

Literacy  
Improvement

PARTNERSHIP



Facilitating Improvement in Teacher Practice

# Learning Module 5 Workbook

Root Cause Analysis and Challenging Assumptions



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# Module 5 learning targets and agenda

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Learning targets:

- Understand the importance of finding the root cause.
- Explore some methods for root cause analysis.
- Understand the importance of challenging assumptions.

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## Agenda

	<b>Key content</b>
Opening	<ul style="list-style-type: none"><li>• Welcome</li><li>• Logistics</li></ul>
Part 1	<ul style="list-style-type: none"><li>• What is a root cause analysis?</li><li>• Finding a root cause</li></ul>
Part 2	<ul style="list-style-type: none"><li>• Making mental models visible</li></ul>
Closing & Next Steps	<ul style="list-style-type: none"><li>• Module review</li><li>• Action period work</li></ul>

## PART 1

# What is a root cause analysis?

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*“Every system is perfectly designed to get the results it gets.”*

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### Self-Reflection

**What methods have you used in the past to determine the root cause of a problem?**



**Have you ever had a problem that kept coming back no matter how many times you tried to solve it, and then someone who knew more about the type of problem fixed it almost instantly?**



Before you can solve a problem, you need to have at least a general idea of what caused it. A root cause analysis is a structured team process that assists in identifying underlying factors or causes of identified problems.

Developed by the National Aeronautics and Space Administration (NASA) in the 1950s, root cause analysis has been applied to methodically identify and correct the underlying systemic causes of events, rather than to simply address the symptomatic results. Focusing on root causes has the goal of entirely preventing a problem from recurring.

Root cause analysis is an iterative process throughout a continuous improvement journey. An identified root cause is essentially a well-informed working hypothesis.

As you test your hypothesis and learn more about your system, you may need to adjust your root cause and/or the actions or methods you are using to address your problem.

## Finding a root cause

### Self-Reflection

What methods have you used in the past to determine the root cause of a problem?



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## Four methods for root cause analysis

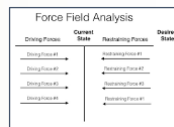
Please share any of these methods that are familiar to you or that you have used before.



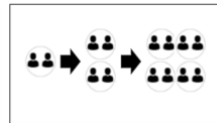
5 Whys?



Force Field Analysis



Snowballing



Fishbone Diagram

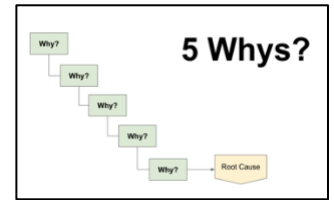


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The following are short descriptions of each of the root cause analysis processes included in this module. All four of these processes play a similar role in identifying underlying factors or possible causes of identified problems. Full protocols are in the appendix.

### 5 Whys? root cause analysis

The 5 Whys? root cause analysis is a group brainstorming process. It works well if you are working with a larger team or group of stakeholders. In smaller groups, it is sometimes more difficult to come up with a large number of responses to consider.

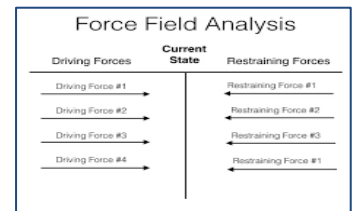


Steps for using the 5 Whys? process:

1. Ask the question, “Why is this problem happening?” and brainstorm responses.
2. Go through the list and eliminate any responses that are assumptions.
3. As a team, select from the remaining responses one that you agree is a primary cause of the problem.
4. Repeat this questioning process up to five times or until you are unable to generate responses.
5. Look at each response that you selected and decide if each response is a concern or an area you can control. (“Concern” refers to a contributing factor that is outside of your team’s ability to directly change. “Control” refers to contributing factors that are within your locus of control.)

### Force Field Analysis

This protocol is intended to help you better understand the forces that support and hinder your improvement efforts. This process can be used to focus a system investigation or as a root cause analysis tool. It can easily be used with a group of 2–8 people. It is most effective with groups that know the context well and can speak to the supporting forces (assets that are available) and the restraining forces (barriers to improvement).



