Early Childhood Development Agency

MY PI STARTER KIT

Practitioner Inquiry

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Contents

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ORGANISATIONS AND PRESCHOOLS:

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- E-Bridge Pre-School Pte Ltd
- My First Skool by NTUC First Campus
- M.Y World Preschool Ltd
- Sparkletots Preschool by PAP Community Foundation
- Skool4kidz

Finally, we thank all other preschools and Early Childhood professionals who have contributed to this Practitioner Inquiry Starter Kit in one way or another.

Preamble

As an Early Childhood (EC) professional (which includes EC and Early Intervention (EI) educators), you have a profound influence on the learning and development of young children. With increasing recognition of the importance of early years and rising demand for quality preschool services, adopting a lifelong learning mindset to keep your skills and competencies updated and relevant is important.

As part of your continuing professional development, you are encouraged to engage in Practitioner Inquiry (PI) to learn more about yourself as an educator, guide your practices to enhance young children's learning and development, and reflect on your role as a team member among the educators in your centre.

You may have heard of, or come across, readings on educators carrying out Practitioner Inquiry and wonder if that is relevant to your work. At times, you may question if it is possible to handle the demands of your classroom and still carry out Practitioner Inquiry. You have within you the inner strength to meet the challenges of your profession and discover that the secret of success is to continually grow and learn. In fact, you may realise that you are already practicing more aspects of Practitioner Inquiry than you think.

My PI Starter Kit is designed to support this journey, with features that make the kit not only informative but also directly applicable to your daily practice. As you reflect and improve on your practices for the benefit of the children under your care, we hope you will find this starter kit a helpful companion in conducting Practitioner Inquiry and honing your professional practice.

Professional Development & Standards Division

Introduction

This starter kit is designed to support you on your journey to gain deeper insights into your teaching practices. It considers recent developments in the EC professional landscape, including the Early Years Development Framework (EYDF), Nurturing Early Learners (NEL) Framework, Continuing Professional Development (CPD) Roadmap and Skills Framework for Early Childhood (SFw EC) to support you in transforming your practice through Practitioner Inquiry.

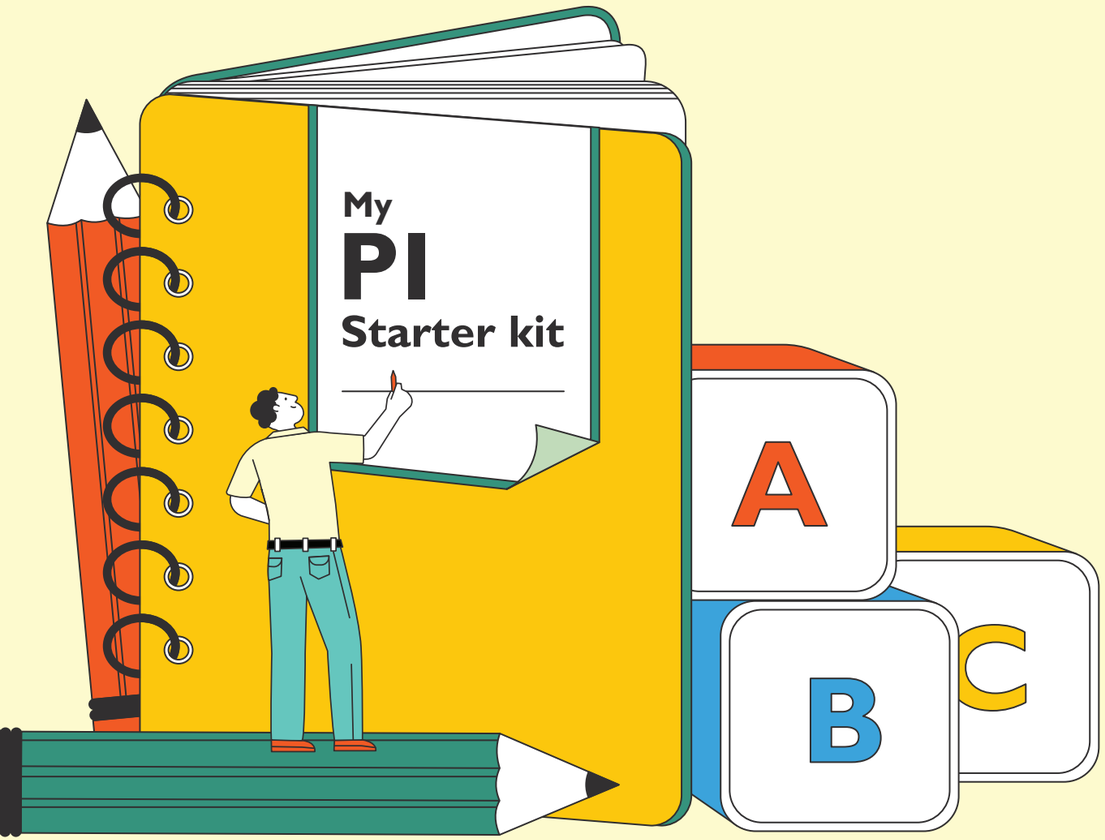
LOOK OUT FOR THESE FEATURES IN THE STARTER KIT!

Framework for Reference

Key Ideas or Concepts

Educators' Soundbites

Further Reading



This starter kit aims to:

1. Encourage EC & EI educators to embark on Practitioner Inquiry as part of their professional development

2. Provide tools and information on conducting Practitioner Inquiry

3. Provide practical suggestions and examples of how Practitioner Inquiry is done

You may already be carrying out Practitioner Inquiry

Educators carrying out Practitioner Inquiry are 'practitioners who attempt to better understand their practice, and its impact on their children, by researching the relationship between teaching and learning in their world of work' (Loughran, Mitchell and Mitchell, 2002).

Try the exercise below to find out if you are already practising some form of Practitioner Inquiry.
The table lists actions that you, as an educator, are likely to perform at work. **Put a tick against each action if you have done it or are doing it.**

Actions

- ◯ **Reflect** on my current practice
- ◯ **Identify** the strengths in my teaching
- ◯ **Identify** an issue in the classroom/centre
- ◯ **Decide** if an issue requires an intervention
- ◯ **Find out** more about an issue online or read up about it
- ◯ **Plan and try out** a strategy/some strategies in the classroom
- ◯ **Observe** if the strategy/strategies work
- ◯ **Share** what I have tried with my colleagues/supervisor
- ◯ **Adopt** the strategy/strategies that worked
- ◯ **Improve** on the strategy/strategies used

The purpose of this exercise is to help you identify the actions that are similar to what an educator carrying out Practitioner Inquiry would do.

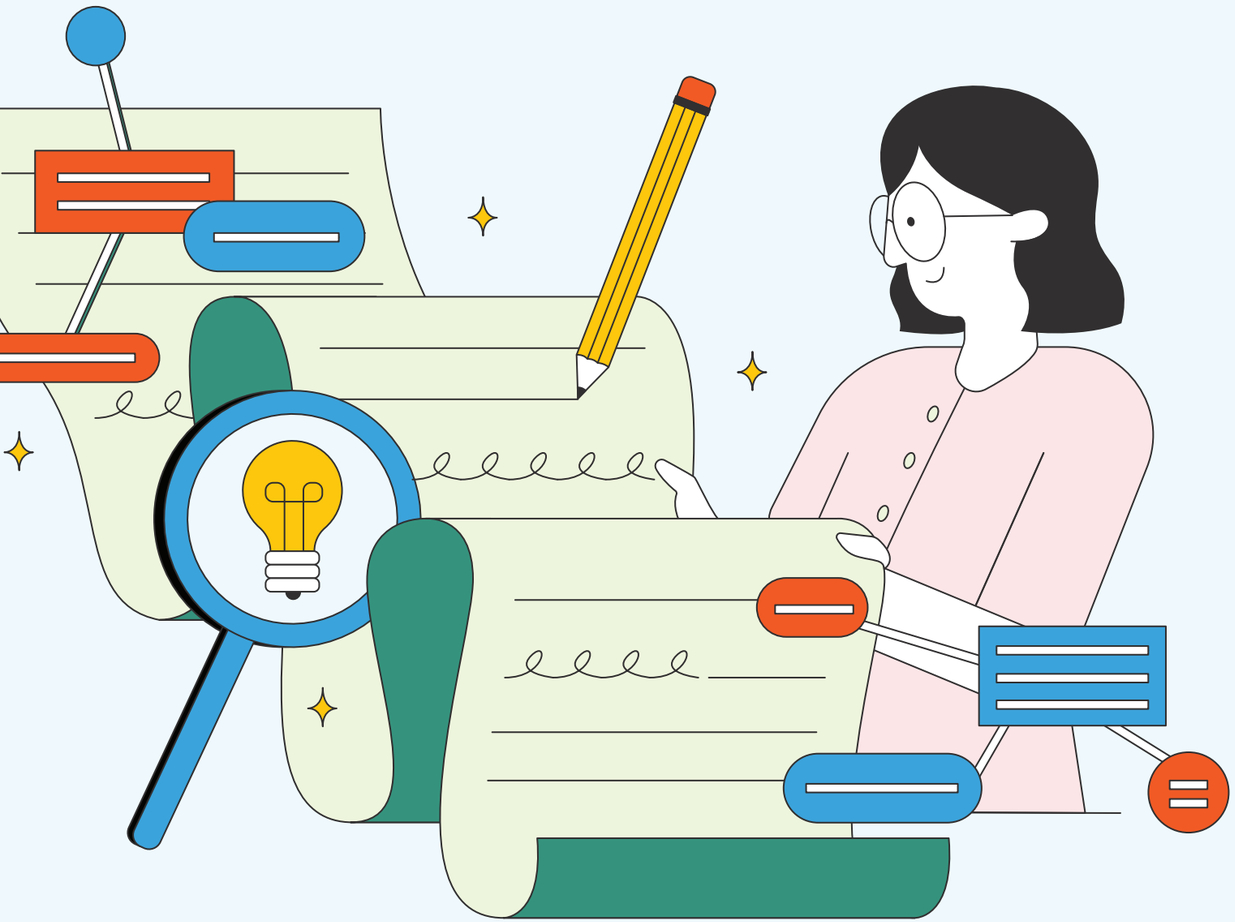
If you have ticked more than half of the statements, you are already on your Practitioner Inquiry journey. The actions that are not ticked indicate areas in which you might need support and professional development.

Ultimately, discovering what you need (in terms of knowledge and competencies) to engage in Practitioner Inquiry is in your own hands.

Chapter 1

Practitioner Inquiry

In this chapter, we will look at what Practitioner Inquiry is, and why it is a valuable tool for educators seeking to enhance their teaching practice and improve children's learning and development outcomes.



What is Practitioner Inquiry?

It is **a process of** asking questions, planning strategies to adopt, collecting and analysing data, and taking appropriate actions based on the findings.

It is **systematic and intentional, focusing on practical solutions to classroom issues** based on reflections and identified areas for improvement.

It is not a one-time event, but **a continuous cycle of inquiry** that allows educators to adapt, refine and innovate their practice in response to the changing needs and interests of the children and context.

Although it can be done individually or with other educators, **a collaborative effort** is encouraged. Practitioner Inquiry is one of the Technical Skills and Competencies in the Skills Framework for Early Childhood (SFw EC), and it is defined as 'systematic and data-driven investigations **with other professionals** to reflect, evaluate and innovate to improve their professional practice'.

WHAT ARE THE BENEFITS OF CONDUCTING PRACTITIONER INQUIRY?

1/ Informs and improves practice as it:

- enhances educators' understanding of an issue, approach or belief
- is context-based and addresses the realities of educators' day-to-day practices and management of their children
- provides evidence for practices
- facilitates informed decision-making
- encourages learner-centred instruction that focuses on the children's needs and interests

2/ Hones educators' ability to reflect

on their practices and facilitates informed decision-making

3/ Builds professional communities

by encouraging collaboration and supportive professional networks

4/ Leads to knowledge creation

— new knowledge that informs teaching practices that help cater to the diverse needs of children

5/ Promotes professional development and increases job motivation and satisfaction

as practitioners get better at what they do

"Practitioner Inquiry helps me to reflect on our classroom practices and come up with solutions to overcome problems."

Ms Shake Mohideen Aneesa Aafreen

Practitioner Inquiry allows a structured space for educators to examine and improve their classroom practices. While courses may help educators acquire new knowledge and skills, Practitioner Inquiry distinctly enables educators to apply, test, and refine their knowledge within their specific teaching contexts through collaborative learning and problem-solving.

