficient
- ✓ Clear justification and calculation in budget section of application form; quotations
- ✓ Justification for research staff: cost (grade), roles/responsibilities, duration
- ✗ E.g., RA budgeted for 24 months for 24-month project

Timeline

- ✓ Tied to methodology
- ✓ Buffer for possible delays in grant award, time for account set-up, hiring process; phasing

✓ Contingency plans

General

- ✓ The Research Implementation Schedule should include sufficient detail to show the progress of work in relation to the purpose, hiring, Research Associate/Assistant (RA) work, methodology and budget
- ✓ The Gantt Chart should be detailed and should align with justification of budget line items to show which work is undertaken when, how it relates to the budget, and especially to research staff (e.g., RA vs. RF) costs
  - ✓ Include staff's work at each stage (e.g., instrument development, data collection, final report preparation)
- ✓ **Resubmissions**: Clarity after revisions

o)	**Type of Application**[11]	☐ New ☐ Resubmission[12] Enter Title of Previous Application *Note: If there is a substantial change to the resubmitted proposal, for example, a change in methodology and research questions, PI may wish to consider submitting the proposal as a new application.*

For **resubmission**, please upload the response to committee template that describes and explain the changes made to the proposal in direct response to the review committee's comments from the previous round.

Revising a proposal

- ✓ Address all the comments *professionally* in the response document
  - Decide what needs to be changed
  - State your stand with justification
  - Make sure revisions can be easily located (track, highlight, cite)
- After making changes
  - ✓ Check for clarity & coherence of the proposal—have you changed it so much it has become a new study?
  - ✓ Ensure terms/numbers are consistent across documents

Response to Comments document table example:

A. Response to comments by XYZ			
No.	Suggested amendments by the Review Committee	Amendments	Location of amendment
1.	*XYZ…*	• *Respond to comments thoroughly here.* • *Important to provide crucial changes/clarifications to the CFS too.*	*Put in page or section number in Case for support*

Note to keep in mind

- Post award changes to approved project → Amendment request
  - Methodology
  - Sample size
  - RQ
  - Deliverables
  - Timeline
  - Team composition
  - ……

Plan carefully!

Q&A

- For further questions do check with grants@erfp.edu.sg
- ERFP details can be found at https://erfp.edu.sg/

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Using Conjecture Mapping to Improve the Conceptualization of Intervention Studies

Dr David Junsong Huang
Senior Education Research Scientist
Centre for Research in Pedagogy and Practice
2023-09-14

A Challenge: Some Critiques to Intervention Proposals

- **Some critique for (quasi) experimental studies**
  - *Needs more meaningful research questions than 'will xxx be an effective intervention for improving primary school students' learning of xxx'*
  - *The usage of xxx (as an intervention) should be theory-driven. Please explain clearly how xxx can be used to improve xxx.*
  - *Justify the distinctions between two types of instructional packages (as interventions). I found that the distinction between the two instructional packages is ambiguous.*
  - *'Business as usual' as control group can be problematic*
  - *the design of experiment 1 is not well justified. The design of experiment 2 is not so reasonable, for example, why xxx matters? The treatment in the last phase looks in a very surface level for investigating the issue.*
- **Some critiques for design-based research**
  - *Having tried to change practice in Singapore schools via Design-Based Research (DBR) approach that aimed to scale-out after 2.5 years, I know that thinking deeply about what one is looking for before having a chance to see permutations of that "what" will help achieve the aims a project has set out to achieve. The aims of this proposal are well-justified and likely needed, but aspects of the latter stages of research design and analysis need further explicating.*
  - *My one concern at this time is that the researchers have not yet articulated how they plan to implement the 'big' ideas through their lessons. I would like to see at least some "initial design" that the researchers plan to develop further before they roll out the first iteration.*

