

## **EBITE RESOURCE GUIDE**

### **Root Cause Analysis Guide**

#### **Purpose**

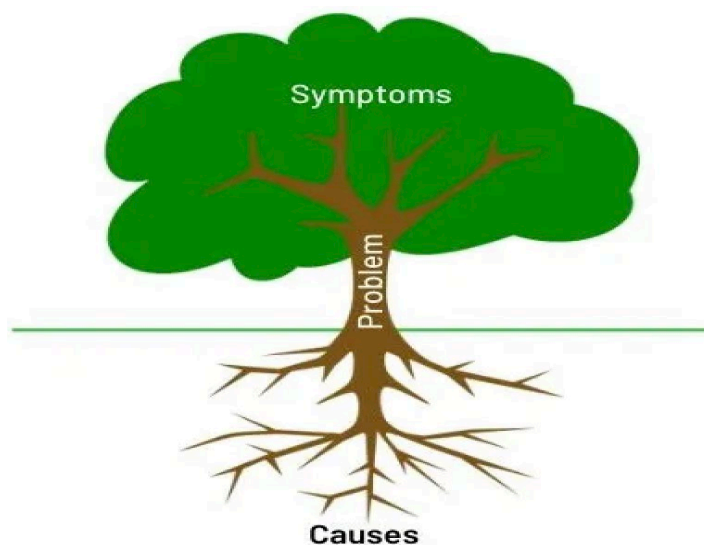
This resource guide is designed to provide a brief overview of Root Cause Analysis (RCA) and how it can be used as part of the school improvement cycle to support educators in their use of Evidence-based Interventions (EBIs). When educators employ RCA during continuous improvement efforts, they can identify causes or sources of problems rather than just the symptoms—i.e., academic outcomes. This guide will discuss the purpose of RCA, some techniques for conducting RCA, and some real-world examples.

#### **What is Root Cause Analysis?**

Root Cause Analysis (RCA) is a problem-solving process designed to unearth the root and fundamental reasons for identified concerns. It requires a systematic investigation of the central causes of the student performance problems that schools and educators may face<sup>1</sup>. RCA helps educators identify what, how, and why a problem is occurring so it can be addressed more effectively and prevented in the future. There are several methods and procedures that can be used in conducting root cause analysis; among them are these common steps; define the problem and gather data relevant to the problem; identify possible causes of the problem and determine potential underlying causes; and use evidence-based strategies to resolve the problem<sup>2</sup>.

#### **Why do educators need to conduct Root Cause Analysis? And how can data help this process?**

Root Cause Analysis is a part of the needs assessment process where school districts systematically assess performance gaps as well as identify, recognize, and prioritize students' needs to improve academic outcome. There are several reasons why educators would need to conduct root cause analysis, but the most common reason would be to identify underlying factors that contribute to issues in their classrooms, individual students, and the school.



(Image from [LeanTech](#))

<sup>1</sup> Rooney, J. J., & Heuvel, L. N. (2004). [Root Cause Analysis for Beginners](#).

<sup>2</sup> United States Department of Education (2020). [Approaches to Root Cause Analysis](#).

As you can see from the tree diagram, the symptoms of the problem (branches) are more visible than the actual causes (roots). Hence, by conducting a thorough analysis, educators seek to understand these deep-rooted factors and search for targeted solutions to address them.

Relying on data in a root cause analysis can help educators make data driven decisions instead of making assumptions about the cause of the problem. When data and evidence related to the problem at hand is systematically analyzed, educators can uncover the potential cause for the problem and develop successful strategies to address it. This in turn will help improve their effectiveness in the teaching and learning process. When discussing their data, school teams should use their knowledge and expertise of students and the school setting.