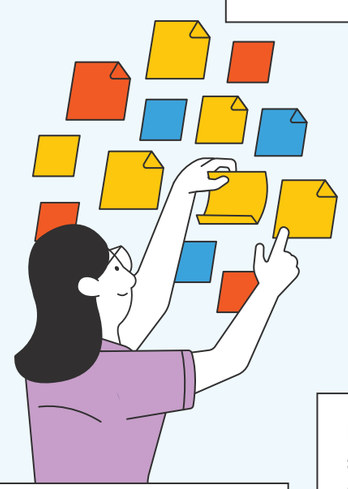
PRACTICAL TIPS FOR CONDUCTING PRACTITIONER INQUIRY IN A TEAM

Getting off to a good start is important. Here are some tips to help you get started in Practitioner Inquiry, whether you are a team leader or team member.

Look for like-minded colleagues who are keen to conduct Practitioner Inquiry with you.

Form a team of 3 to 5 members. This helps to keep the group size manageable and productive. Ideally, at least one member is familiar with Practitioner Inquiry.

Find out where the members stand in their understanding or experiences with conducting Practitioner Inquiry, and if more support is needed.



Determine provisions for the team such as timetable scheduling, manpower relief, resources and meeting venue for discussions, prior to the start of the inquiry.

Communicate to all team members their roles and responsibilities as well as the goals and deadlines for the inquiry.

Encourage psychological safety within your team so that members can speak up without fear of negative consequences when they encounter challenges or are unsure how to proceed.

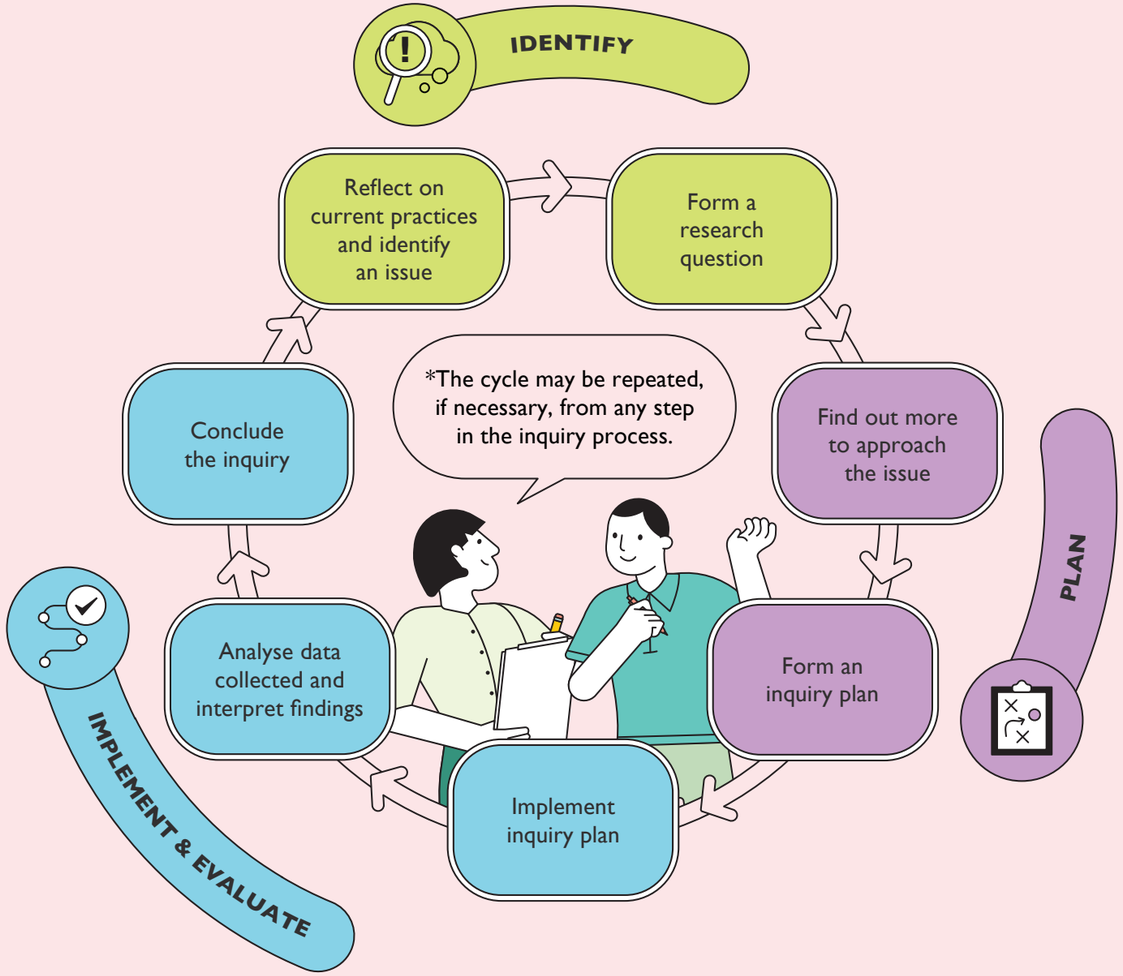
Identify the key tasks and decide the deployment and timeline. Schedule the meeting dates and outline the agenda, highlighting key checkpoints.

Chapter 2

The Cycle of Practitioner Inquiry

Conducting Practitioner Inquiry is a systematic process. Think of it as a cycle: educators carry out ongoing reflection on their practices, identify the issue to form a research question, plan and implement strategies in response to the research question, and evaluate the strategies used.

In this chapter, we will take you through the steps in the Cycle of Practitioner Inquiry[1], structured by the key processes of IDENTIFY – PLAN – IMPLEMENT & EVALUATE.



[1] Various versions of the Cycle of Practitioner Inquiry can be found in research literature. The cycle represented here is chosen based on local early childhood context.

IDENTIFY

STEP 1

REFLECT ON CURRENT PRACTICES AND IDENTIFY AN ISSUE

What may help you in carrying out Practitioner Inquiry is to first make a commitment.

Start by asking yourself questions about your classroom and your teaching. They can be questions such as 'Who are the children in my class?', 'How will the learning resources used in my lessons benefit the children?', 'What skills will the children learn if I carry out this activity?', 'How can I teach this well?' or 'What problem(s) are the children facing?'.

When you reflect and ask questions, you are reviewing your current practices. This is a very important step in the inquiry process. Doing this regularly helps you to identify an issue in your classroom or in your teaching. There is value in committing 5 to 10 minutes daily to reflect and write about your classroom.

Do make 'reflection time' a regular feature for your own development — it is like muscle-building or developing a new skill. You will be amazed at how this simple practice can give you a good start to your Practitioner Inquiry journey.

IDENTIFYING AN ISSUE

Do you or your colleagues currently face any issues in class? What are some common issues that you usually encounter in your work with your children?

For discussion purposes, we will define an issue as an area for improvement that impacts the quality care and education of preschool children.

Practitioner Inquiry is defined as educators' systematic and intentional study of their own practice. It often begins by articulating a concern or burning question about your practice (SFw EC). When educators engage in regular reflection where they examine their own beliefs and goals that inform curriculum planning and teaching practices, it can help them identify the issues.

Reflection is a key component of Practitioner Inquiry and can take place at various points in one's inquiry process – planning, implementing or evaluating phases.

HERE ARE SOME ISSUES EDUCATORS MAY FACE IN THEIR PRACTICE:

1/ Numeracy (Spatial Concept)

Some children can count well, but when I ask them to arrange objects 'between' or 'behind' something, they get confused and place them randomly.

2/ Outdoor Learning

A few children are so used to structured indoor activities that they do not know how to engage in open-ended exploration outdoors - they keep asking 'what should I do'?

3/ Language and Literacy

During story time, I can see some children following the story in their Mother Tongue language (MTL) but struggle to join the discussion afterwards because they cannot express their thoughts in their MTL.

4/ Social and Emotional Development and/or Classroom Management

The moment I bring out any new materials, the children become so excited that they cannot focus when I am giving instructions.

5/ Motor Skills Development

Despite using pencil grips and other tools, many K2 children still have not developed the proper tripod grasp for writing.

IDENTIFY

STEP 2

FORM A RESEARCH QUESTION

Now that you have identified an issue, you can look at forming a research question. If it is well-defined and specific, it will help you to set out the focus and direction of your inquiry process (Lane, 2018). Posing a good research question will save you time, energy and effort in the inquiry process.

CHARACTERISTICS OF WELL-CRAFTED RESEARCH QUESTIONS

- ✓ Sufficiently open-ended to allow possibilities
- ✓ Clear and specific to guide the inquiry
- ✓ Have potential to lead to practical outcomes or improvements, and/or can inform decision-making or practice
- ✓ Answers are not found by just reading up on the issue

"The process of inquiry enables us to deepen our understanding of research and helps us to find out whether our strategy answers the research question."

Ms Wahidah Binte Salim

LET'S LOOK AT THREE EXAMPLES OF RESEARCH QUESTIONS AND HOW THE QUESTIONS CAN BE IMPROVED AND RECRAFTED.

RESEARCH QUESTION	What does it lack?	REVISED RESEARCH QUESTION	What makes it better?
What are the challenges faced by children who are less exposed to their Mother Tongue Language (MTL)?	• Focus is too broad. It is not clear what are the interventions to be investigated. • Can be answered by reading up on the topic.	To what extent would the use of picture cards help children express their ideas in their MTL?	• A specific intervention of using picture cards is given. • A pre- and post-intervention test of children's MTL proficiency can be administered to ascertain if the picture card approach is effective.
Will children focus better if they are calmer?	• A close-ended question that only elicits a 'yes' or 'no' response. • Not specific enough to show context and scope of the inquiry.	Will children be able to focus for a longer period during activity time if I start each day with a calming activity?	• A specific context (during activity time) is given with a clear intervention to guide the inquiry.
How can children's understanding of numeracy concepts be improved?	• Focus is too broad. Unclear as to what interventions are to be investigated. • Can be answered by reading up on it.	How can the understanding of spatial concepts in 4 to 5-year olds be improved with the use of a variety of manipulatives?	• Clear and specific focus of a numeracy concept and intervention.

WRITING GOOD RESEARCH QUESTIONS USING PICO

How do you come up with a clear and well-focused research question? Researchers often use a set of guiding questions commonly known as **PICO** (**P**eople, **I**ntervention, **C**omparison, **O**utcome) in their inquiry to help them form their research questions. Consider using the matrix shown here that we have adapted from the PICO framework.

PICO as a framework to craft research questions has been widely adopted in fields where evidence-based practice is important. It is not attributed to a single source, as it has evolved over time through the work of researchers and educators in the field of evidence-based practice.

People/Issue

Guiding Questions

- Who is/are the focus of the inquiry (e.g. children, educators, parents)?
- What information do you have about them?
- What is the issue that you would like to inquire about?

Intervention

Guiding Questions

- How do you wish to intervene?
- What strategies or specific resources can you use?
- What should be the frequency and duration of the intervention?

Comparison*

Guiding Question

- What or who do you compare with?

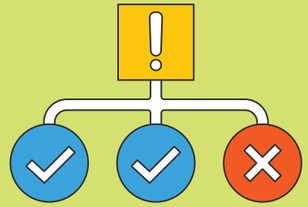
  Present the effects of your intervention by comparing your target group with a control group, or by comparing the 'before' and 'after' of the same group.

*Depending on the focus of the inquiry, a comparison group may not be necessary.

Outcome

Guiding Question

- What are the possible outcomes of the intervention?



Let's examine how we can apply PICO in the examples given earlier.

EXAMPLE 1/ MTL CHALLENGES

Issue	The children in Educator A's class struggles with expressing their thoughts and ideas in their Mother Tongue Languages (MTL). In his conversations with the children's parents, he found out that the children have little exposure to the MTL at home as parents tend to converse in English with their children.			
Reasons for Practitioner Inquiry	The root cause is clear. Educator A wishes to know how he can support the parents to provide the children with more exposure to the language. He has briefly read some literature that picture cards can help early learners express their ideas better, so he is keen to find out more through Practitioner Inquiry together with his colleagues.			
Identifying PICO	**People** Parents and children in his class	**Intervention** Use of picture cards during activities	**Comparison** Compare the same group of children after a period	**Outcome** Children are able to express their ideas in their MTL as a result of the intervention
Revised Research Question	To what extent would the use of picture cards help children express their ideas in their Mother Tongue language?			

In crafting a research question, you may wonder if a well-crafted research question always starts with 'How' and whether there could be other ways to start off the research question.

Not all research questions that start with 'How' are automatically suitable for Practitioner Inquiry. There are research questions that do not start with 'how' but are suitable for Practitioner Inquiry as they are 'open-ended' in nature and allow for deeper inquiry beyond a simple 'yes' or 'no'.

Some research questions are 'too narrow' to be of sustained interest over a period, or 'too broad' and do not define the limits of the study.

Some examples are shown below.

Research questions that are 'too narrow'

- **Is X attentive in class because his mother is an educator and talks to X very often?**
- **How does the arrangement of pillows in the reading corner influence book selection?**

Research questions that are 'too broad'

- **Why are boys more active during physical activities than girls?**
- **How can our activities help children to learn better?**

You may need to revise your research question as you continue to read up on the issue or if new developments arise during the inquiry process.

