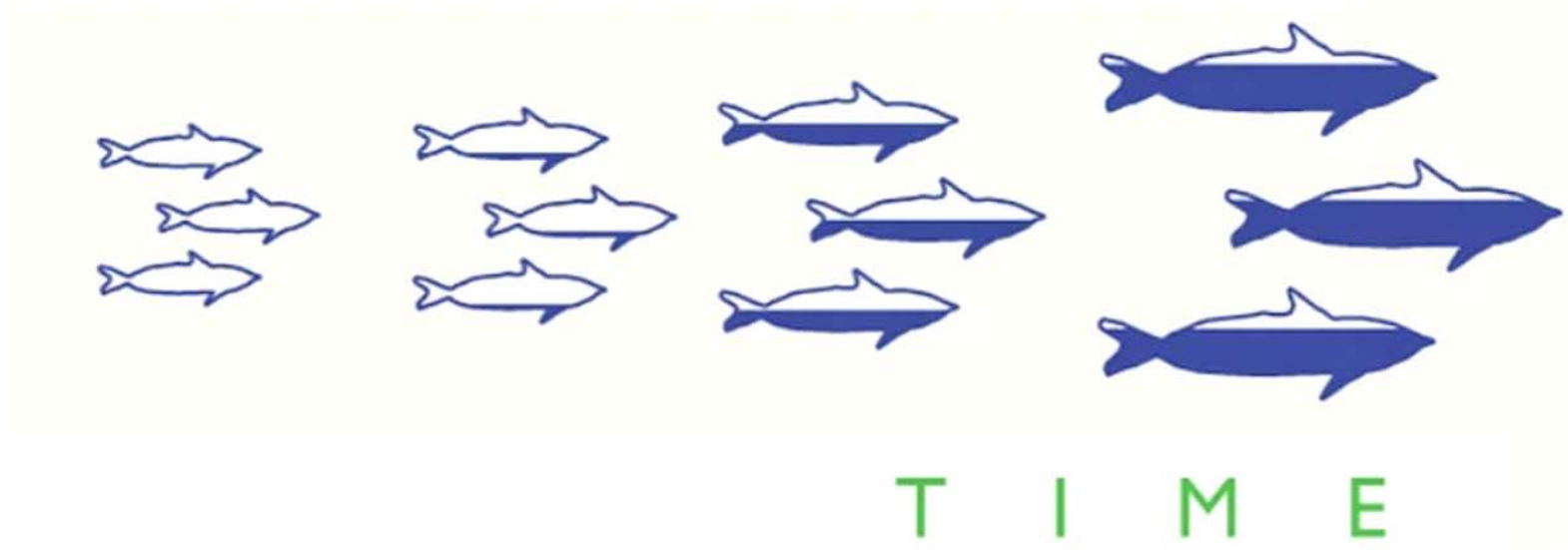
# LEARNING FROM YOUR WORK

THE VALUE OF FORMATIVE EVALUATION

# Meadowlands Environmental Center

# Bioaccumulation




OK To Eat
OK With Proper Preparation


EXIT

**Bradford Davey**
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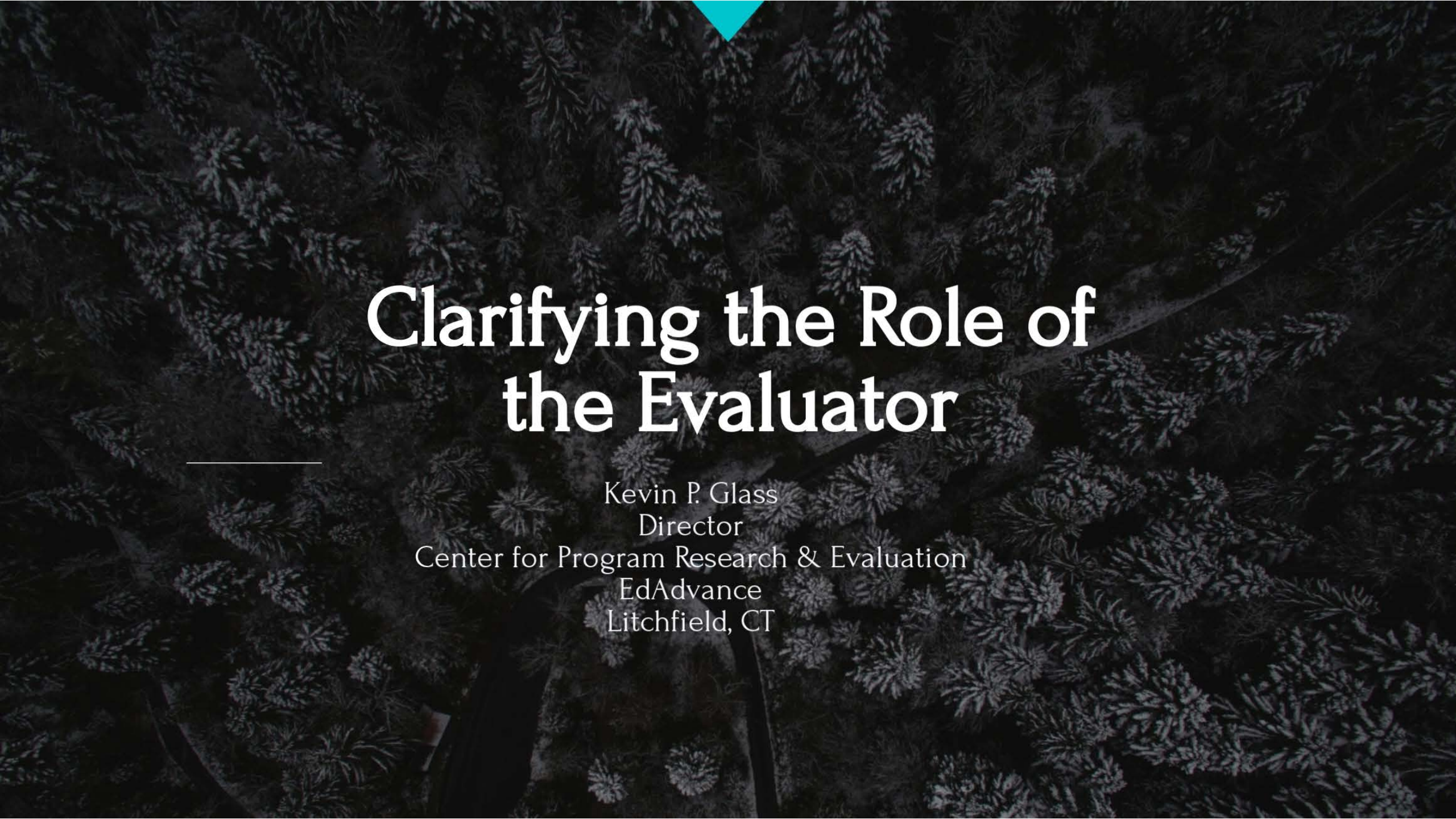

# Clarifying the Role of the Evaluator

Kevin P. Glass
Director
Center for Program Research & Evaluation
EdAdvance
Litchfield, CT

# Primary Questions

**How is an Evaluator different from a social scientist?**

**Can a methodologist be hired to do the job of an evaluator?**

**What is the difference between an evaluator and a researcher?**


What are the competencies that are unique for an evaluator?

# Roles

## Judge

25%

Justifying the value of a program

## Methodologist

25%

Advocating rigorous experimental design

## Program Facilitator

25%

Assisting in the discovery of ideas, answers and solutions

## Educator

25%

Infuse useful information

# Keep It Simple

## Value

An evaluator should prioritize the values from different stakeholder groups when selecting the criteria of merit for evaluands.

## Methods

An evaluator should be familiar with quantitative and qualitative methods and accept them both as available methods for conducting an evaluation.

## Use

An evaluator should emphasize the instrumental use of his/her evaluation findings and actively promote the dissemination of the evaluation results.