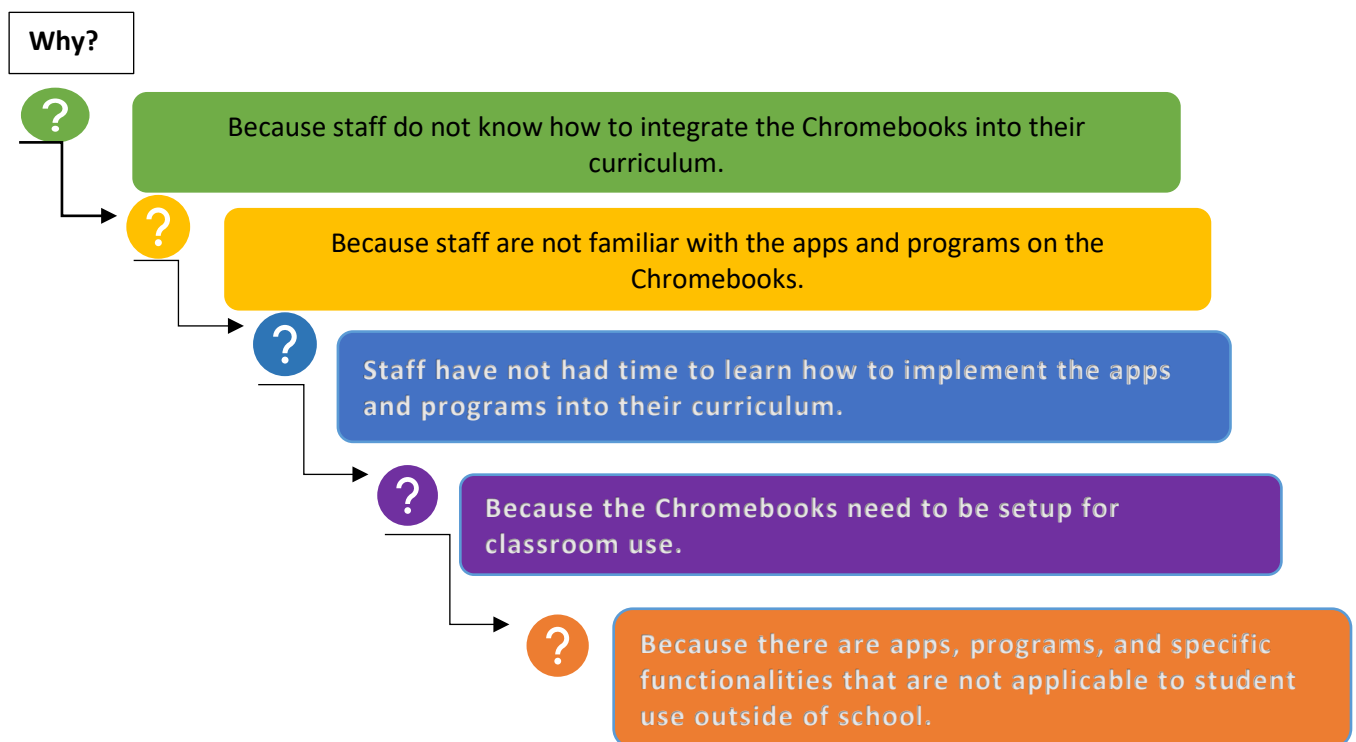
### Common Approaches to Root Cause Analysis

There are several approaches used in conducting root cause analysis, but this guide will focus on the two that are commonly used in education. They are:

“Five Whys” exercise: This approach involves asking the question “why” repeatedly to identify the root cause of a problem. When the problem is identified, educators then ask why the problem occurred and continue to ask why until they arrive at an answer.

Example: [Adopted from the Consortium for Public Education](#)