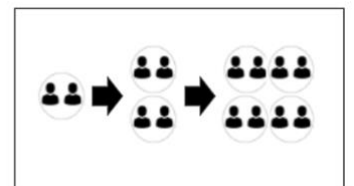
Steps for the Force Field Analysis:

1. Individually brainstorm the supporting and restraining forces.
2. Group share and cluster the supporting forces.
3. Group share and cluster the restraining forces.
4. Review the restraining forces, and identify those that are within your locus of control. Review the supporting forces for possible levers your team may use to address the restraining forces.

### Snowballing

This method supports individual thinking and group collaboration by supporting a group through a repetitive brainstorming and refining process leading to group consensus.

Pairs brainstorm possible root causes and then share their best thinking with another pair. This group then shares their best combined thinking in a larger group. Snowballing is best used with small to medium groups (4–8 participants).



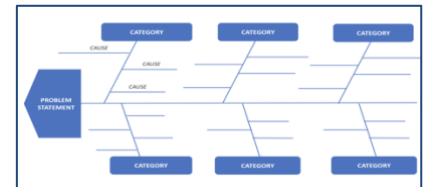
Steps for the Snowballing process:

1. Individual brainstorm.
2. Pair share.
3. Quad share.
4. Whole-group share.

## Fishbone Diagram

A Fishbone Diagram ...

- Can be used for a variety of purposes.
- Can identify underlying factors or causes of a problem.
- Is a way to produce a visual representation of potential cause-and-effect relationships.
- Can be helpful by directing the team to surface categories that might not otherwise be considered and to think of additional possible causes in each category.



**Note:** Participants should include individuals who have personal knowledge of the problem from multiple perspectives.

Steps for the Fishbone Diagram:

1. Brainstorm individually.
2. Cluster and create categories.
3. Review for symptoms and assumptions.
4. Fill out the diagram.

## Pair share

Review the protocols. Which root cause analysis process would work best for your team, and why?





## PART 2 –

# Making mental models visible

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*“If we worked on the assumption that what is accepted as true really is true, then there would be little hope for advance.” –Orville Wright*

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## Surfacing mental models

Understanding the underlying factors of systems-related issues creates opportunities to change the system. Mental models are at the “transform” level and are furthest under the surface. Although mental models are the least visible, change at this level is the most transformative.

Mental models are made up of a series of underlying assumptions. They are invisible and show up only through our actions and our words.

How we define our problem will shape the solutions we develop. For instance, defining the problem as about coherence (e.g., teachers not teaching consistent writing skills across grades or classes) would likely lead to solutions focused on alignment and consistency—whereas defining the problem as too little teaching of writing because of a lack of teachers’ knowledge of writing instruction would tend to lead to solutions involving teacher professional development in writing instruction.

## Languages of transformation

Harvard researchers Kegan and Lahey (2001) have found that what we say and how we say it surfaces some of the mental models that are driving us. Their research supports the idea that to create change in our organizations, we must *first* look at what we do and say that is keeping us from realizing the changes we desire.

Unproductive discourse can show up in both formal and informal spaces:

- Discussing students during lunch.
- Conversing about achievement gaps.
- Conversing about attendance and motivation.
- Determining who is responsible for a particular intervention.
- Discontinuing an ineffective process.
- Introducing a new process.

<b>Language of complaint (unproductive)</b>	<b>Language of commitment (productive)</b>
Expresses what we cannot do.	Expresses what we aspire to or stand for.
Sounds negative or cynical.	Communicates conviction or possibility.
Frustrates individuals or shuts down the conversation.	Inspires and brings energy to the conversation.
Nontransformational: lets off steam, but does not help move toward solutions.	Transformational: builds a foundation for purpose-driven work.
<b>Language of blame (unproductive)</b>	<b>Language of personal responsibility (productive)</b>
Holds other people responsible for gaps between intentions and reality.	Generates productive conversations that lead to problem-solving.
Built on generalizations and alienation of others.	Draws on our commitments and encourages collaboration.
Discourages exploration.	Raises questions to be answered.
Nontransformational: deflects attention to outside of the locus of control.	Transformational: directs attention to where we have the most influence.
<b>Language of assumptions (unproductive)</b>	<b>An inquiry stance (productive)</b>
Voices ingrained mental models.	Examines data and evidence.
Makes unsubstantiated judgments.	Asks questions.
Includes broad generalizations.	Looks at multiple perspectives.
Nontransformational: reframes problems based on past experiences instead of reality.	Transformational: gets to the root causes of problems using evidence.