# Kevin P. Glass

References


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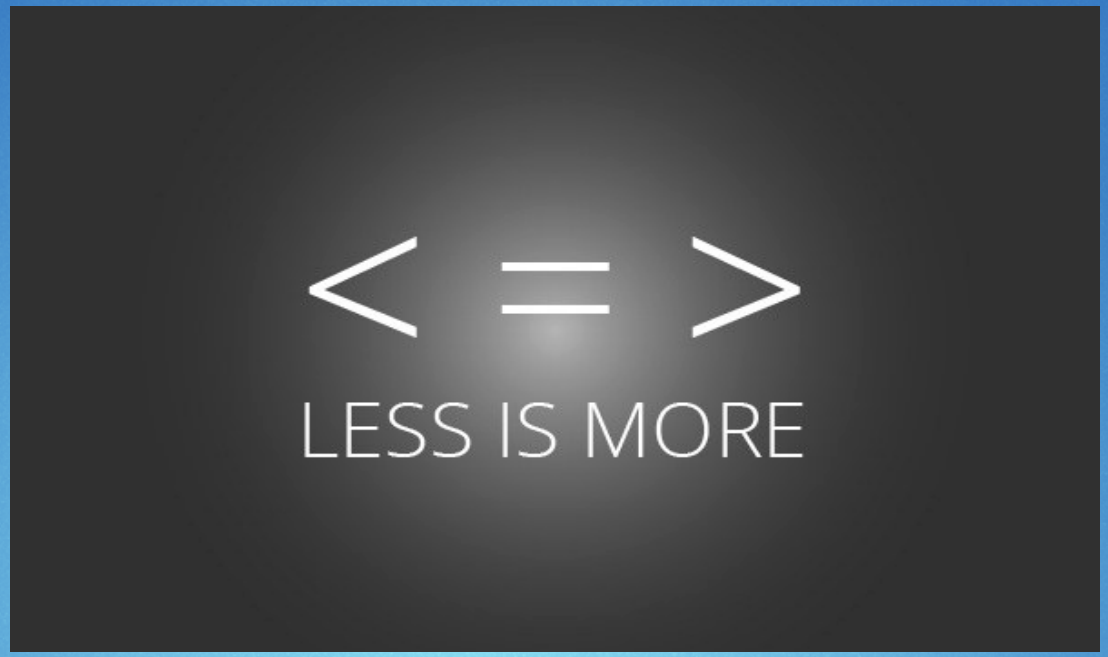


# EFFECTIVE METHODS OF COMMUNICATING EVALUATION REPORTS

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# We DON'T want this to happen when our clients read our evaluation reports