EXAMPLE 2/ DIFFICULTY FOCUSING

Issue	Educator B notices that her K1 children are unable to focus on an activity for more than five minutes, unlike her previous classes. After reflecting on her teaching practices, she recognises that the children may need a different approach. They seem to get very excited from the rousing morning greetings and are unable to settle down quickly. Will changing that routine help them to focus better?			
Reasons for Practitioner Inquiry	The root cause(s) for the children's inability to focus is unclear. Educator B wishes to know if her theory about the energetic morning greetings is correct. She wants the children to participate actively and benefit from the experiences and interactions that she has planned for them. She is also interested to find out the type of calming activities that other educators have found effective.			
Identifying PICO	**People** Children in her class	**Intervention** Calming activity at the start of the day	**Comparison** Compare the same group of children after one month	**Outcome** Children become more focused
Revised Research Question	Will children be able to focus for a longer period during activity time if I start each day with a calming activity?			

PLAN

You are ready now to dive into the planning stage. It is important to document what you and your team have discovered as you go along.

STEP 3

FIND OUT MORE TO APPROACH THE ISSUE

Once your team has framed the research question, the next step is to understand the issue in greater depth. To do so, Robert-Holmes (2014) emphasises the importance of literature reviews. These reviews help explore what other educators and experts have discovered.

LITERATURE REVIEW

Read widely to familiarise yourself with the latest research and studies in your area of inquiry. Reviewing the literature will give you more ideas for strategies or solutions to the issue. It can also help your team make sense of your own findings and see if they are in line with existing studies. It is important to document what you and your team have discovered as you go along.

Literature review is a key part of research as it outlines the subject content and academic knowledge relevant to the research topic (Albon & Mukherji, 2018).

Note down and share what you have gleaned from the readings. Include citations for the sources for reference. A formal write-up may not be necessary unless one is intending to prepare or present a paper on the inquiry.

WHERE CAN WE FIND LITERATURE SOURCES TO REVIEW?

- Search **Google or Artificial Intelligence (AI) chatbots (e.g. ChatGPT, Claude)** – you may be able to locate recent articles or books on the subject.
- **Google Scholar** (scholar.google.co.uk) is a search engine for books and journal articles. In most cases, you can download a paper or read a section of a book for free. Even if you are unable to access the entire paper, the abstract might be enough for your purpose.
- The **library** is a good source for relevant books and e-resources.
- **Databases** such as Web of Science, Scopus and ERIC (Educational Resources Information Centre) are repositories of peer-reviewed journals. Search using key words such as 'research' or 'literature review' or 'journal' and the subject of your inquiry.

Grey literature vs Peer-reviewed literature

The information you find on search engines such as Google and other sources can be generally divided into two types: grey literature and peer-reviewed literature. These are summarised in the table below. Please note that the list is not exhaustive.

GREY LITERATURE	PEER-REVIEWED LITERATURE
Personal Wikis and blogs	Library books and e-books
TV/radio/internet/videos (e.g. educational channels)	Academic journals and articles such as: • *Early Educators Journals* by AECES[4]) • *International Journal of Early Years Education by Routledge* (publisher) • *Journal of Early Childhood Teacher Education* by National Association of Early Childhood Educators
ECDA website and publications (e.g. Grow@Beanstalk)	
Professional EC educational magazines such as: • *Research Bites* by NIE[2] • *Teaching Young Children* by NAEYC[3]	
Other printed materials (e.g. newspapers, magazines)	Government policies

Grey literature is information or data that is collected or curated by libraries or repositories (including online platforms) which have not been published as academic articles or books. Grey literature is useful as it is immediately and easily available on the web and provides a balanced view of the available evidence (Paez, 2017).

Peer-reviewed literature refers to academic research that has gone through an evaluation process in which journal editors and scholars critically assess the quality and merit of the article and its research. Peer-reviewed journals may include the research of scholars who have collected their own data using an experimental study design, survey or various other study methodologies. They also present the work of researchers who have performed novel analyses of existing data sources.

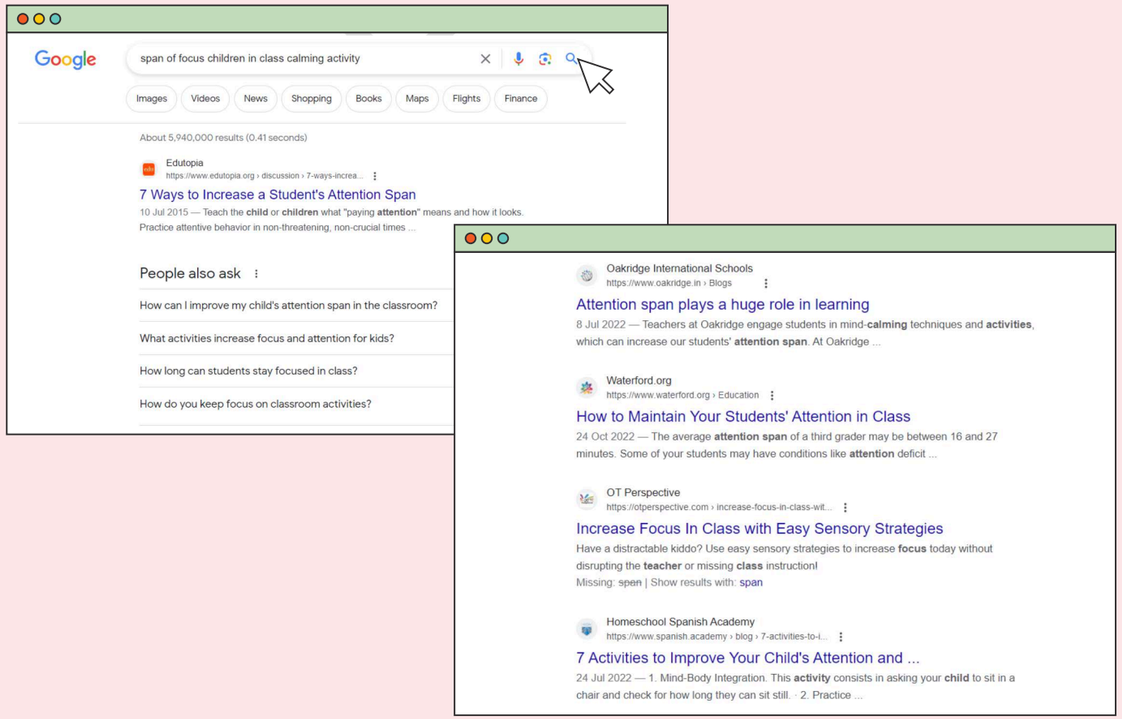
[2] National Institute of Education, Singapore

[3] National Association for the Education of Young Children, U.S.A

[4] Association for Early Childhood Educators (Singapore)

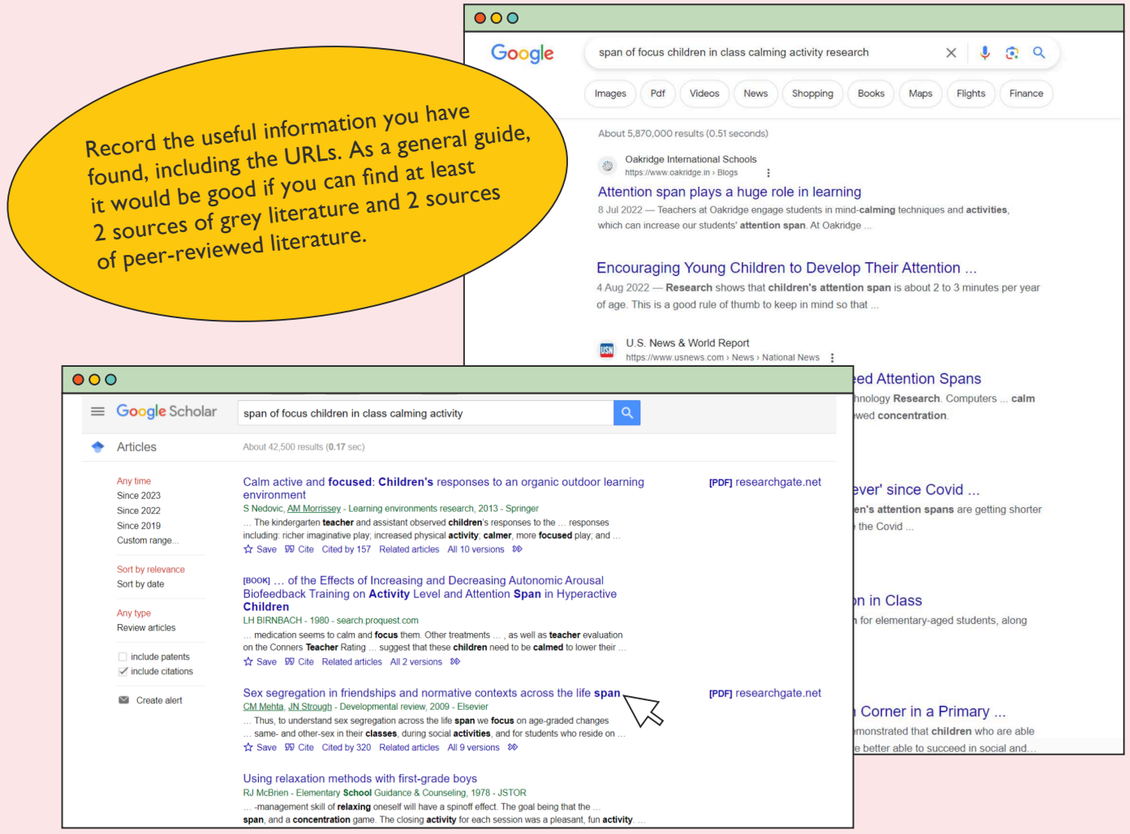
Let's take the research question 'Will children be able to focus for a longer period during activity time if I start each day with a calming activity?'.

Using a search engine like Google, the terms used should contain important aspects of the research question. Applying the PICO frame mentioned earlier, you can key in the following words like 'people', 'intervention' and 'outcome' to generate more focused responses to your search. Alternatively, you may also search for 'span of focus of children in class' and 'calming activity'. At the time of this writing, the first few results generated are as follows:



Such searches may not immediately generate the information you require. We recommend scanning through each result in the first few pages of the search, then changing or adding new key words to generate a new search if necessary.

Typically, more grey literature references may surface in your research. That is fine; information from grey literature can be valuable and some provide links to peer-reviewed articles as well. You can also add key words such as 'research' or 'studies' in the search bar or use Google Scholar. You may then get something like the example shown below:



When scanning grey literature, you may discover that using the search terms for this research question does not yield easily accessible peer-reviewed articles on the first few pages of Google Scholar. Try a new search using other terms from the research question. Consider revising the research question as the initial searches may indicate that there are better strategies or that not enough research has been done on the topic at this point.

What if you can only find grey literature? If the information is sufficient for you to gain a deeper understanding on the topic of your inquiry, and no peer-reviewed articles are available, you may still proceed with your Practitioner Inquiry.

DECIDING IF THE INFORMATION FOUND IS SUITABLE FOR YOUR INQUIRY

How do you know if the information you have found is suitable?
Do you need to read the entire paper if it is peer-reviewed?

TO DETERMINE IF THE INFORMATION FOUND IS SUITABLE FOR YOUR INQUIRY, WE RECOMMEND THE FOLLOWING STEPS

1

Read the abstract or introduction of the article to get an idea of the content.

2

If the abstract does not offer enough background, read the introduction and conclusion.

3

If you assess the article to be suitable, read the methodology and findings section to have a better idea of the strategies used.

4

Look at the 'Reference' section to identify more sources for further reading.

It is important to note that not all articles on the same topic may apply to your inquiry. Also, check when the article or research was published. Some of the information may be published many years ago, and thus outdated. Exercise judgement and evaluate the suitability and relevance of the information for your inquiry.

PLAN

Now that you have found more information regarding the issue, you are ready to form an inquiry plan.

STEP 4

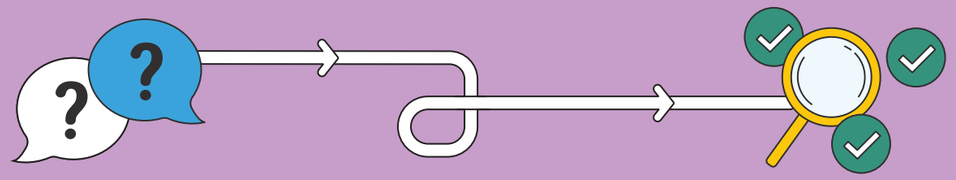
FORM AN INQUIRY PLAN

By now, you would have already considered the research question, read up on the issue and selected some strategies. It is time to go into the details and plan for your inquiry. An inquiry plan is an arrangement of what needs to take place for your inquiry and how it will be carried out.