One Possible Approach: Conjecture Mapping

- Linking theoretical conceptualisation with methodological design

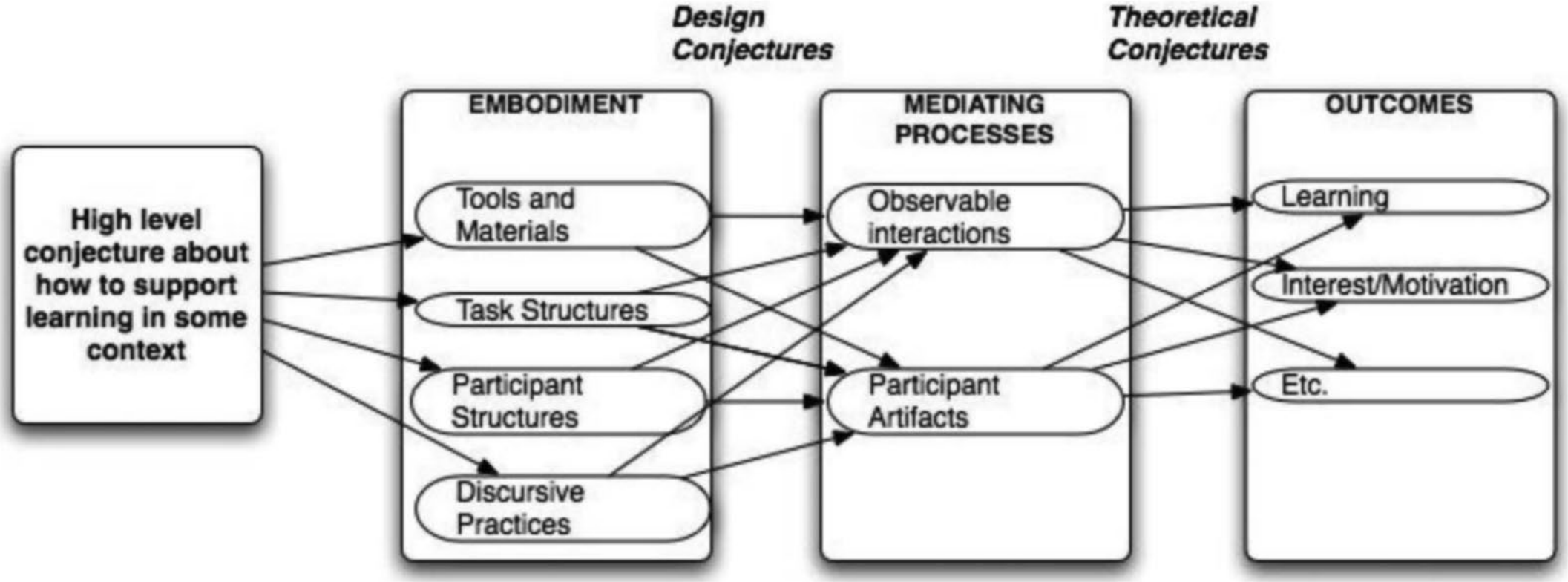

FIGURE 1 Generalized conjecture map for educational design research.

(Sandoval, 2014, p. 21)