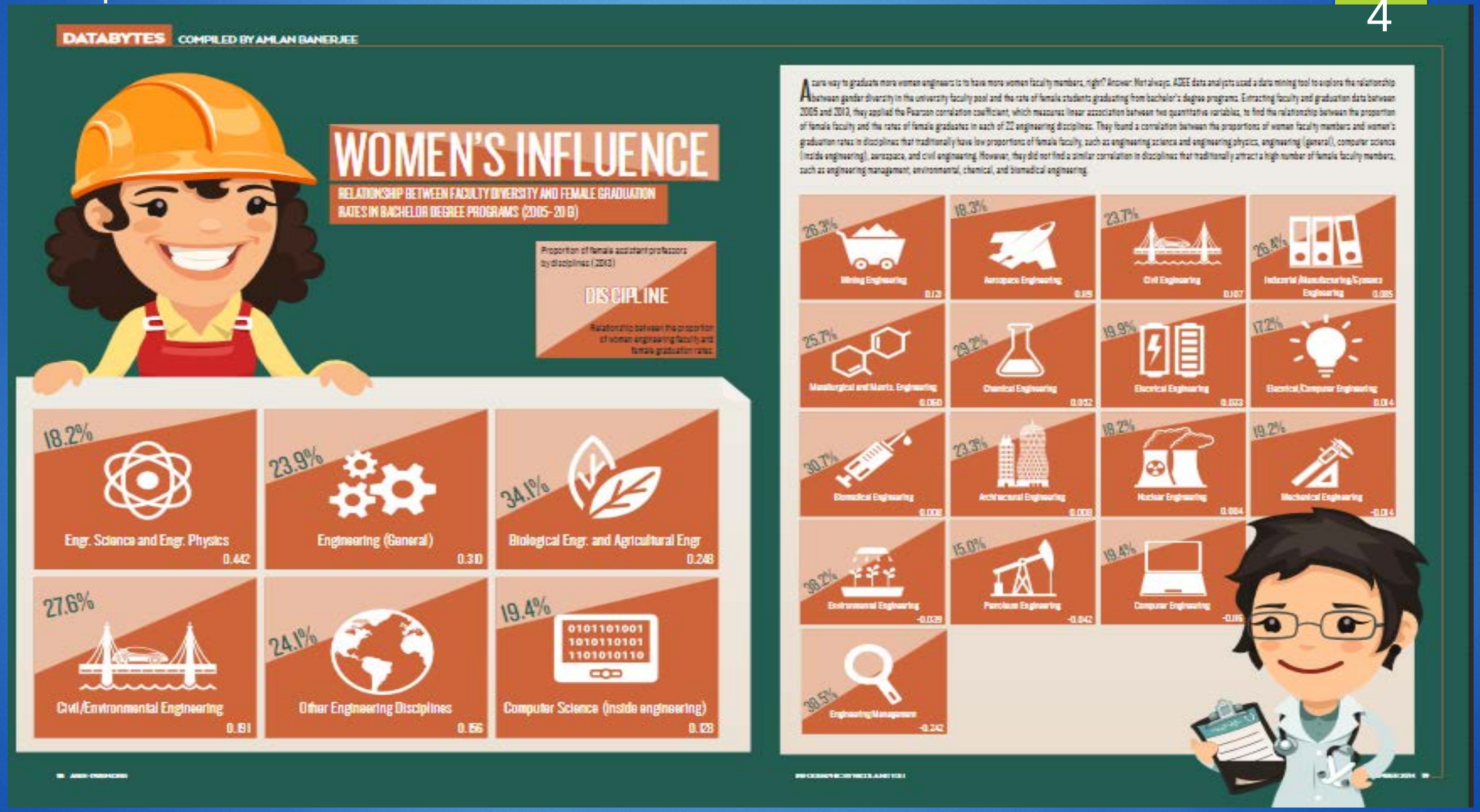
# So, we are making some big changes



- **Less text, more graphs and images**
- **Infographics**
- **Digital reporting (summative reports)**
- **Performance indicators using data dashboards**
- **Online data summary reports to present formative evaluation results**

# Samples




DATABYTES
COMPILED BY AMLAN BANERJEE
WOMEN'S INFLUENCE
RELATIONSHIP BETWEEN FACULTY DIVERSITY AND FEMALE GRADUATION RATES IN BACHELOR DEGREE PROGRAMS (2005–20 B)
DISCIPLINE
18.2%
Engr. Science and Engr. Physics
0.442
23.9%
Engineering (General)
0.310
34.1%
Biological Engr. and Agricultural Engr
0.248
27.6%
Civil/Environmental Engineering
0.191
24.1%
Other Engineering Disciplines
0.156
19.4%
Computer Science (inside engineering)
0.128
26.3%
Mining Engineering
18.3%
Aerospace Engineering
23.7%
Civil Engineering
26.4%
Industrial/Manufacturing/Systems Engineering
25.7%
Metallurgical and Matrls. Engineering
29.2%
Chemical Engineering
19.9%
Electrical Engineering
17.2%
Electrical/Computer Engineering
30.7%
Biomedical Engineering
23.3%
Architectural Engineering
19.2%
Nuclear Engineering
19.2%
Mechanical Engineering
38.2%
Environmental Engineering
15.0%
Petroleum Engineering
19.4%
Computer Engineering
38.5%
Engineering Management