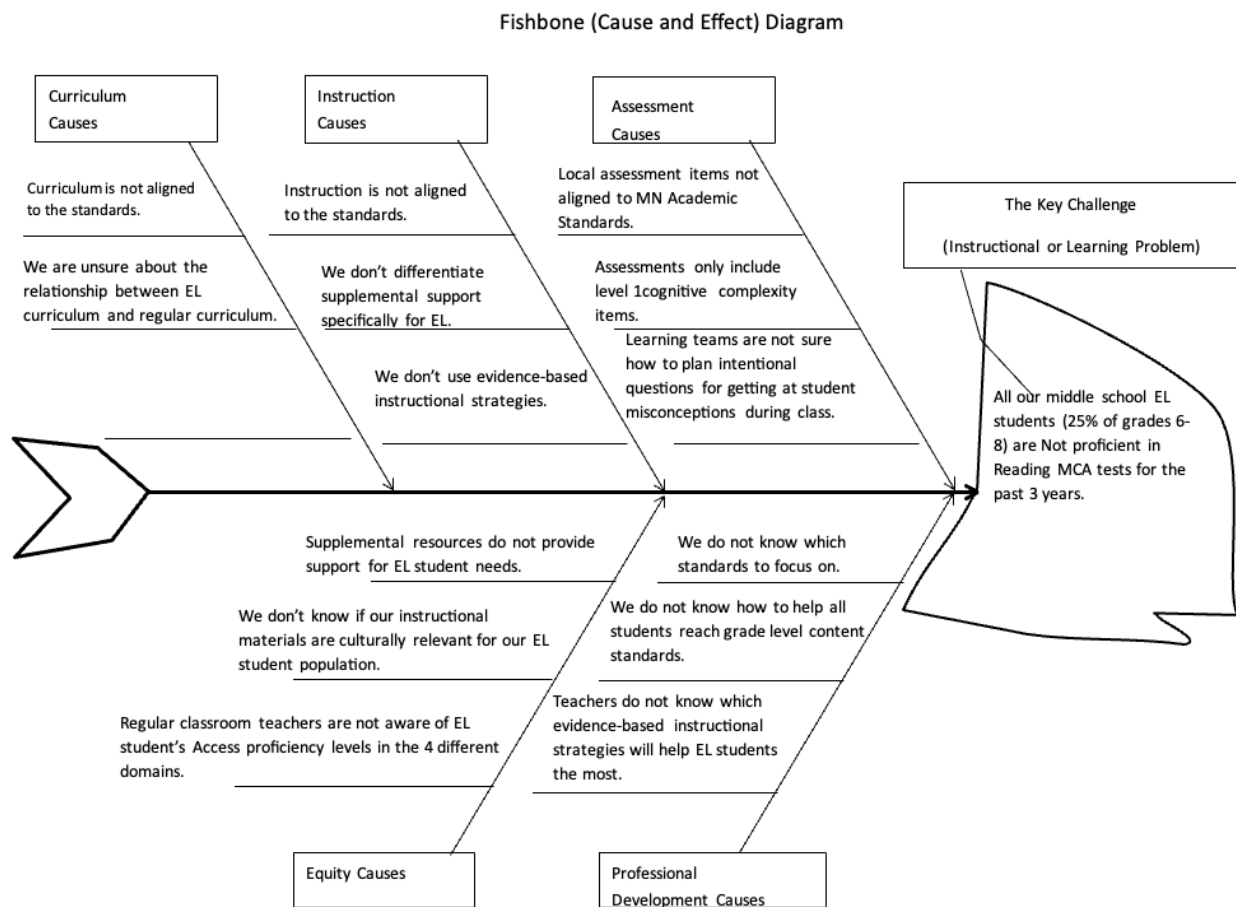
**Problem: Staff members have not integrated the students’ new 1-to-1 Chromebooks into their curriculum.**



As you can see from this process, one needs to ask questions to unearth possible causes of the outstanding problem with the goal of curating solutions that address these deep-rooted issues. In this example, two counter-measures would include providing teachers with tools and resources on how to use the Chromebooks with school curriculum and ensuring the IT department set up specific classroom apps, programs, and functionality on all student Chromebooks.

**Fishbone Diagram:** Also known as a cause-and-effect diagram, the Fishbone approach involves creating a visual representation of potential causes of a problem. Typically, the diagram has horizontal lines that represent the problem and extending branches that represent the potential causes of the problem.

**Problem:** All our middle school EL students (25% of grade 6-9) are not proficient in reading MCA texts for the past 3 years.



Source: [Minnesota Department of Education](https://www.doe.state.mn.us/education/assessment/assessment-reports/2019-2020/2020-2021/2021-2022/2022-2023)

The Fishbone provides a visual which helps in breaking down potential causes of the problem. It helps in narrowing down the salient factors that are associated with the problem as well as creating multiple perspectives.