Conjecture Mapping: An Example

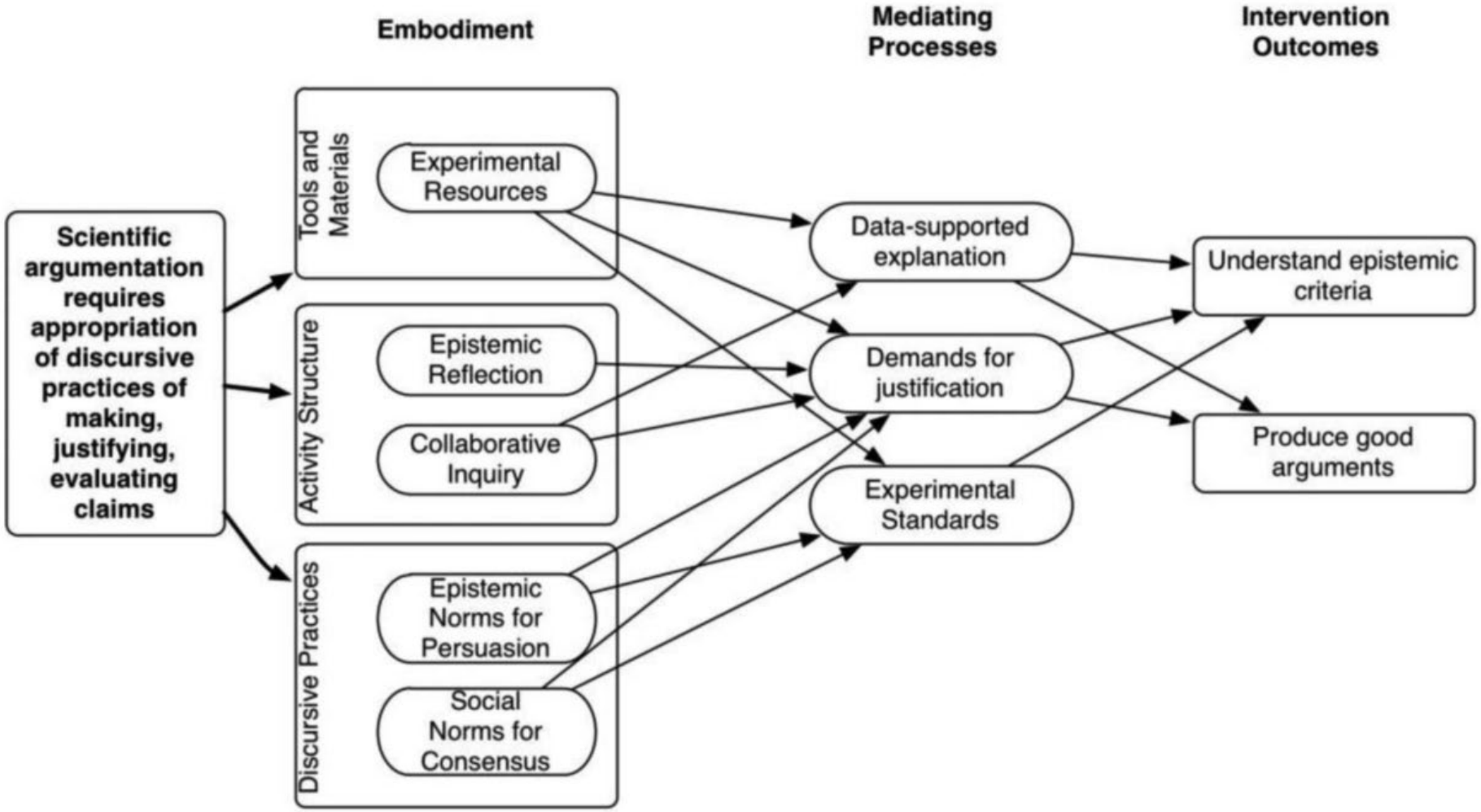

FIGURE 3 Revised conjecture map for supporting argumentation in elementary science.

(Sandoval, 2014, p. 27)