WHY IS THE INQUIRY PLAN IMPORTANT?

It connects the research question your team has decided on to the findings for the research. A comprehensive and detailed inquiry plan would help meet your objectives of the inquiry and increase the validity of the finding(s).

It will lay the foundation for clear communication within your team, ensuring that all of you are familiar with your roles and area of work. Centre leaders can also use the inquiry plan to determine if adjustment to work schedules is required.



"Discussing and exchanging ideas within a team to form a plan has ensured that we maintained a clear sense of our next steps and remained on track. Consequently, fulfilling the cycle of Practitioner Inquiry felt more organised, structured and efficient."

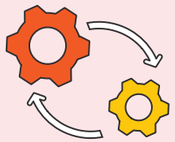
Ms Nur Syafiqah Binte Mohamad Zolkipli

Your inquiry plan can consist of these four sections

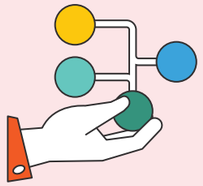
1 Background of the Inquiry

(research question, description of issues and literature review)

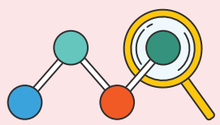
2 Implementation Strategies



3 Data Collection



4 Data Analysis



1/ Background of the Inquiry

The background elaborates on the purpose and context of your inquiry. A well-defined background determines your inquiry approach and design. You can explain why the issue matters to you and your proposed approach to address the issue. You can also include a short summary of your reflection on the issue and background reading.

You may use the following template to put together a well-defined background for your inquiry. It comprises three parts: research question, description of issues and literature review.

INQUIRY BACKGROUND		
Research question	**Description of issue(s)**	**Literature review**

The example below illustrates how the background for your inquiry can be written.

INQUIRY BACKGROUND		
Research question	**Description of issue(s)**	**Literature review**
To what extent would the use of picture cards help children express their ideas in their Mother Tongue Language (MTL)?	The children struggle with expressing their ideas in their MTL.	The team has learnt from • online teaching blogs that picture cards can help early learners express their ideas better • case studies of educators using picture cards to help children to express their ideas better

2/ Implementation Strategies

Implementation strategies refer to one or several practical solutions or ideas your team has identified to tackle the issue(s). These strategies are the ones that you would like to try out in the classroom.

Ensure that the strategies implemented are theoretically sound and can be backed by your literature findings as much as possible. However, it is also possible that you have gained insights on your topic from your readings and prefer to innovate and try a modified or new strategy. Use the findings from your literature review to guide you to decide on the implementation strategy. Work out how the team plans to carry out the strategies within the time frame.

Once you have decided on the implementation strategy, you can add the details to your inquiry plan and consider adding two pieces of key information:

- roles of team members
- implementation timeline

For the inquiry to be successful, members must have a clear understanding of their roles. This establishes clear expectations. Include the responsibilities of each member and make clear who is doing what in the inquiry plan.

As you plan the implementation strategy, you can also determine the timeline for each activity during the Practitioner Inquiry project. A realistic and workable timeline keeps the team on track for what needs to be done, and helps members pace themselves accordingly to complete the inquiry.

Refer to the suggested template on the right. The template is based on an inquiry that is carried out over 10 weeks. You can adjust the duration according to your timeline. Use the template to help you work out the specifics of your implementation plan.

IMPLEMENTATION STRATEGIES

Timeline	Actions	Resources Needed	Action By
Week 1 – 2	• List action(s) to be carried out • Describe how to carry out the action(s)		• List who is carrying out each action
Week 3			
Week 4 – 5			
Week 6 – 7			
Week 7 – 8			
Week 9 – 10			

3/ Data Collection

Data are information you collect to assess if the implementation is effective and if the research question has been answered. Quantitative data (which can be counted or measured), such as age, weight and time, can be collected without much challenge. Qualitative data (which can be observed but not measured) such as children's interests, confidence and emotions can be more complex to collect. Let's explore the process of identifying the data you require and the methods of gathering it.

The data that you collect must take reference from the research question. Think about what happens in the classroom or with the children that can be captured as data. The examples below are possible data one might collect for each research question.

RESEARCH QUESTION	I want to find out...	Data to be collected
Will children be able to focus for a longer period during activity time if I start each day with a calming activity?	• If children are more focused during activity time	• Children's work produced during the activities • Children's attention span, i.e. the amount of time spent on the activity • Children's ability to stay focused during activity time
Will assigning reading buddies improve the fluency skills of K2 children who are weaker in reading?	• If weaker readers can pick up more sight words	• Children's reading fluency score • Children's understanding of the text
How will setting up an outdoor adventure play space promote risk-taking and creative thinking in children?	• If children are taking more risks when playing outdoors; • Whether children can create their own games or find new ways to play in the adventure play space	• Children's willingness to engage in age-appropriate risky play • Children's ability to creatively navigate challenges • Children's creative use of props for imaginative play or ability to invent new games and activities

Take note that some data must be collected before implementation. Also known as pre-test data, it enables you to compare with the data you collect after implementation, and evaluate whether changes (if any) are due to the strategies used and to what extent.

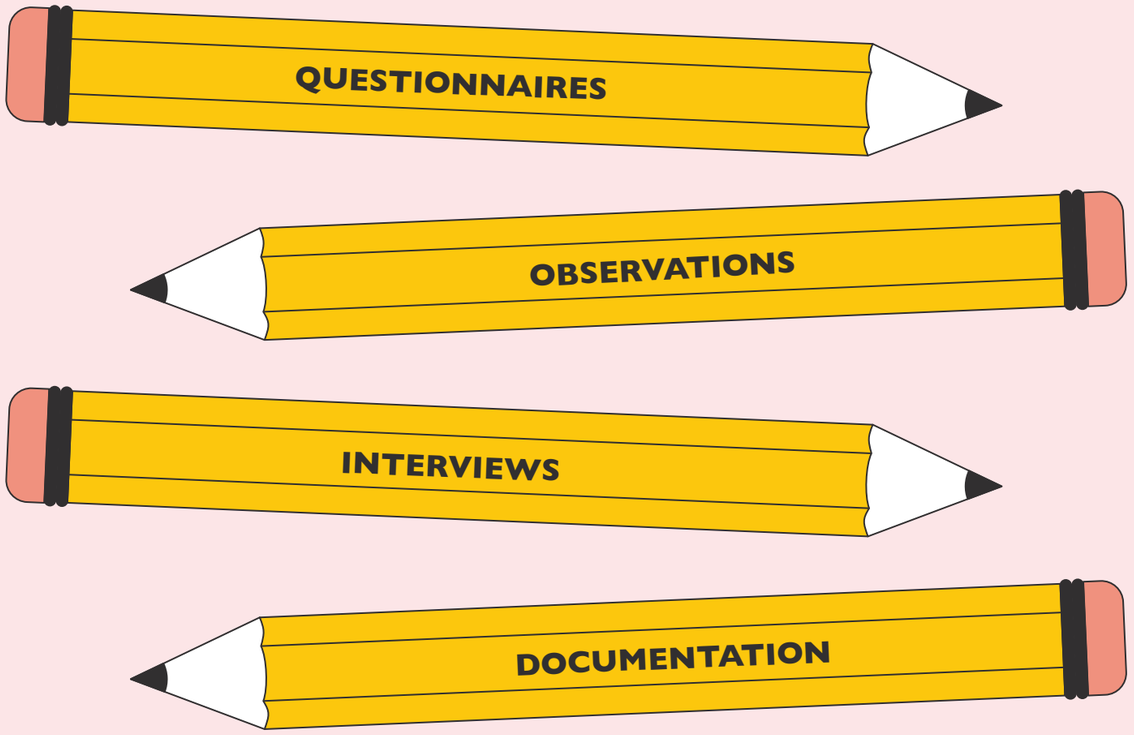
Let's look at the following research question:

How will setting up an outdoor adventure play space promote risk-taking and creative thinking in children?

The pre-test data will include children's current risk-taking behaviours and creative thinking skills. The data collected after implementation is used to determine if there is an increase in children's risk-taking behaviours and improvement in their creative thinking skills after the introduction of the outdoor adventure play space.

HOW TO COLLECT THE DATA

Some common methods include:



You may choose one or a combination of the above methods. Your choice may depend on factors such as the profile of the participants involved and amount of time available. As far as possible, plans for data collection should be integrated with your implementation strategies so that the entire inquiry process is well-planned and coherent.

QUESTIONNAIRES

What It Is

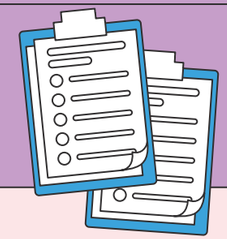
A set of questions that aim to gather information, usually about people's perceptions.

Points to note

- Keep the questions simple to avoid confusion
- Word the questions so that they are easily understood by respondents
- Include close-ended and/or open-ended questions where appropriate
- Include questions such as information-seeking questions and/or questions that use rating scales or ranking
- Avoid two-part questions i.e. two questions within a single sentence
- Consider getting your fellow educators/children to try out the questionnaire

Examples

- Parents' feedback questionnaires
- Activity evaluation questionnaires for educators
- Activity evaluation questionnaires for children



OBSERVATIONS

What It Is

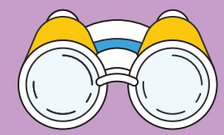
Observe the children yourself or have another educator do so. It would be good if the observation is done by a group of educators (rather than just one educator) so that you can share and consolidate the observations. Photographs can be a helpful visual documentation of your observations. Video recordings allow you to play back and review your observations.

Points to note

- Focus on the intent/objectives of your observation to determine the information you need to record
- Plan when you will be observing the children
- Make a checklist of things to observe to have a more focused observation
- Record your observations in real time and ensure they are as detailed as possible

Examples

- Anecdotal records
- Running records
- Journal logs/reflections
- Learning stories
- Time samples
- Sociograms
- Photographs and videos



INTERVIEWS

What It Is

Interviews can be done with individuals or groups and is another method of collecting qualitative data. Interviews with a selected group of participants are also known as focus group discussions. Seek permission from your interviewees if you wish to record the session for your consolidation later.

Points to note

- Decide who to invite for the interview
- Select a conducive place for the interview(s)
- Prepare a list of questions in advance
- Consider how notes will be taken during the interview(s)
- Avoid dominating the interview. It is important to allow the participant(s) to talk as freely as possible

Examples

- Structured interviews with children
- Dialogues with parents, children and/or educators
- Focus group discussions with parents and/or educators

DOCUMENTATION

What It Is

Looking at children's work will help you to evaluate their learning and development. This can inform you about the effectiveness of the strategies used.

Points to note

- Determine the types of children's work to be documented
- Consider how you can assess the children's competencies with the documents collected

Examples

- Portfolios
- Drawings
- Photographs of children's work
- Records of number of books read
- Rating scales

CASE STUDIES: DETERMINING METHODS OF DATA COLLECTION

Case Study 1

Will expanding on children's responses during story-telling activities improve children's communication skills?

Teacher Raudhah's team wanted to investigate if the strategy of expanding on children's responses during storytelling activities can help improve the children's communication skills. The team planned to use a rating scale to determine the children's progress in communication skills. This data was collected before and after the strategy was implemented. The team also included lesson observations of the children during other activities (before and after using the strategy). These observations helped to flesh out the strategy's impact on the children's communication skills.

The team collected data to determine...	Data collection methods
Progress in children's communication skills	**Documentation** Children's communication skills are evaluated on a rating scale by educators
	Documentation Children's communication skills are evaluated on a rating scale by parents
	Observations using anecdotal records Noting children's responses when strategy was used during activities before and after the storytelling activity

Case Study 2

Would introducing a variety of art materials help children create artworks with more details and motivate them to talk more about their artworks?

Teacher Kris and her team hoped to encourage the children to describe their artworks and be able to add at least two more details in their artworks. They used the running record observation method to document children's conversations during the activity. The team collected children's artworks before and after the strategy implementation to compare the details in children's artworks. They also conducted interviews with the children to record the children's descriptions of their artworks.

The team collected data to determine...	**Data collection methods**
Details shown in artworks created by children	**Documentation** Compile children's drawings and record the number of details shown in artworks
Children's description of their artworks	**Observations using video recording** Record children's descriptions of their artworks
	Interviews with children Record children's descriptions of their artworks

An educator's daily responsibilities may involve data collection in the form of observation notes, learning stories and assessment instruments provided by the centre. Leverage existing data from your daily documentation - such as observation notes, learning stories, and centre assessments - if they align with your inquiry focus. This approach is more efficient than collecting new data.