⇒ Your Turn: Use the Root Cause Analysis templates in [Appendix A](#) to sketch out your specific need(s). Other examples can be viewed in [Appendix B](#).

## Additional Resources

### Root Cause Analysis Guides with examples

- [Department of Education, Approaches to Root Cause Analysis \(2020\)](#)
- [Ohio Department of Education, One Needs Assessment \(2023\)](#)
- [Quality Process, Root Cause Analysis for Beginners \(2004\)](#)
- [Ohio Department of Education, An Introduction to Root Cause Analysis \(2020\)](#)
- [The National Center on Scaling Up Effective Schools, 5-Whys Activity & Template \(n.d\)](#)
- [Clark County School District, School Improvement Planning Basics: Root Cause Analysis \(2012\)](#)
- [NIRN Tool for Root Cause Analysis: The Hexagon: An Exploration Tool](#)

### Videos

- [Video explaining “Five Whys” using the Jefferson Memorial Example, Danielle Young \(1:30 min\)](#)
- [Video explaining “Fishbone Diagram”, Institute of Education Sciences \(2:36\)](#)
- [Investigating the System-Root Cause Analysis, North Central Education Service District \(8:15\)](#)
- [Webinar Using Root Cause Analysis to Inform School Improvement Planning MSDE \(36:47\)](#)



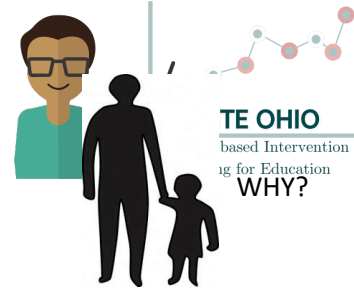
**Appendix A:**

I. Five Whys Template ( Click [here](#) to download an editable copy of this page and the next page with discussion and data questions)

## EBITE RESOURCE

### The Five Whys of Root Cause Analysis

Identified Need for Root Cause Analysis	Why 1 ➡	Why 2 ➡	Why 3 ➡	Why 4 ➡	Why 5 ➡
Need A:					
Data needed to quantify Why 1					
Need B:					
Data needed to quantify Why 1					



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### ROOT CAUSE ANALYSIS QUESTIONS

Provide *brief* statements in response to the following questions. Information can be put into Root Cause Template—The Five Whys.

1. Our identified need:

2. Discuss Why 1: What is one factor (X) that might be causing the need?:

(2a) Sources of data needed or available to quantify or better understand (X):

3. Discuss Why 2: What factor (Y) might help explain (X)?

(3a) Sources of data needed or available to quantify or better understand (Y):

4. Discuss Why 3: What factor (Z) might help explain (Y)?

(4a) Sources of data needed or available to quantify or better understand (Z):