Conjecture Mapping: Feedback on Designs for Improvement

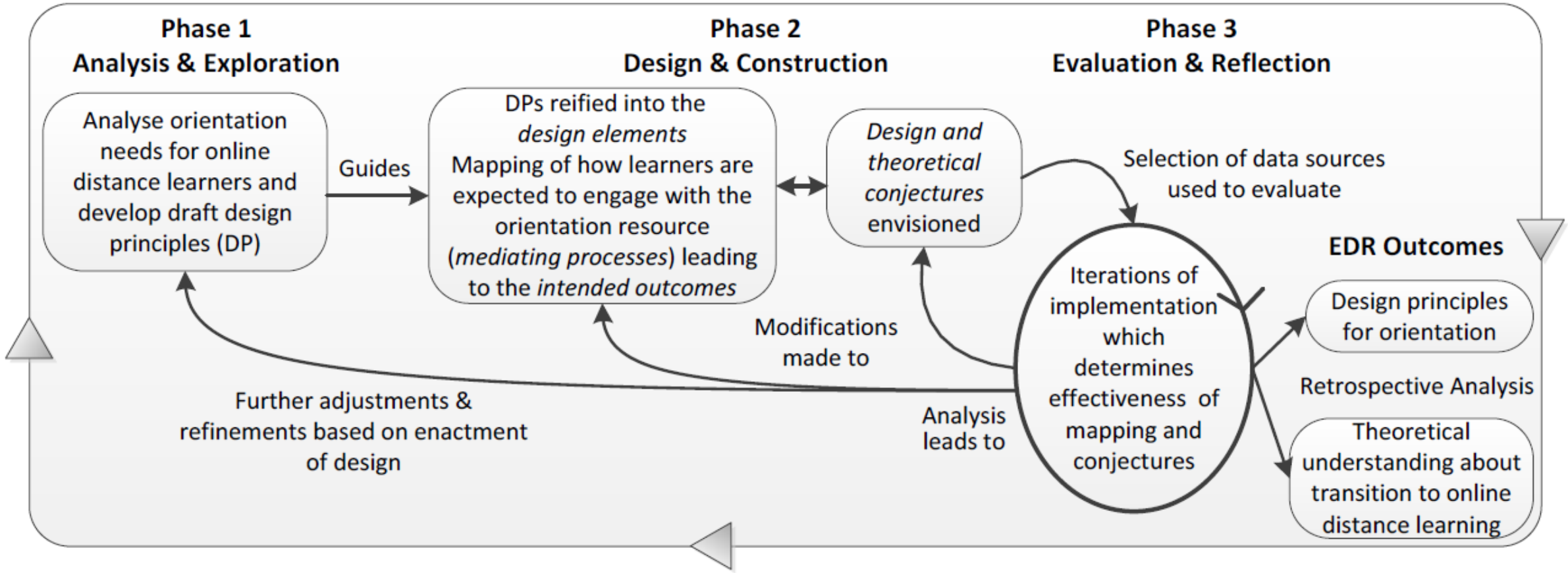

Figure 3. Aligning the conjecture mapping process to the three phases of EDR

(Wozniak, 2015, p. 601)

Consider Conjecture Mapping in Proposal Writing

Inform/Justify the design of the interventions

- Justify the design of an intervention
  - Interventions that are theory-driven
  - Beyond just answering 'whether it works'
- Justify what to be compared as the control group
  - Is 'business as usual' suitable as the control group
- Justify the significance of different interventions
  - Different theoretical conjectures
  - Different design conjectures
  - Different design instances for the same design conjecture

Inform/justify data collection and data analysis

- What data give evidence to
  - The medicated processes
  - The outcome(s)
- Process tracing (Bennett & Checkel, 2015)

Inform development proposals

- Use Conjecture Mapping to inform the design of a development solution (as intervention)
- Use Conjecture Mapping to inform the evaluation of the developed solution

Conjecture Mapping: Limitations and My Thoughts

Subjectivity:
The process of creating a Conjecture Map involves the researchers' interpretations and assumptions about the learning environment.

Lack of Standardization:
There is a risk of inconsistency in how this tool is used across different research projects.

Limited Generalizability:
Unlike more quantitative research methods, Conjecture Mapping studies can be difficult to compare and replicate, potentially limiting the generalizability of findings.

Potential for Confirmation Bias:
Researchers may become attached to their initial conjectures, potentially leading to a tendency to seek out evidence that confirms rather than challenges these assumptions.

Limited Scope (e.g., Contextual Factors)
Critics might contend that conjecture mapping may not always adequately capture the full complexity of educational environments and may overlook important variables or contextual factors that influence learning outcomes.

Intensive Demand on Time and Resources:
Critics may argue that creating and refining conjecture maps can be time-consuming and resource-intensive.

My final thoughts:

Dealing with methodological limitations

These critiques are general concerns that can apply to any research methodology as well. Researchers need to acknowledge and cope with these limitations in order to move forward the research inquiry for both scientific and practice dialog.

Implications on the scaling of pedagogical interventions

Context matters in teaching and learning. What can be scaled/generalised?

- Intervention (i.e., material)?
- Conjecture map (i.e., theory and design frameworks as explicit knowledge)?
- Human capacity (i.e., implicit embodied knowledge)?
- All?