QUALITATIVE AND QUANTITATIVE DATA

Broadly, the data collected can be categorised as qualitative and quantitative data. Qualitative data describes qualities and characteristics in words and cannot be expressed numerically. Quantitative data can be measured and counted.

Examples of qualitative data:

- Observational notes
- Children's portfolios
- Open-ended responses
- Interview transcripts

Examples of quantitative data:

- Percentages
- Time of the day
- Number of times an event happened

The two case studies presented involve collection of both quantitative and qualitative data. This is known as **mixed-method data collection.**

CASE STUDY 1

Data collected:

- Qualitative data – Observations of children's communication skills during activities
- Quantitative data – Rating of children's communication skills

CASE STUDY 2

Data collected:

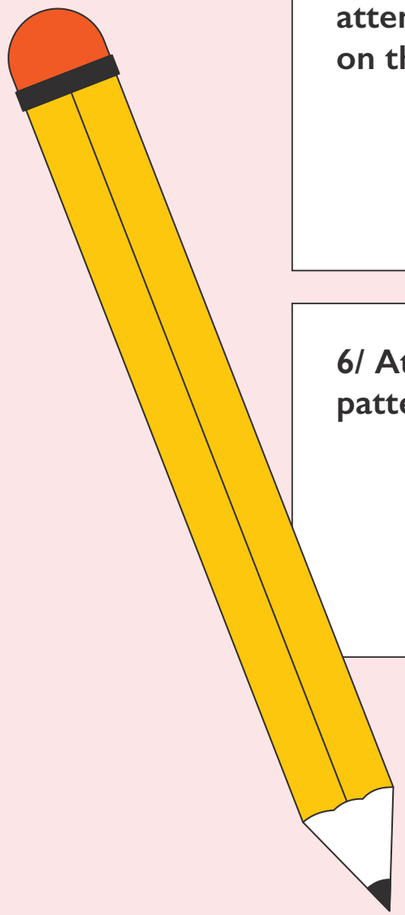
- Qualitative data – Running record observations and interviews with children
- Quantitative data – Number of children's artworks that had at least two details in their artworks

If your objective is to collect qualitative data, it does not mean that numbers cannot be used. Even if you have collected qualitative data such as anecdotal records of children's behaviour, you can still quantify this qualitative data by:

- Counting how often the behaviour occurs
- Deriving a percentage
- Providing a rating (e.g. score of 1 – 5) to what was observed

In Teacher Kris' inquiry, she collected children's artworks along with the educator's observation notes, which is qualitative data. By tallying the number of details shown in the artworks from the educator's notes, she quantified the qualitative data.

Try the exercise below: state if the type of data is qualitative or quantitative.



1/ The number of attempts to play on the slide

2/ Children's descriptions of their favourite activity

3/ The number of manipulatives provided

4/ Preference ratings

5/ Observing a child packing up his/her belongings

6/ Attendance pattern

7/ The number of attempts by a child before asking for help

8/ Number of sight words read

9/ A child's response to an activity

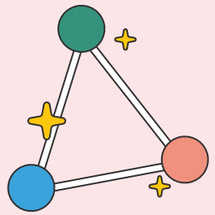
10/ The product that the child has created

Answers: 1. Quantitative 2. Qualitative 3. Quantitative 4. Quantitative 5. Qualitative 6. Quantitative 7. Quantitative 8. Quantitative 9. Qualitative 10. Qualitative

It is good practice to be clear on why you are collecting non-numerical data (qualitative), numerical data (quantitative) or both. This will help with your data analysis and inquiry findings later.

TRIANGULATION OF DATA

The term triangulation comes from navigation, where multiple reference points are used to locate an object or unknown position. When applied to Practitioner Inquiry, triangulation of data means **using three or more sources of data** to answer the same research question.



For example, if you are conducting an observation and doing two different interviews focusing on the same research question, you are triangulating with three data sources. This is a good practice to bolster the reliability of your findings.

Note the three sources of data that are identified for the inquiry below. By using more data sources, the educator can better compare the findings.

RESEARCH QUESTION	DATA
Will children be able to focus for a longer period during activity time if I start each day with a calming activity?	• Children's completed work • Recording the length of time children stayed focused during activity time • Observation by educators to assess the children's ability to stay focused

The data collected is used to assess

- Improvement in children's work
- Increase in the duration of children's attention span
- Improvement in children's ability to stay focused and engaged during activity time

From the triangulated data, the Practitioner Inquiry team can determine if the strategies used are effective or ineffective in helping children to be more focused during activities.

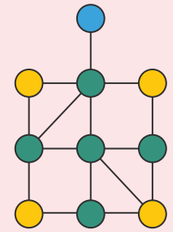
4/ Data analysis

Collecting a lot of data means little unless they are analysed. How you evaluate the data depends on the data collection method. For example, if you are conducting a questionnaire, will you be calculating the percentage of positive responses and presenting the findings in a pie chart? If you are collecting children's artworks, will you be analysing the artworks using a set of indicators, then presenting the scores in a graph?

There are various ways to analyse data and some need not require advanced statistical techniques. Realistically, it is better to select an appropriate data collection method that can be analysed and presented in a format within your level of expertise. Refer to Step 6 for the common processes in data analysis.

WHAT AN INQUIRY PLAN LOOKS LIKE

At this point, you would have put the data to be collected and your method(s) of data collection in your inquiry plan. You may wish to organise your inquiry plan like the example below. It will be helpful to also list the resources that you need to prepare.



While the example shows you how an inquiry plan could be drawn up, your organisation may have its own template available for use. The objective is to be as detailed as possible when you plan for your inquiry in consultation with your members. Taking the time to plan well will help you start off your Practitioner Inquiry on a sound footing and give all team members clarity on the steps to take.

INQUIRY BACKGROUND

Research question

Will children be able to focus for a longer period during activity time if I start each day with a calming activity?

Description of issue(s)

The children are not able to focus on an activity that they are working on. Very often, they are easily distracted by friends who walk past them or friends who are doing other activities. Without proper focus, it will be challenging for children to follow through with tasks and they may fall behind in their own development.

Literature review

Team has found

- online teaching articles that share how focus-enhancing activities help children to concentrate better
- case studies from education magazines that share how calming activities such as mindfulness exercises or movement exercises during transition time help children focus better during activities

IMPLEMENTATION STRATEGIES

Timeline	Actions	Resources Needed	Action By
Week 1 – 2	• Literature review to explore studies on children's focus and focus-enhancing activities such as calming exercises • Refine research question and strategies if required	• Books from the library • Online articles • Consult a curriculum specialist	• Teacher A and B • Team leader to consolidate
Week 3	• Discuss with centre leader the plan and resources needed. Source and procure resources (books, media, tools, materials, etc.)		• Entire team
Week 4 – 7	• Conduct calming activity at the start of each day • Collect data as planned	• Calming activity cards for children to choose from • Mats and tapes to set up corners in classroom for calming activities • Observation sheets for educators • Record sheets for educators	• Teacher C to prepare activity materials • Teacher A and B to guide the set-up • Team leader to prepare resources for data collection with support from Teacher C • Teacher A and B to implement in class • Team leader to guide and observe
Week 8 – 9	• Analyse data		• Teacher A and B to organise the data • Teacher C to handle the presentation of analysis • Team leader to guide and work with team to interpret the findings
Week 9 – 10	• Prepare report		• Team leader to compile a written report • Teacher A and B to do up a PowerPoint slide presentation • Teacher C to insert pictures for written report and PowerPoint

DATA COLLECTION

Data to be collected

- Children's work produced during the activities
- Children's attention span (duration of time spent) on the activity
- Children's ability to stay focused during activity time

Methods of data collection

- **Documentation** of work completed by the children
- **Observations** by educators on the process of children completing the activity
- **Recording** the length of time children stayed focused during activity

DATA ANALYSIS

- Coding by scoring children's work. Charts to show the scores before and after implementation
- Organise observations by theme (i.e. children stay focused while doing the activity)
- Chart presenting the duration children stayed focused during activity time

IMPLEMENT AND EVALUATE

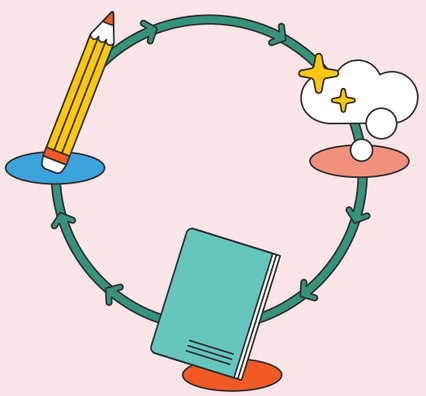
STEP 5

IMPLEMENT INQUIRY PLAN

The previous step shows you how to prepare the inquiry plan. You have now come to the 'action' part of the cycle, where your team will implement the Practitioner Inquiry according to your plan. This step focuses on what goes on during implementation and some possible challenges you may face.

As you and your team gain more experience with Practitioner Inquiry, you will find that you may begin at any point in the cycle. It is important to record your learning and information collected at each step for you and your team's benefit.

Practitioner Inquiry is a continuous cycle. It is not a linear project with fixed beginning, middle and end points, so resist the temptation to feel that you have to finish it (Dana, 2013).



"It was integral for team members to meet during the implementation phase to update one another on the progress of data collection and strategies used. During our meeting, we brought up some challenges and they were resolved by the Principal."

Ms Jolene Chung

WHAT GOES ON DURING IMPLEMENTATION?

Implement Identified Strategies

Follow the inquiry plan and put it into action.

Monitor the Implementation Process

Use the questions below to guide you in tracking your implementation progress.

1/ Is the team achieving the intended outcomes from the research question?

2/ Are the children responding to the strategy introduced?

3/ Is the strategy working?

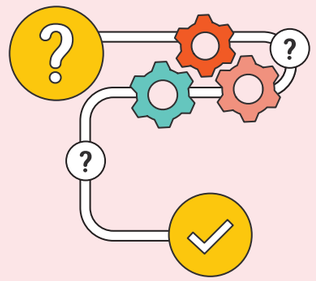
4/ Is the team on track with the timeline?

5/ Has all the information relevant to the research question been gathered?

6/ Is the data clearly labelled with relevant information such as the date, time, name of participant and recorder?

Check in on the progress of your implementation regularly. Firstly, it ensures that the strategies are carried out as planned. Secondly, it ensures that the appropriate data are collected. Thirdly, it functions as a check on the effectiveness of the strategies and enables you to identify areas for improvement.

- Consider potential interruptions such as public holidays, spikes in HFMD cases and manpower issues. Build in a buffer in your timeline so you can make adjustments if necessary.
- Avoid making major changes to the planned strategy during implementation. This will help you determine the effectiveness of your intervention. After you have analysed the data collected, you may wish to repeat the cycle from any step in the inquiry process.
- Allocate time during implementation for the team to check in with one another on the progress of the implementation. For example, you can schedule a one-hour meeting at regular junctures.



Analyse Data Collected

Data can be analysed concurrently during implementation. This allows you to make decisions on whether to proceed as planned or adjust the planned strategy used. Read more on data analysis in Step 6.

Refer to the decision chart to help you decide if you should continue with your implementation or start a new cycle with another new strategy.

Research Question

Implementation
- Put the strategy in the inquiry plan into action
- Monitor the process by observing children's learning and organising data collected

Analyse Data Collected
- Do the data support the outcome?

Yes

Continue with the implementation

- Proceed to Step 6 to evaluate the strategy used
- Write the report for Practitioner Inquiry to conclude the cycle

No

Modify the strategy or introduce a new strategy?

No*

- Go back to Step 2 and relook the research question
- Move on to Steps 3 & 4 to find out more on the issue and strategies
- Rework the inquiry plan with the modified or new strategies

Yes

Implement the strategy

*Educators are encouraged to modify the strategies. Conclude the cycle only when circumstances require the team to do so.

IMPLEMENT AND EVALUATE

STEP 6

ANALYSE DATA COLLECTED AND INTERPRET FINDINGS

With your team, interpret the findings to evaluate the effectiveness of the strategies and if the research question has been sufficiently addressed.

WHAT IS DATA ANALYSIS?

It summarises and describes your findings to identify common patterns or themes related to the research question (Robert-Holmes, 2014).

It can start before all the data are obtained. As shown in Step 5, ongoing data analysis can help you evaluate and make the decision to continue or adjust the planned strategy.

Data analysis that happens towards the end or at the end of the inquiry summarises what you and your team have learnt about yourselves as educators, your children and your practice as a whole.

Team members can take turns to organise and interpret the data, but it is important for all to be familiar with the data collected. Relooking the data can help to uncover fresh insights.

WHAT DOES DATA ANALYSIS INVOLVE?

The actions involved in data analysis in Practitioner Inquiry can be grouped into two main processes shown on the next page. As mentioned in Step 4, there are various ways to analyse data and you may not need to use advanced statistical techniques. Data analysis, in general educational research, can involve methods which are not covered in this starter kit, such as grounded theory, statistical analysis, regression analysis, etc.