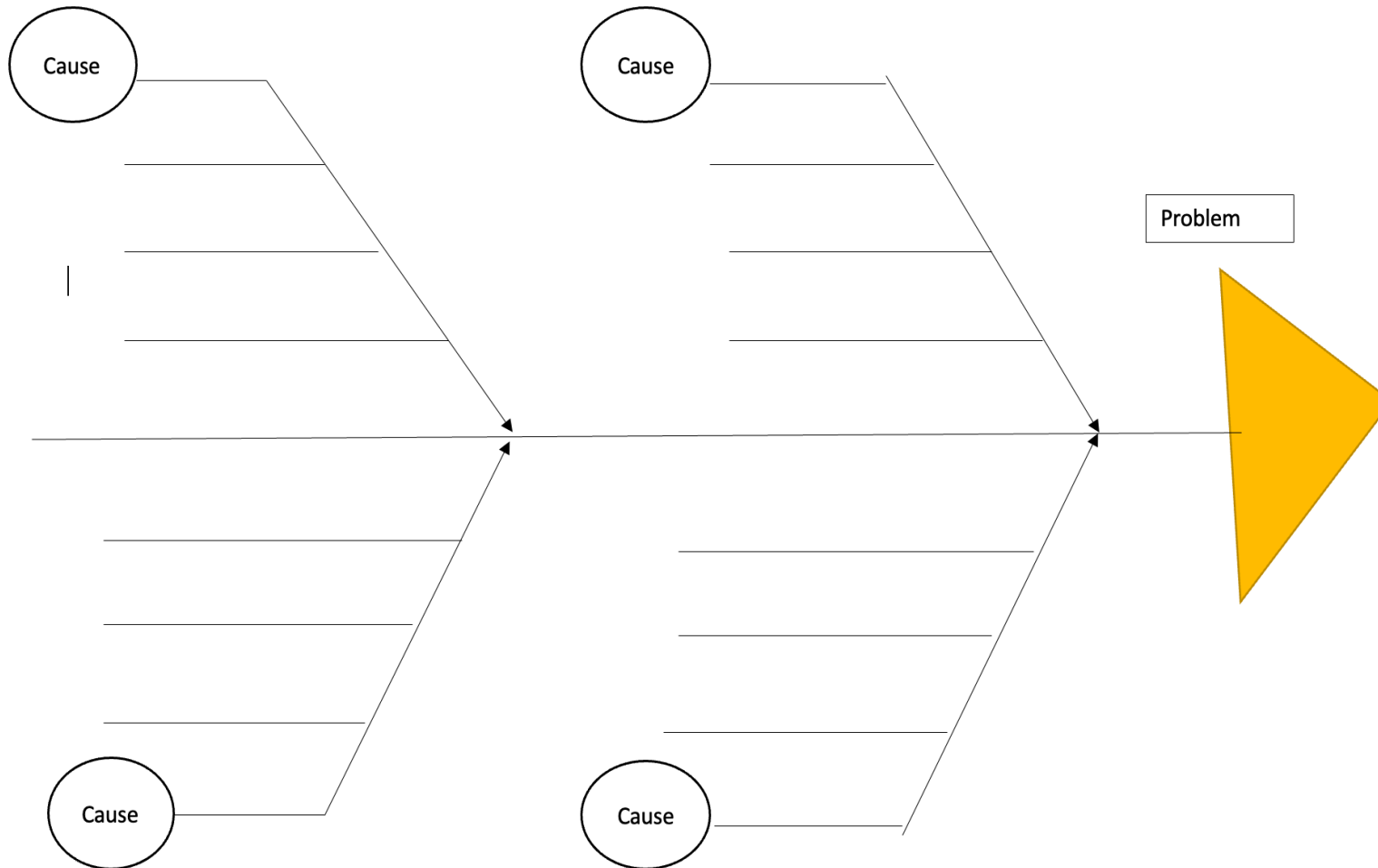
5. Dig deeper? Discuss Why 4 and Why 5?

OR

Ready to search for evidence-based interventions to address (Z)?