## Self-reflection



**When and where have you heard the languages of complaint, blame, and assumptions? Are there recurring topics that produce this discourse?**

### **Shifting unproductive discourse**

Four steps to shift discourse:

- Acknowledge—validate the individual’s experience.
- Listen—ask for and listen to the individual’s perspective.
- Reflect—share back a summary of what you heard.
- Reframe—ask the individual for alternatives (or possibly provide a suggestion from your experience).

Use the scenario below to role-play a conversation and shift the discourse.

**Roles:** facilitator, teacher, observer

### **Discourse role-play scenario**

One of this year's goals is to reduce the number of student referrals. All teachers went through training at the beginning of the year, and you were feeling optimistic. Looking at your school referral data, you see that the numbers overall are going down, but 80 percent of your grade 5 referrals are all coming from Teacher A's classroom; Teacher A's numbers have not decreased.

You shared the data with the grade 5 team during their next collaboration meeting, and Teacher A had a strong reaction. During the meeting, she blamed the referrals on having a "wild class this year" and took no responsibility for the continued referrals. You were able to move the overall conversation in a productive direction, but you still need to address Teacher A.

As you prepare to speak with this teacher about the referrals coming from her classroom, consider the following:

- What is the problem, and why is it a problem?
- Why might this be a difficult conversation?
- What is your emotional investment, and what might trigger you?
- What is your goal or desired outcome for the conversation?

Make sure you remember to do the following:

- Describe your goals for the conversation and how they can help you.
- Acknowledge—validate the individual's experience.
- Listen—ask for and listen to the individual's perspective.
- Reflect—share back a summary of what you heard.
- Reframe—ask the individual for alternatives and possibly provide a suggestion from your experience (invite the person to help you solve the problem).

# Next steps

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During this module, our learning targets were to:

- Understand the importance of finding the root cause.
  - What is a root cause analysis?
- Explore some methods for root cause analysis.
  - Finding a root cause.
- Understand the importance of challenging assumptions.
  - Making mental models visible.

## Action period for Module 5

Select a root cause analysis process to use with your team.

1. **Plan a team huddle.**
  - Review your team’s agreed-upon problem.
  - Use a root cause analysis tool to focus your problem.
  - Include an equity pause to check for assumptions and locus of control.
2. **Use the “meeting success criteria” to monitor team dynamics.**
3. **Anticipate places where you may encounter and need to shift unproductive discourse.**
  - Optional: role-play shifting discourse with a colleague.

## Closing reflection

**What are you thinking about focusing on next to continue this work?**



# Appendix: Root cause analysis tools

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## 5 Whys? root cause analysis

**Define the problem:** [Insert the problem you have identified]

- Ask the question, “Why is this problem happening?” and brainstorm responses.
- Go through the list and eliminate any responses that are assumptions.
- As a team, select a response from those that remain that you agree is a primary cause of the problem.
- Repeat this questioning process up to five times or until you are unable to generate responses.
- Look at each response that you selected and decide whether each response is a concern or an area you can control. (A concern is a contributing factor that is outside of your team’s ability to directly change. “Control” refers to contributing factors that are within your locus of control.)

**1**      **(Why is that?)**

**2**      **(Why is that?)**

**3**      **(Why is that?)**

**4**      **(Why is that?)**

**5**      **(Why is that?)**

**Note:** If your last answer is something you cannot control, go back up to the previous answer.

*Source: Adapted from a free template by The IPL LLC.*

## Force Field Analysis

This protocol is intended to help you better understand the forces that support and hinder your improvement efforts. This process can be used to focus a system investigation or as a root cause analysis tool.

**Materials:** Sticky notes, chart paper, markers

**Roles:**

- A **facilitator** to guide the group through the process.
- A **timekeeper** to make sure you have time for all the steps.

**Activity norms:**

- Share the air—step up, step back, invite others in.
- Hard on the content, soft on the people.
- Focus on learning, not judging.
- Stick to the protocol.