Two Processes Of Data Analysis

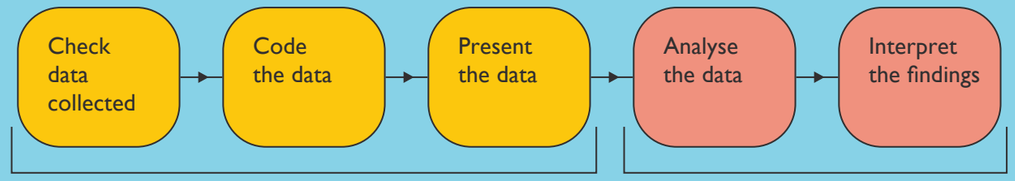
1/ Organise the data collected

- **Check** that the data required are sufficient and accurate. If some data are missing, incomplete or inaccurate, decide whether to redo the data collection process or assess if the existing data are useful and valid in informing you of your inquiry findings.
- **Code** the data by assigning labels or categories (typically for qualitative data) to make the information easier to analyse and understand. These codes can be broad ideas, themes or symbols. Coding can be applied to quantitative data as well if it helps in interpreting and/or comparing the findings.
- **Present** data, ideas and themes in visual formats such as graphs, charts, tables and/or diagrams which make it easier to understand the findings.

2/ Analyse the data and interpret findings

- Data analysis involves identifying common patterns or themes in the data your team has gathered and organised. You may also look back at the previous steps your team has gone through and reflect if things could have been done differently. The questions on Page 45 may help your team clarify this process.
- Findings do not 'speak' for themselves; they need to be interpreted and not merely described. Your interpretations should help you determine whether the strategies are effective in addressing your issue and answering your research question.

The two processes of data analysis are reflected in the diagram below:



HOW TO ORGANISE DATA

We will use Teacher Raudhah's team's inquiry on strategies to improve communication skills (Step 4, Case Study 1 on Page 35) to illustrate the process of organising quantitative and qualitative data. Do note that these are just examples of data that may be collected and suggestions on how the data can be organised and interpreted.

Organising quantitative data

Research Question Will expanding on children's responses during story-telling activities improve children's communication skills?

Quantitative data collected

Rating of children's communication skills by educators, and by parents.

Check data collected

- Rating sheets (based on centre's scoring rubrics) devised by the educators were completed, with information such as the children's names and dates recorded clearly.
- Two sets of rating sheets to determine the children's progress in communication skills were collected before and after the storytelling activity. Children with only one set of rating sheets were not included in the analysis.
- Data from the rating sheets were summed up in the table.

"Practitioner Inquiry provides the opportunity for educators to reflect collaboratively on the teaching strategies that they had implemented. At the same time, it gives them a deeper understanding (of themselves and the children under their care) and further extends their experiences."

Ms Acosta Danella Nissi

Rate scores before and after the storytelling activity

Note: The scores by the educators were derived based on the centre's scoring rubrics. A score of 1 represents 'developing' skills while 4 represents 'competent' skills demonstrated.

The parents' ratings were organised and displayed in the same manner as the educators' ratings, serving as another set of quantitative data.

Child	Score
George	2
Halinah	1
Jia Xin	4
Kumar	3
Merlin	3

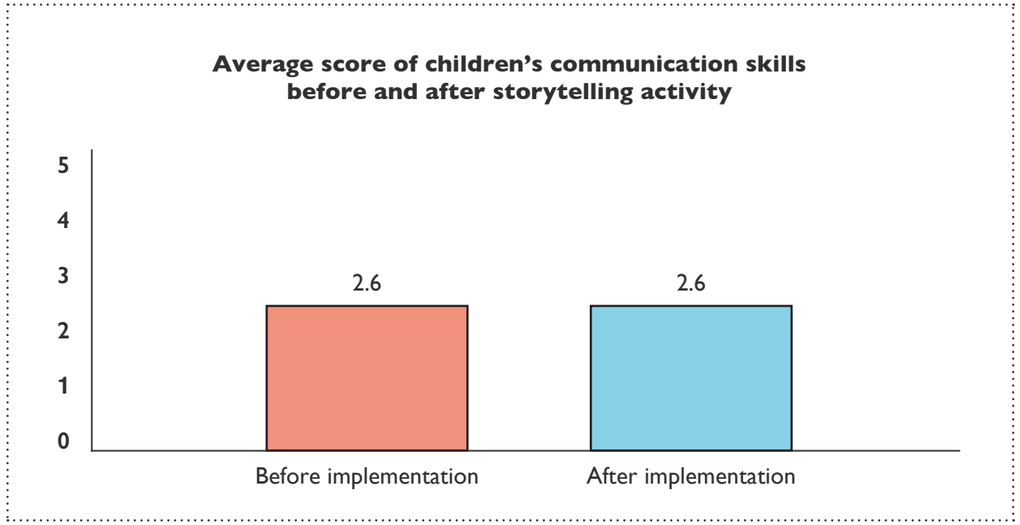
Before

Child	Score
George	2
Halinah	2
Jia Xin	4
Kumar	3
Merlin	2

After

Display the data

The team presented the data in the form of a bar graph to show the average score of the children's communication skills before and after the storytelling. A bar graph offers a clearer presentation of the findings, and this would be used for the analysis of the findings later on.



By displaying the data in the form of a bar graph, it allows for a clearer presentation of the findings, and this would help the analysis of the findings later on.

Organising qualitative data

Research Question Will expanding on children's responses during story-telling activities improve children's communication skills?

Every inquiry is unique. The data your team has collected and the codes you assign to the data may differ from the example given.

Qualitative data collected

Anecdotal records of children's responses during activities before and after the storytelling activity.

Check data collected

- Anecdotal records done by the teachers during other activities were completed, with information such as children's names and dates recorded clearly.
- Records show factual, objective observations and descriptions.

Code the data

- The team assigned codes (or labels) for each level of response.
- Specific to the purpose of their inquiry, this set of codes enables the team to analyse the communication patterns of the children when they look at the observation notes collated.

Code	Stands for	Description
NR	No response	No response from child
NVR	Non-verbal response	Nodding or shaking of head, or facial expressions to indicate response
VRL1	Verbal response level 1	Close-ended answers (Yes/ No, True/False)
VRL2	Verbal response level 2	Responses beyond close-ended answers. (e.g. stating facts or prediction, or questions to find out more)
VRL3	Verbal response level 3	Responses that include explanation

The following are extracts from the team's anecdotal records

Before strategy was used

Observations during an activity

NVR x2
- George and Halinah were silent during the activity, nodding or gesturing when prompted.

VRL2
- Jia Xin predicted the outcome by stating 'She (will) come home'.

VRL1
- Merlin said 'No' regarding Jia Xin's prediction. Kumar said, 'She will'.

VRL2

Child	NR	NVR	VRL 1	VRL 2	VRL 3
George	0	1	0	0	0
Halinah	0	1	0	0	0
Jia Xin	0	0	0	1	0
Kumar	0	0	0	1	0
Merlin	0	0	1	0	0
Total	**0**	**2**	**1**	**2**	**0**

The numbers '0', '1' and '2' represent the number of occurrences of each type of responses.

The team then proceeds to analyse the data.

- All children showed some form of response.
- Children's responses range from NVR to VRL2.
- No VRL3 was recorded in this data.

After the data have been organised, they are now ready for analysis and evaluation of the strategies used.

After strategy was used

Observations during an activity

VRL2
- Merlin said, 'The wolf is bad.' Jia Xin added saying, 'He pretend(ed) (to be) kind'.

VRL3

NVR
- George nodded but said nothing when asked. Halinah said 'Yes'.

VRL1

VRL2
- Kumar asked, 'Why?'

Child	NR	NVR	VRL 1	VRL 2	VRL 3
George	0	1	0	0	0
Halinah	0	0	1	0	0
Jia Xin	0	0	0	0	1
Kumar	0	0	0	1	0
Merlin	0	0	0	1	0
Total	**0**	**1**	**1**	**2**	**1**

The numbers '0', '1' and '2' represent the number of occurrences of each type of responses.

The team then proceeds to analyse the data.

- All the children showed some form of responses.
- Children's responses range from NVR to VRL3.
- Overall, the level of responses by the children have increased.

After the data have been organised, they are now ready for analysis and evaluation of the strategies used.

ANALYSIS OF DATA AND INTERPRETATION OF FINDINGS

This process may not be straightforward and may involve the team reviewing the data more than once. The analysis process may vary from team to team. Use the guiding questions below to help you in your analysis.

ANALYSE THE DATA

- Have the data been consolidated and presented in a way that allows for easy interpretation?
- What are the trends, patterns and/or themes that I can gather from the findings?
- Do the findings corroborate?

INTERPRET YOUR FINDINGS

- What are some possible interpretations I can derive from the findings?
- How do these interpretations address or inform about the research question and the strategies used?

Practitioner Inquiry enables educators to better understand their practice and its impact on children. It can answer these questions you have:

- What have I learned as an educator?
- What have I learned about my children?
- What are the possible implications on my practice(s)?
- What actions must/can I take to help children improve or extend their learning?
- What do I want to explore deeper?

IMPLEMENT AND EVALUATE

STEP 7

CONCLUDE THE INQUIRY

Now that you have completed the process of data analysis and addressed your research question, let's look at how to present the inquiry in writing.

WHY IS REPORTING THE FINDINGS FOR YOUR PRACTITIONER INQUIRY IMPORTANT?

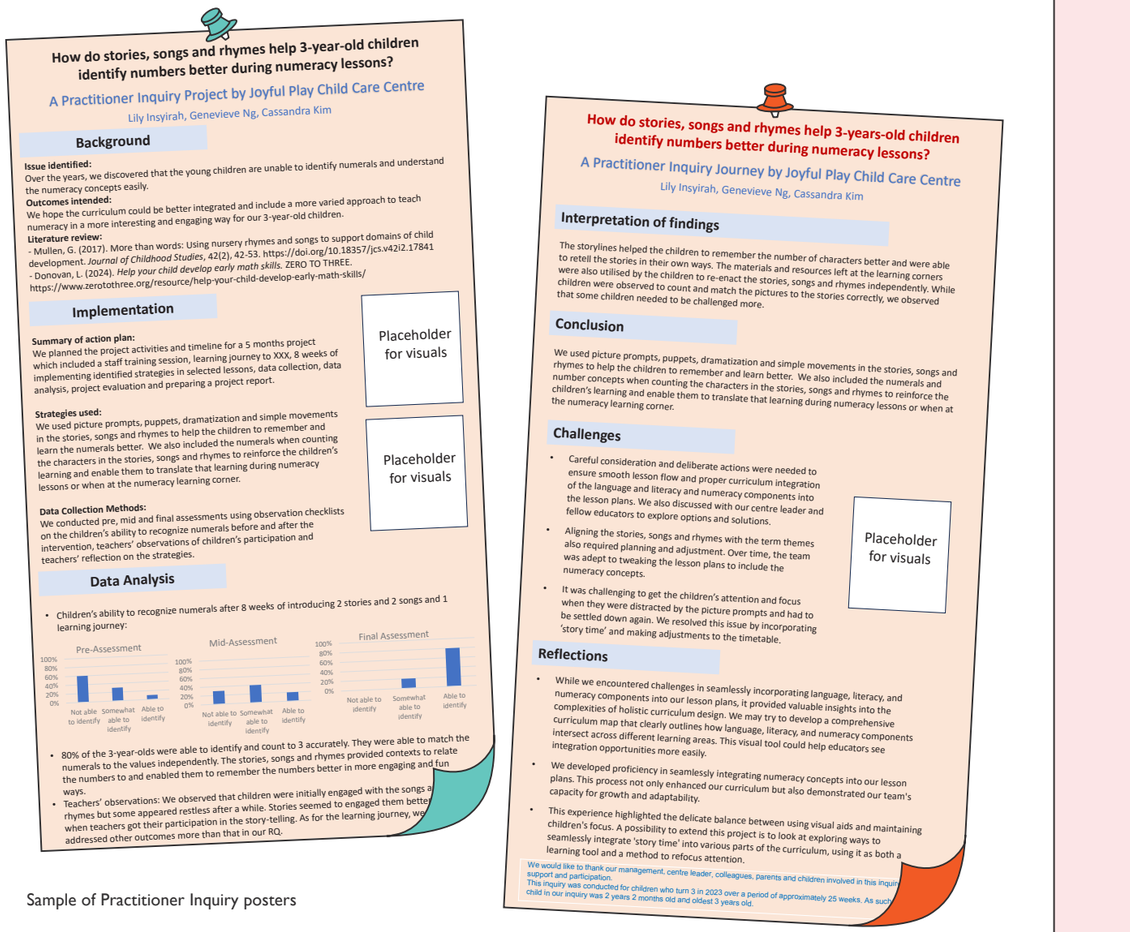
- To provide an account of the strategies used and the implementation process
- To communicate the results to a wider audience
- To demonstrate that the findings are evidence-based and supported by the data collected
- To acknowledge the efforts behind the inquiry and encourage further practitioner inquiry

HOW TO PRESENT YOUR FINDINGS FOR YOUR PRACTITIONER INQUIRY

Your Practitioner Inquiry report can be in any of these formats: posters, PowerPoint slides or your organisation's prescribed template. Each format has its own merits. Choose the format based on the purpose of the report, intended audience and how the report will be used. For instance, if there is an intention to feature your report in your organisation's publication, a formal write-up or poster presentation are both possible options.