# ENGINEERING GRADUATES & INDUSTRY DEMAND

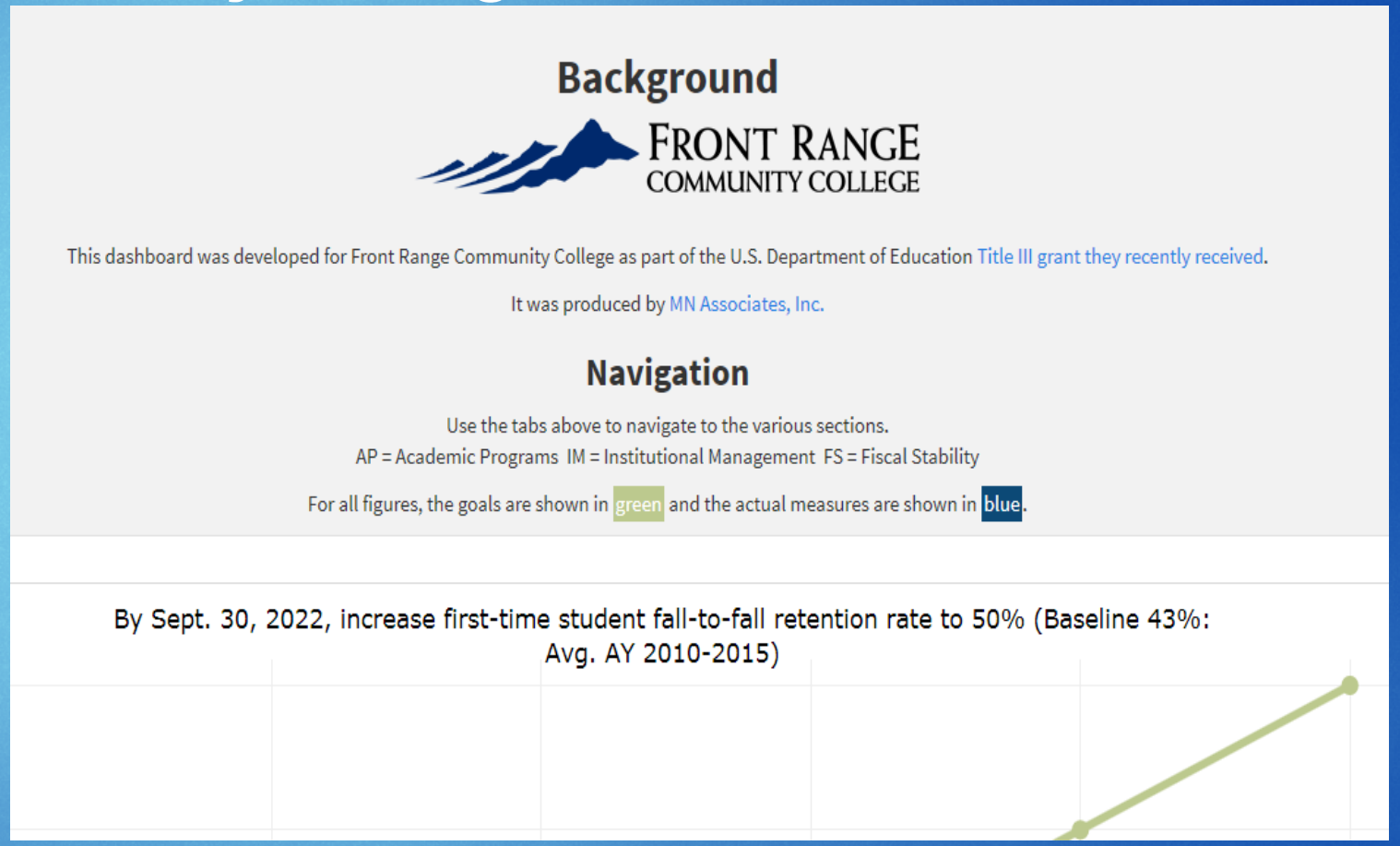
How closely aligned are America's engineering colleges with economic trends? Part of the answer comes from a look at the manufacturing sector, which represents 12 percent of U.S. gross domestic product, according to the Commerce Department's Bureau of Economic Analysis. The accompanying graphic compares two decade-long trends: total job openings in U.S. manufacturing, as measured by the Bureau of Labor Statistics (BLS); and ASEE's count of the number of bachelor's degrees awarded in industrial/manufacturing/systems engineering by all U.S. engineering schools. Both cover the period 2005 to 2014. The comparison isn't ideal, because BLS doesn't tabulate engineering-related job openings. Still, the data are revealing. They show that the number of job openings fluctuated more widely than the number of degrees awarded. In parallel with manufacturing industry's decline during the Great Recession (December 2007 to June 2009), the number of degrees awarded in industrial/manufacturing/systems also decreased but at a much slower rate. However, the latter number rebounded in 2009, much earlier than the end of the recession in 2009 when the manufacturing industry began to recover. Since the end of the recession, both the demand (job openings) and supply (degrees awarded) sides of the manufacturing labor market have trended upward at different rates, indicating that the supply side tends to be less sensitive to business cycles than the demand side.