**Draw a large T-chart on your chart paper.**

**Step 1: Brainstorm individually (5 minutes):** Brainstorm the following on sticky notes (one force per note):

- **Supporting forces (left):** What is supporting progress for our work?
- **Restraining forces (right):** What is hindering progress for our work?

**Step 2: Share and cluster supporting forces (8 minutes):** Each person shares one supporting force. If others have a similar force, you can start to group those sticky notes together on the LEFT side of your chart paper. Continue to share, building on one another's ideas and adding new forces.

- Give clusters a category name or combine into one description.

**Step 3: Share and cluster restraining forces (8 minutes):** Each person shares one restraining force. If others have a similar force, you can start to group those sticky notes together on the RIGHT side of your chart paper. Continue to share, building on each other's ideas and adding new forces.

- Give clusters a category name or combine into one description.

**Step 4:** Review the restraining forces and identify those that are within your locus of control. Review the supporting forces for possible levers your team may use to address the remaining restraining forces.

*Source: Lewin, K., & Cartwright, D. (1951). Field theory in social science: Selected theoretical papers. U. of Michigan.*

## Snowballing root cause analysis

The Snowballing method supports individual thinking and group collaboration by supporting a group through a repetitive brainstorming and refining process leading to group consensus. Snowballing is best used with small to medium groups (4–8 participants).

**Materials:** notepaper, pens or pencils, chart paper, markers

**Roles:**

- A *facilitator* to guide the group through the process.
- A *timekeeper* to make sure you have time for all of the steps.

**Activity norms:**

- Share the air—step up, step back, invite others in.
- Hard on the content, soft on the people.
- Focus on learning, not judging.
- Stick to the protocol.

**Round 1: Individual brainstorm (5 minutes):** Think about the problem that your team developed and brainstorm possible causes. Select the three that you feel are the most significant causes, and note why you selected them.

**Round 2: Pair share (8 minutes):** Each person shares their top three root causes and reasons for selecting them to compare ideas. Collaboratively narrow your responses to four possible root causes.

**Round 3: Quad share (10 minutes):** Each pair shares their top four root causes and reasons for selecting them with another pair. Collaboratively narrow your responses to five possible root causes.

**Round 4: Whole-group share (10 minutes):** Each quad shares their top four root causes and reasons for selecting them with another quad. Collaboratively narrow your responses to five possible root causes.



## Fishbone Diagram root cause analysis

A fishbone diagram is a tool that can be used for a variety of purposes, including to identify underlying factors or causes of a problem. A fishbone diagram is a way to produce a visual representation of cause and effect. A fishbone diagram can be helpful by directing the team to look at what might not otherwise be considered categories and to think of possible causes in each category. Participants should include individuals who have personal knowledge of the problem from multiple perspectives.

**Materials:** sticky notes, chart paper, markers

**Roles:**

- A *facilitator* to guide the group through the process.
- A *timekeeper* to make sure you have time for all of the steps.

**Activity norms:**

- Share the air—step up, step back, invite others in.
- Hard on the content, soft on the people.
- Focus on learning, not judging.
- Stick to the protocol.

**Directions:** The team using the fishbone diagram tool should carry out the following steps.

**Step 1:** Agree on a specific problem statement. This is written at the mouth of the “fish.”

**Step 2:** Agree on the major categories of causes of the problem (written as branches from the main arrow).

**Step 3:** Individually brainstorm all the possible causes of the problem. Write each cause on a separate sticky note.

**Step 4:** Cluster the causes in related groups, and create a category for each cluster. Causes may relate to several categories and can be duplicated. Review the individual causes for each cluster and eliminate anything that may be a symptom instead of the underlying problem. Also, check for assumptions.

**Step 5:** Write the categories in the spaces at the end of each “big bone.”

**Step 6:** Place the causes that are on the individual sticky notes on the smaller bones for each category.

**Step 7:** Review each category again and see if you can brainstorm any additional causes.

**Step 8:** Look at each category and related causes and identify those that might have the highest leverage and are in your locus of control.

**Tip:** You can use group collaboration software such as Padlet to complete the clustering activities.

## Notes

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