1/ Posters

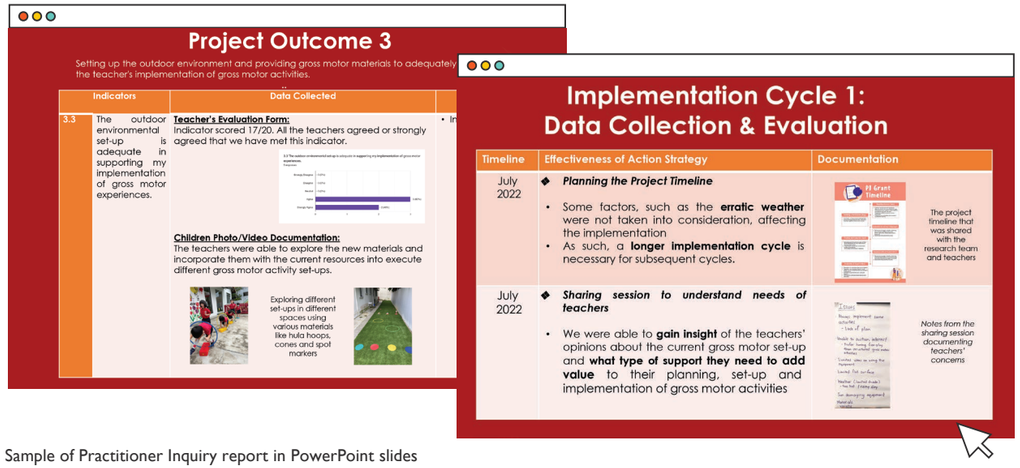
Posters can be printed out and displayed in your centre or at a conference. You can enhance poster displays with research artefacts for a more creative presentation.



Sample of Practitioner Inquiry posters

2/ PowerPoint Slides

PowerPoint slides allow you to include more pictures and are a useful tool for presentations.



Sample of Practitioner Inquiry report in PowerPoint slides

3/ Report

Reports are articles written for an academic journal or magazine.

Sample of an article about Practitioner Inquiry from *Beanstalk*

Sample of written Practitioner Inquiry report from *Early Educators, A Practitioner's Journal* by AECES

WHAT TO INCLUDE IN YOUR PRACTITIONER INQUIRY REPORT

Explain why the research was conducted, how it was carried out and how you arrived at the conclusion.

1

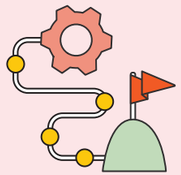
Provide background information

Share what led you to your inquiry, what outcomes you sought to achieve, and the findings from your review of the literature. Include the strategy/ strategies implemented.

2

Share the design of the Inquiry

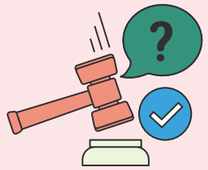
Elaborate on the process of implementing the strategy, methods of data collection and data analysis.



3

State the conclusion

State the main findings from the inquiry. Share what you have found out and how the findings have addressed the research question.



4

Share your reflections

You may include the implications that your findings have for your professional practice; the challenges you encountered, and how you would modify your inquiry plan to improve the validity of your results. Finally, highlight further inquiry that could result from your findings.

The content of your report should cover all actions from the start of your Practitioner Inquiry – your reflection on the issue, compilation of literature review, details of your inquiry plan, data analysis, and most importantly, your research notes. The notes of your observations or reflections at various steps of the Cycle of Practitioner Inquiry will come in handy as you put together the report.

To better understand how to apply the cycle of Practitioner Inquiry in a real-world setting, you may refer to the example provided in the Annex.

CONTINUE TO IMPROVE YOUR PRACTICE

Our heartiest congratulations for reaching the last step of the cycle! Based on the new knowledge gained from your Practitioner Inquiry experience, you might feel a need to modify existing practices or explore another strategy. If these thoughts cross your mind, you are in a good position to embark on another Practitioner Inquiry journey to delve deeper into the same subject or a new area of interest.

Engaging in Practitioner Inquiry helps you reflect on your teaching in a systematic way. It can provide fresh insights and lead to positive changes to your practices. As a reflective educator, you should continuously think about how to improve your practice.

Chapter 3

The Next Step After Concluding a Cycle of Practitioner Inquiry

As you conclude your Practitioner Inquiry, it is time to reflect on the valuable experiences gained and consider the next steps in your professional growth. By engaging in the following activities, you not only reinforce your own learning but also foster a culture of continuous improvement and collaborative learning.

NOW THAT YOUR PRACTITIONER INQUIRY HAS CONCLUDED, CONSIDER

1 Sharing your experience on another platform.

2 Deepening your skills in Practitioner Inquiry.

3 Encouraging your colleagues to participate in Practitioner Inquiry.

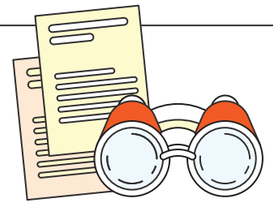
Let's explore each of these options.

1/ SHARE YOUR EXPERIENCE ON ANOTHER PLATFORM

Within your centre	Organise sharing sessions with other colleagues during staff meetings or on staff development days. Your colleagues can learn from your experience, as well as offer suggestions and further insights to your inquiry.
Within your organisation or with other centres	Use your experience to encourage other centres to embark on Practitioner Inquiry and gather feedback from others.
On professional development platforms outside of your organisation	This may include local or international conferences, forums or dialogues organised by other EC professional bodies/organisations.

2/ DEEPEN YOUR SKILLS IN PRACTITIONER INQUIRY

Conduct another Practitioner Inquiry project	You and your team may choose to repeat the inquiry on another class/ group of children. You may also wish to conduct a Practitioner Inquiry project on another issue now that you are more familiar with the steps.
Read up to find out more and keep yourself updated on educational research	You can find relevant resources listed in the References section.
Explore opportunities to attend training/courses locally or overseas	Look for sharing sessions, workshops, seminars and conferences on Practitioner Inquiry.



3/ ENCOURAGE YOUR COLLEAGUES TO PARTICIPATE IN PRACTITIONER INQUIRY

Your learning from your Practitioner Inquiry project will have equipped you with the Technical Skills & Competencies (TSC) of Practitioner Inquiry as detailed in the Skills Framework (SFw). Your new skill sets will enable you to support your centre's review in identifying areas of improvement for Practitioner Inquiry. You can participate in your colleagues' inquiry as a collective responsibility through the following ways:

- Guiding them to identify possible action strategies that address their research questions
- Recommending appropriate tools of inquiry and data collection methods
- Guiding them to manage and analyse the data collected to inform about findings
- Collaborating with them to formulate possible explanations, curricular and pedagogical improvements based on findings

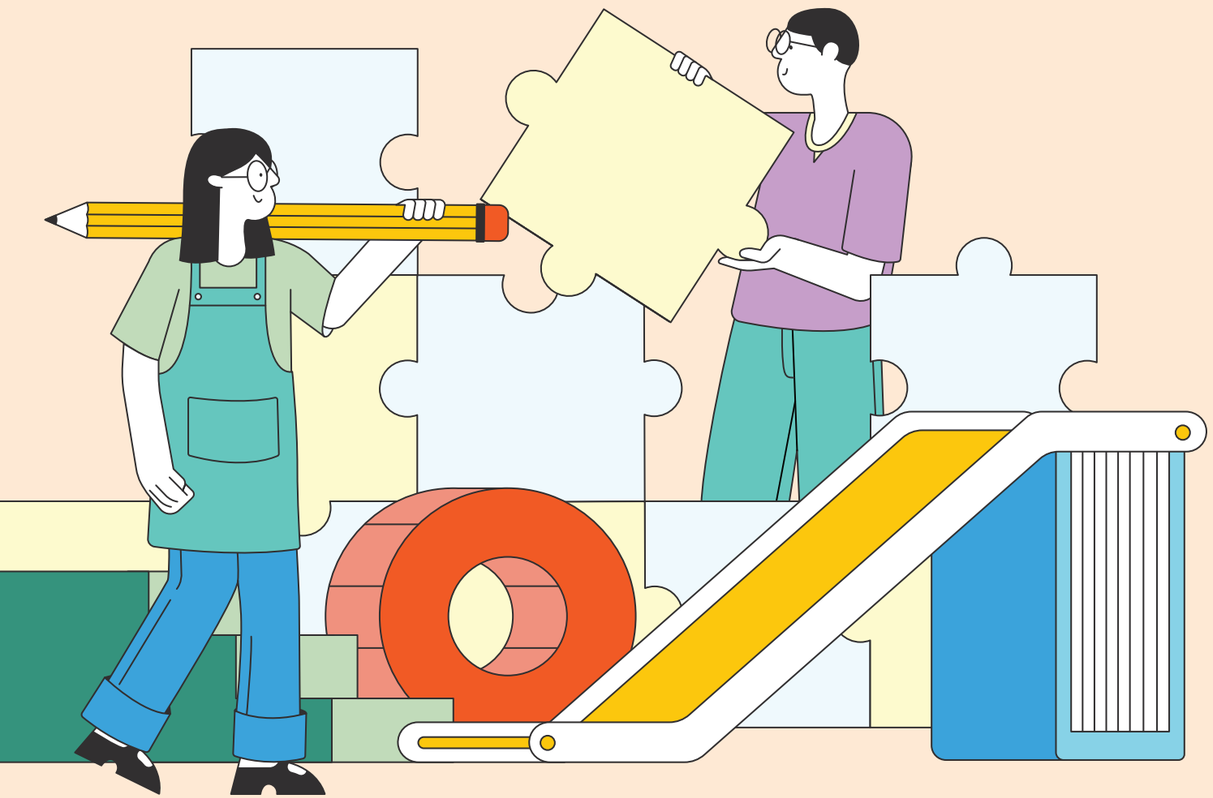
You do not need to be an expert to support your colleagues who are conducting or are keen to start a Practitioner Inquiry project. You can support them as someone who has been through the experience.

This starter kit is designed to support you in your Practitioner Inquiry journey and inspire you to be a reflective practitioner as you strive to improve your skills as an early childhood educator. We hope you now have a better understanding of Practitioner Inquiry and are inspired to embark on your own Practitioner Inquiry journey.

Chapter 4

Key Factors to Support Practitioner Inquiry in Your Centre

Practitioner Inquiry has benefits that extend beyond individual educators and children. It enhances the overall quality of early childhood centres. When educators systematically engage in observation, questioning, investigation, and analysis, centres experience growth in multiple dimensions: programme quality, pedagogical depth, and operational effectiveness. This systematic approach to inquiry not only improves children's learning experiences but also strengthens educator professionalism, job satisfaction, and collaborative practices (Dana & Yendol-Hoppey, 2019; Castle, 2012).



Research has shown that centres adopting Practitioner Inquiry as an organisational practice develop stronger professional learning communities and more responsive educational programmes (Cochran-Smith & Lytle, 2009). Building on this understanding, this chapter examines the critical factors that support successful team implementation of PI in early childhood settings.

In this chapter, we will consider factors that are crucial to supporting teams in the implementation of Practitioner Inquiry. Below are some examples of what the factors might look in practice and in your centre.

SHARED VALUES AND VISION

Values, vision and clear educational goals that guide decisions about teaching and learning should be shared with educators in the centre. This will help them to coordinate their work and prioritise concerns and issues in their teaching practice.

What It Looks Like in Practice

- HQ and centre leaders promote the importance of Practitioner Inquiry for educators to improve their professional practice.
- Educators participate in Practitioner Inquiry as part of their professional development.
- Discussions among leaders and educators focus on how experiences and activities impact children's learning.
- Data and findings from inquiry are used to inform decision-making about teaching and learning.

SUPPORTIVE LEADERSHIP

Centre leaders play an important role as they know the centre and educators' needs, strengths, readiness, beliefs and capacity to implement Practitioner Inquiry. With support from the organisation, they drive structures and processes which equip educators with the tools for Practitioner Inquiry.