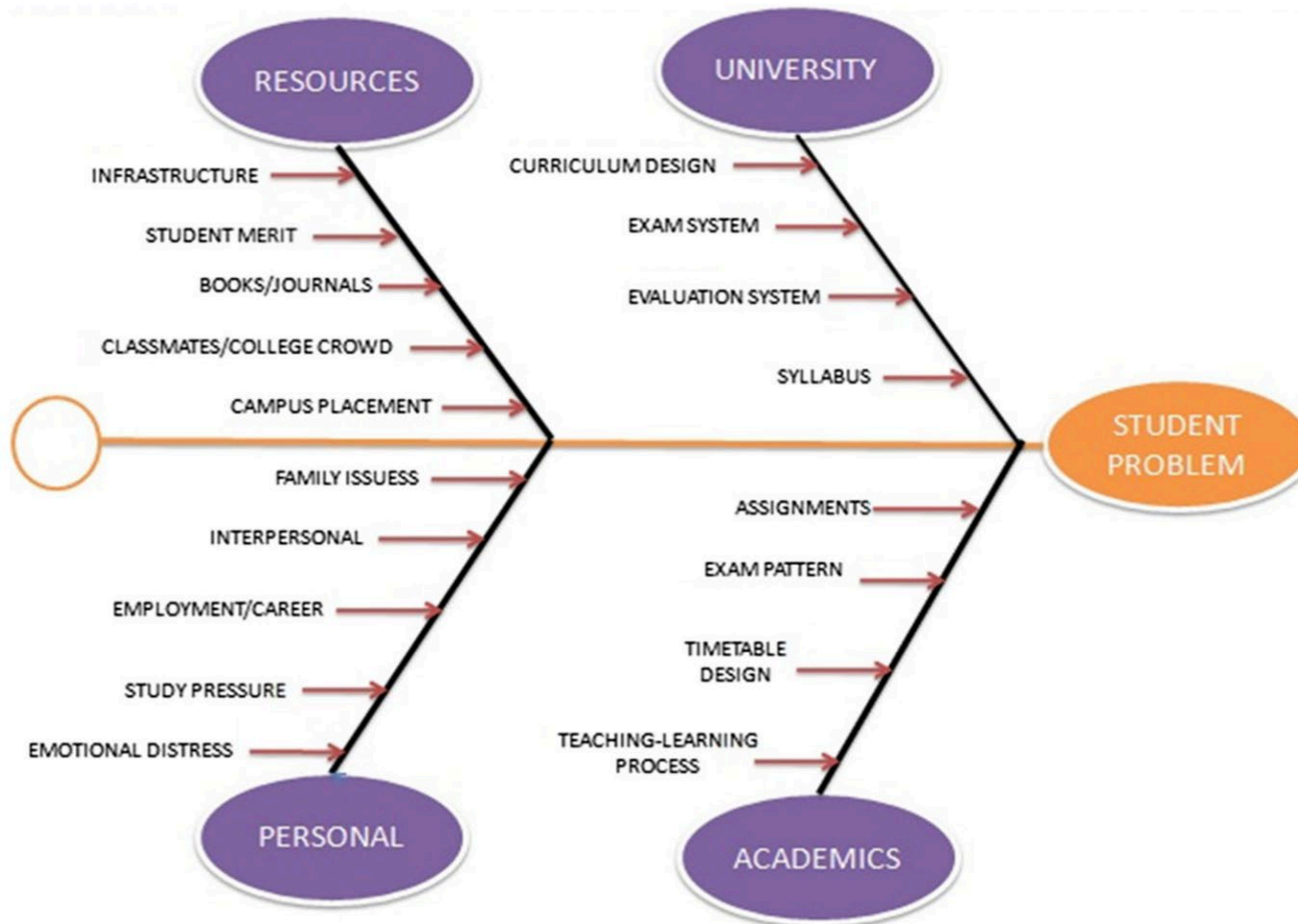
## II. Fishbone Template ( Click [here](#) to download an editable copy)





## Appendix B: Examples of Root Cause Analysis Approaches

1. Fishbone Diagram: An application to Identify the Root Causes of Student-Staff Problems in Technical Education<sup>3</sup>.



<sup>3</sup> Shinde, D. D., Ahirra, S., & Prasad, R. (2018). [An application to Identify the Root Causes of Student-Staff Problems in Technical Education](#).





## 2. The Five Whys : Application to a Social Environmental Root Causes

**Identified Need:** Racial Disparities in Reading Performance

Why?

What factors might be contributing to reading disparities?

Why?

What might explain the disparities in exclusionary discipline?

Why?

What might explain teachers' different reactions to Black and White students' behavior?

Why?

What might explain the role of implicit biases?

Why?

What else might contribute to an office referral decision?

Black students have fewer learning opportunities because they get more office disciplinary referrals (ODRS) and suspensions than other students.

Teachers react differently to behavior of Black and White students.

Implicit biases in response to behaviors that are subject to teacher interpretations (non-compliance, "defiance")

Teachers may lack self-awareness of implicit biases and/or strategies to reduce their impact on discipline decisions.

Norms and policies at the school that allow teachers to refer students for behaviors subject to biased interpretation.

Adopted from EBITE 2023 Summer Training Lesson