| YEAR | Job Openings in Manufacturing | Y-Y % Change | Degrees Awarded in Industrial/Manufacturing/Systems Eng | Y-Y % Change |
|---|---|---|---|---|
| 2014 | 290,000 | 9% | 4,142 | 15% |
| 2013 | 267,000 | -2% | 3,595 | 2% |
| 2012 | 273,000 | 19% | 3,534 | 8% |
| 2011 | 229,000 | 23% | 3,266 | -8% |
| 2010 | 187,000 | 56% | 3,303 | 6% |
| 2009 | 120,000 | -50% | 3,111 | 5% |
| 2008 | 241,000 | -29% | 2,952 | -5% |
| 2007 | 339,000 | -3% | 3,112 | -3% |
| 2006 | 348,000 | 15% | 3,217 | -2% |

# Additional Resources from MNA

## 1. Front Range Community College – Title III Dashboard

https://tinyurl.com/ycm8xpkc

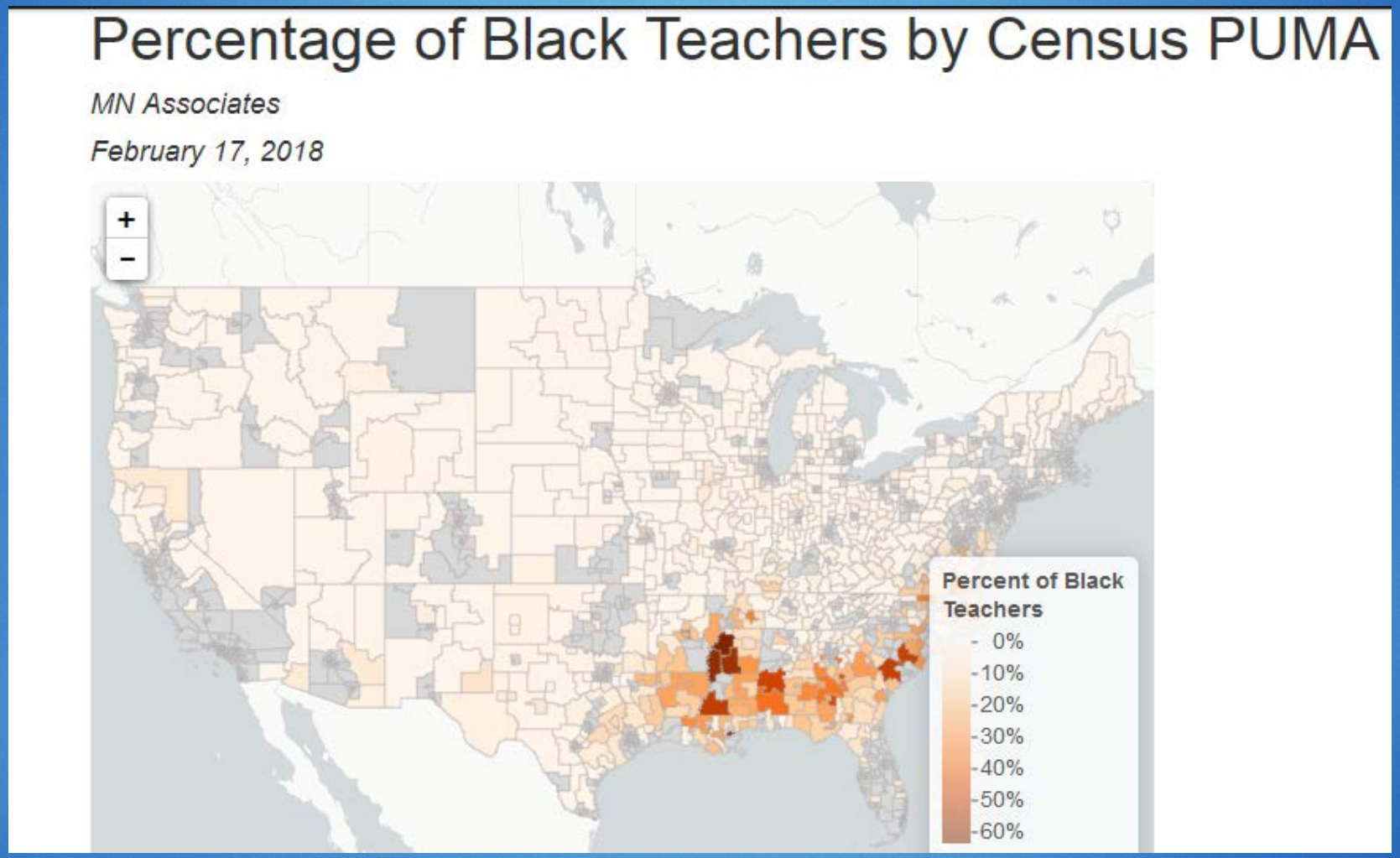


**2. Young Audiences – Summer Arts Learning Program**

https://tinyurl.com/yc43vfp9

# 3. Black Teacher Collaborative- Teacher Diversity Issues in the US – An interactive Map

https://tinyurl.com/ycab2947