What It Looks Like in Practice

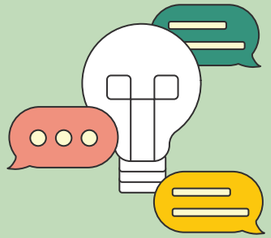
- Leaders and educators are aware of skills and competencies gained in implementing Practitioner Inquiry.
- Leaders and educators have knowledge of resources (e.g. CPD courses, in-house training programmes, network and collaboration opportunities, etc.) available.
- The centre facilitates training in Practitioner Inquiry, supports courses such as research practice and report writing, and/or continuing education courses on pedagogical practices.
- Access to resources such as funding, facilities and tools is made available to educators for their inquiry.
- Special provisions such as alternative timetable arrangements and rescheduling of meetings are made to enable teams to participate in Practitioner Inquiry.
- The centre offers a mentoring programme to encourage educators with Practitioner Inquiry experience to share their expertise with those seeking to developing their competency in this area.

QUALITY OF RELATIONSHIPS

The quality of relationships among team members impacts the implementation of research (Shani & Coghlan, 2021). Leaders and educators should nurture an environment where there is strong collegiality among colleagues and stakeholders, as it fosters trust, high morale, cooperation, communication, dedication and openness to new ideas.

What It Looks Like in Practice

- Open and collaborative personal relationships among team members are encouraged.
- Communication modes or channels (chat group, email, physical team board) are put in place to keep everyone in the loop.
- Discussions and conversations are carried out in a respectful manner which builds trust.
- Efforts to participate in Practitioner Inquiry are celebrated, and due recognition is given to the Practitioner Inquiry team for their contributions.



COLLECTIVE LEARNING AND APPLICATION

Educators should view themselves as learners first. Sharing information, practices and findings, and working collaboratively enable educators to engage in collective learning and application. By learning actively from one other through mutual sharing and discussions, educators can enhance their own practices and improve children's learning. Educators conducting collaborative Practitioner Inquiry will think about their own practice when inquiry, reflection and change become part of their roles as professionals (Levin & Rock, 2003).

What It Looks Like in Practice

- Educators work together to monitor children's learning and improve their practice.
- Educators feel confident to approach colleagues to ask for advice and share their experiences or concerns.
- Educators regularly reflect on their practices and share their knowledge with each other and ask questions that promote deep learning.
- Educators are comfortable with discussions of issues and the sharing of different ideas with each other.
- Educators who are fairly skilled in Practitioner Inquiry are encouraged to participate in colleagues' inquiry by assisting in data collection or supporting centre in identifying areas of improvement.

When you champion Practitioner Inquiry in your centre, you contribute to the building of a culture where educators validate their decisions based on professional judgement combined with insights from research.

We wish to encourage you with the following words from Jodie Galosy, the former Director of Research and Evaluation and the Senior Research Associate at Knowles Teacher Initiative:

"I'm not advocating all Practitioner Inquiry, all of the time. I don't want to turn Practitioner Inquiry into some kind of professional development superhero… we are exploring *a* pathway, not *the* pathway… We just need to keep saying, 'I want to learn and I'm looking for partners to learn with me.'"

We wish you an exciting and fruitful Practitioner Inquiry journey ahead.

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Annex

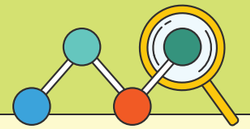
Let's explore how one team navigated the cycle of Practitioner Inquiry in their inquiry process[5].

STEP 1: REFLECT ON CURRENT PRACTICES AND IDENTIFY AN ISSUE

The team encountered challenges in capturing the attention and focus of young children, who were often easily distracted by their surroundings. Additionally, communication was constrained by the limited language skills of children aged 12 months to 3 years.

Through observations led by the centre leader during the PI project, it became evident that communication primarily flowed from the teachers, who exerted significant effort to engage the children. Despite the team's familiarity with evidence-based strategies such as the 3N (Notice, Nudge, Narrate) strategy that supports language interactions, intentional implementation of this strategy in the classroom was lacking.

Hence, the team wanted to find out if teachers could be more intentional in incorporating the 3N strategy to improve interactions with their children.



STEP 2: FORM A RESEARCH QUESTION

The research question that the team initially came up with:
How can teachers incorporate the 3N strategy when planning possible interactions with children?

Mapping the question to the PICO framework helped the team define their focus and the intended outcome of their inquiry:

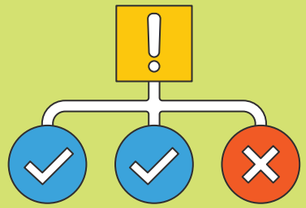
People – Teachers and children
Intervention – To incorporate the 3N strategy when planning interactions with children
Comparison – Interactions with 3N strategy versus without 3N strategy
Outcome – ?

The team realised that the research question was framed in a way that did not immediately make it clear what the intended outcome was. Going back to the issue, they determined that they hoped to use the 3N strategy to better engage the children so that they would be more involved in the activities and interact better with the teachers. They came up with the revised outcome below.

People – Teachers and children
Intervention – To incorporate the 3N strategy when planning interactions with children
Comparison – Interactions with 3N strategy vs interactions without 3N strategy
Outcome – Improvement in children's involvement in activities and interactions with teachers

The team then rephrased the research question to:
How can teachers incorporate the 3N strategy to improve children's involvement in activities and interactions with teachers?

With the revised research question, team went on to the next step.



STEP 3: FIND OUT MORE TO APPROACH THE ISSUE

Using the search terms 'notice', 'nudge', 'narrate', 'improve', 'children', 'involvement in activities', 'quality interactions' in the Google search engine, the team found relevant research as well as grey literature.

Academic article on 3N strategy:

- Sparling, J. (2007). Teachers notice/nudge/narrate to encourage children to see/show/say. *Children and Families, 21*(1), 12-16.

Videos on using 3N strategy:

- Lifelong Learning Centres. (2020, March 27). *Notice Nudge Narrate learning approach* [Video]. YouTube. https://www.youtube.com/watch?v=f4BJXHfNjgQ
- Our Place. (2024, April 11). *3a — Abecedarian Approach Australia — Language priority* [Video]. YouTube. https://www.youtube.com/watch?v=41XBdSt-Zso
- Salom, C. (2018, November 29). *3N strategy* [Video]. YouTube. https://www.youtube.com/watch?v=x1XptPEHHWc

Online articles/books on quality interactions and Abecedarian Approaches (3N is one of the teaching and learning strategies within this approach):

- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. Christenson, S., Reschly, A., Wylie, C. (eds), *Handbook of research on student engagement* (pp. 365-386). Springer. https://doi.org/10.1007/978-1-4614-2018-7_17
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With the information they found, they went on to brainstorm ideas for their inquiry plan.

STEP 4: FORM AN INQUIRY PLAN

This PI project involved 38 children aged 12 months to 3 years of age.

Research question: How can teachers incorporate the 3N strategy to improve children's involvement in activities and interactions with teachers?

Issue: The team faced difficulties in holding the attention of young children, who are easily distracted. Also, children aged 12 months to 3 years have limited language skills, which makes communication harder. During the PI project, the centre leader noticed that most of the communication came from the teachers, who tried hard to engage the children. Even though the team knew effective strategies like the 3N (Notice, Nudge and Narrate) approach, they didn't use these strategies intentionally in the classroom.

Literature review: The literature focuses on how teachers can effectively use the "notice, nudge, narrate" approach to encourage children to "see, show, say". The videos and articles on interaction and Abecedarian Approach (AA) demonstrated/described how to use the strategy more effectively, how teachers can actively observe children's actions, guide them with gentle nudges, and verbalise their experiences to foster children's visual, expressive, and verbal communication skills. These improve children's involvement in the activity and fosters the interactions between the teacher and children.

[5] The example is adapted from the experience of a team at My First Skool @ 18 Marine Terrace during the Practitioner Inquiry Pilot Programme in 2023.

IMPLEMENTATION STRATEGIES

Timeline	Actions	Resources	Action By
Week 1 – 2	• Hold peer Sharing Sessions for teachers to share their reflections and ideas • Use the Cycle of Reflection from NEL Framework during discussion to guide reflection on the issue • Explore what teachers can do to be intentional with the strategies • Discuss and select resources required	• Search online articles • Collect ideas from other teachers within and outside of centre	• Team leader to arrange meetings and consolidate discussion notes
Week 3	• Select suitable resources (e.g. picture storybooks) • Plan developmentally appropriate experiences /activities that incorporate the strategies	• Use laptop for research • Purchase required resources • Visit the library • Make treasure boxes (use week 4 to do up the box if more time is needed)	• Entire team • Centre leader to help the team borrow suitable books from library
Week 4 – 10	• Implement 'Observe, Wait and Listen' strategy using treasure boxes • Implement 'Nudge and Narrate' Strategy, complemented by curated experiences during outdoor walks to encourage interaction in the classroom • Hold weekly discussions to keep track of the implementation • Hold weekly discussions to distil insights from data collected	• Curriculum resources • Treasure boxes • Camera	• Team members to carry out planned strategies • Team leader to provide support if needed • Team leader to schedule weekly meetings
Week 4 – 10	• Collect and analyse data • Quantitative Data: Measure children's involvement levels (once before and once at end of week 7 and week 10) • Qualitative Data: Collect teachers' reflections and feedback • Qualitative Data: Classroom observations conducted by centre leader	• Rating Scale Observation Template	• Team members to prepare resources • Team members to carry out the data collection • Team leader to consolidate and synthesise data and provide insights and guidance on follow-up actions during weekly discussions
Week 10 – 12	• Consolidate findings • Present PI inquiry processes and findings in a poster		• Team members to organise and analyse the data • Team leader to consolidate and present in a poster

(CONTINUED) STEP 4: FORM AN INQUIRY PLAN

Data to be collected:

- Children's involvement levels in activities
- Children's interactions with teachers

Methods of data collection:

- Document children's involvement using rating scale
- Observe children's involvement and interaction (educators and centre leader)

Data analysis:

- Use a chart to present the scoring from rating scale to illustrate increase in children's involvement
- Organise the observation based on themes, such as 'children are involved and interacted with teachers during activity'…

STEP 5: IMPLEMENT INQUIRY PLAN

As the team began implementing the strategies starting in week 4, they met regularly through a Professional Learning Circle (PLC) to ensure the plan was properly carried out and to discuss the data gathered.

The meetings were primarily steered by the team leader, who facilitated the discussions. The team leader checked that all members were implementing the planned strategies effectively, and identified and addressed potential challenges. The centre leader attended meetings periodically to provide guidance, share insights and offer suggestions, thereby enriching the discussions.

The team reviewed the collected data and listened to feedback from teachers. Upon assessment, they concluded that the strategy was effective and indicated that they would proceed with the planned inquiry cycle.

STEP 6: ANALYSE DATA COLLECTED AND INTERPRET FINDINGS

Analyse data collected

After checking and ensuring that the data required had been collected, the team displayed the rating scores in the form of tables to show the children's involvement in the activities over time.

Children's interactions with teachers in July						
Scoring	1	2	3	4	5	
Number of Children	0	2	5	27	4	Total 38

Children's involvement levels in activities in July						
Scoring	1	2	3	4	5	
Number of Children	0	1	10	25	2	Total 38

Children's interactions with teachers in August						
Scoring	1	2	3	4	5	
Number of Children	0	1	1	8	28	Total 38

Children's involvement levels in activities in August						
Scoring	1	2	3	4	5	
Number of Children	0	1	4	17	16	Total 38

The team also highlighted the feedback from the centre leader and teachers' observations, focusing particularly on the progress in children's involvement and interactions.

- Team leader Siti Raudhah: "I found that the children were responsive towards questions asked. The PLC sessions allow me to guide the teachers to share best practices with each other."
- Team member Sophia Zheng: "Children are asking more questions with the aid of the learning and documentation board. The meetings have been helpful in planning meaningful interactions with children."
- Team member Jamalina: "I noticed that the children showed more interest. Using the 3N strategy helped me in my interactions. Ideas and suggestions shared during the PLC sessions were useful in helping us to plan more intentional activities."
- Team member Fazeela: "I am able to interact with the children better when possible interactions are planned ahead."

Summary of findings and interpretation

Based on the data collected over two months, there was a notable increase in the number of children scoring 4 and 5 in their well-being and involvement, accompanied by a decrease in the number of children scoring 3 and below. This indicated a higher level of engagement in children.

Feedback from the team suggested that the implementation of strategies yielded positive outcomes for the children's involvement. Teachers observed an uptick in conversations with the children, as well as a heightened interest and curiosity in the provided activities. Through intentional use and adaptation of materials to suit the children's abilities and interests, the teachers were able to create a more effective learning experience. Overall, the use of the planned strategies has created a more engaging and enriching experience for the children.

STEP 7: CONCLUDE THE INQUIRY

Consolidated the findings through a poster for sharing with colleagues or other EC educators.

Notes