# 4. Cuyahoga Community College – Formative Survey Results in an Online Interactive Format



https://tinyurl.com/y92hdr3s

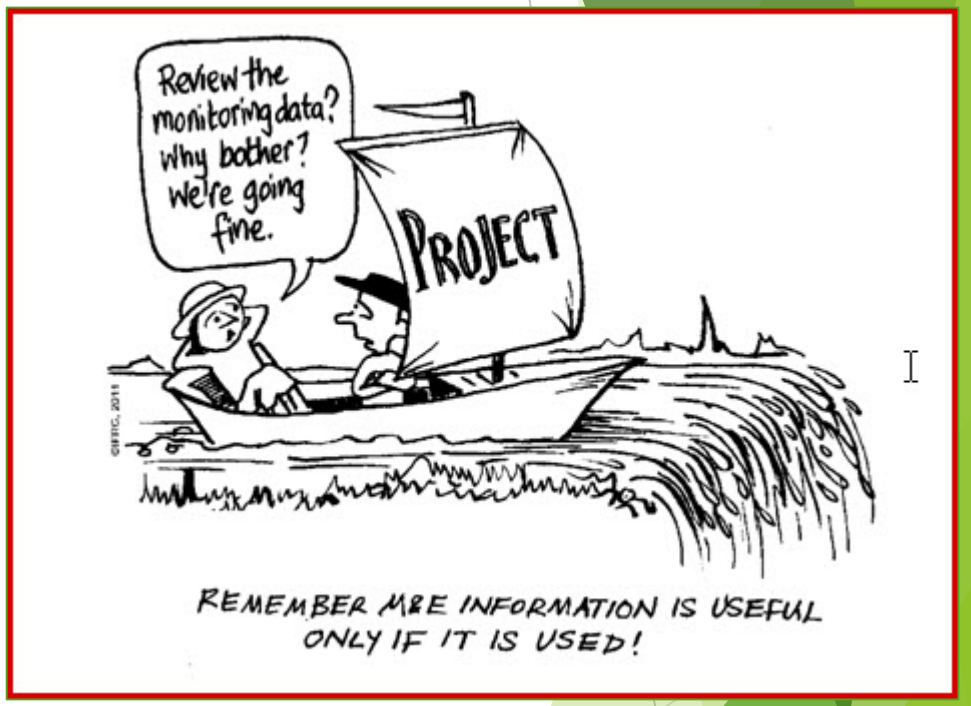


## TRIO survey analyses 2018

## 1 Introduction

Cuyahoga Community College

# Using Community-based Participatory Research in Evaluation




Rucha Londhe
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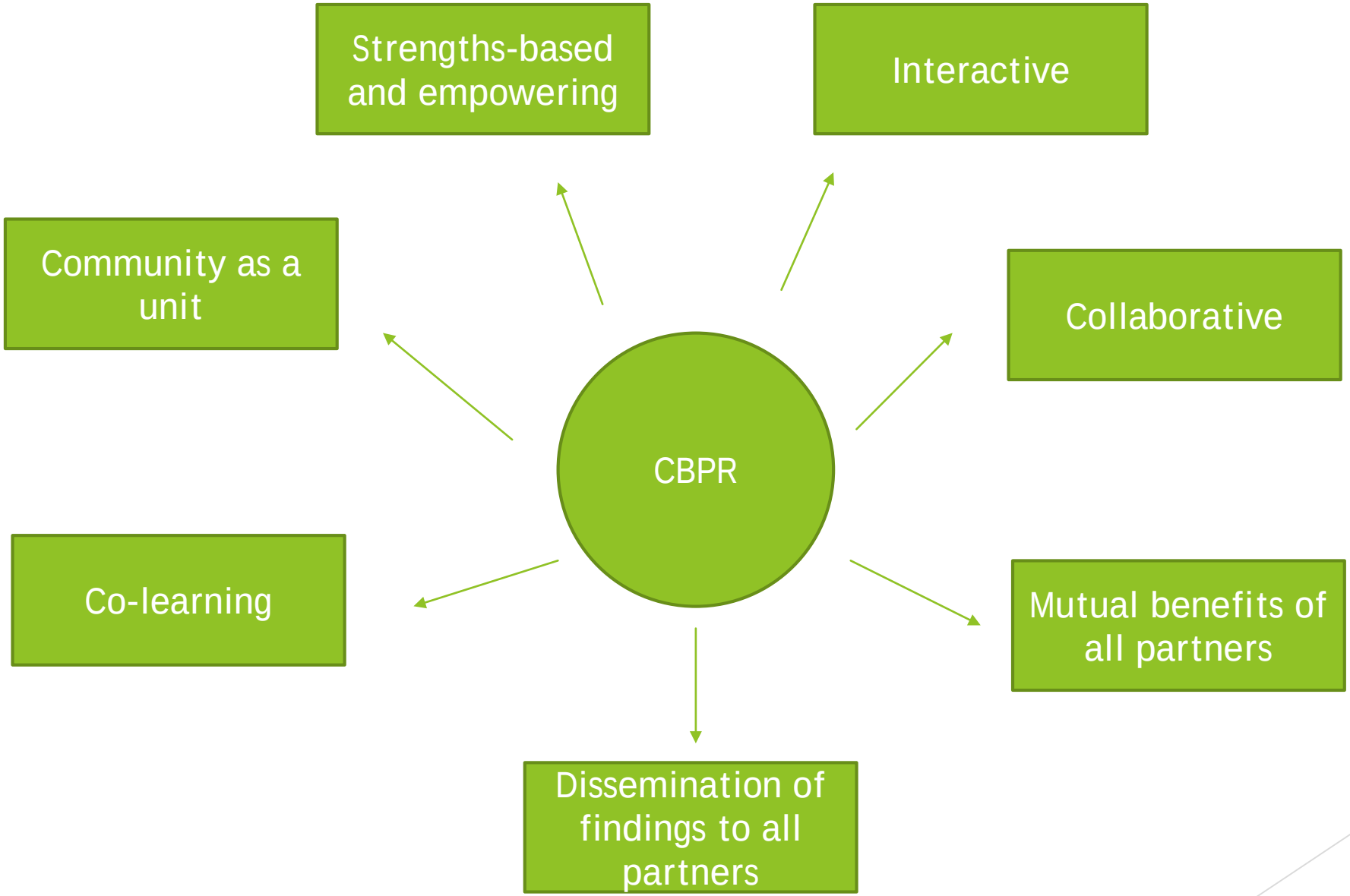
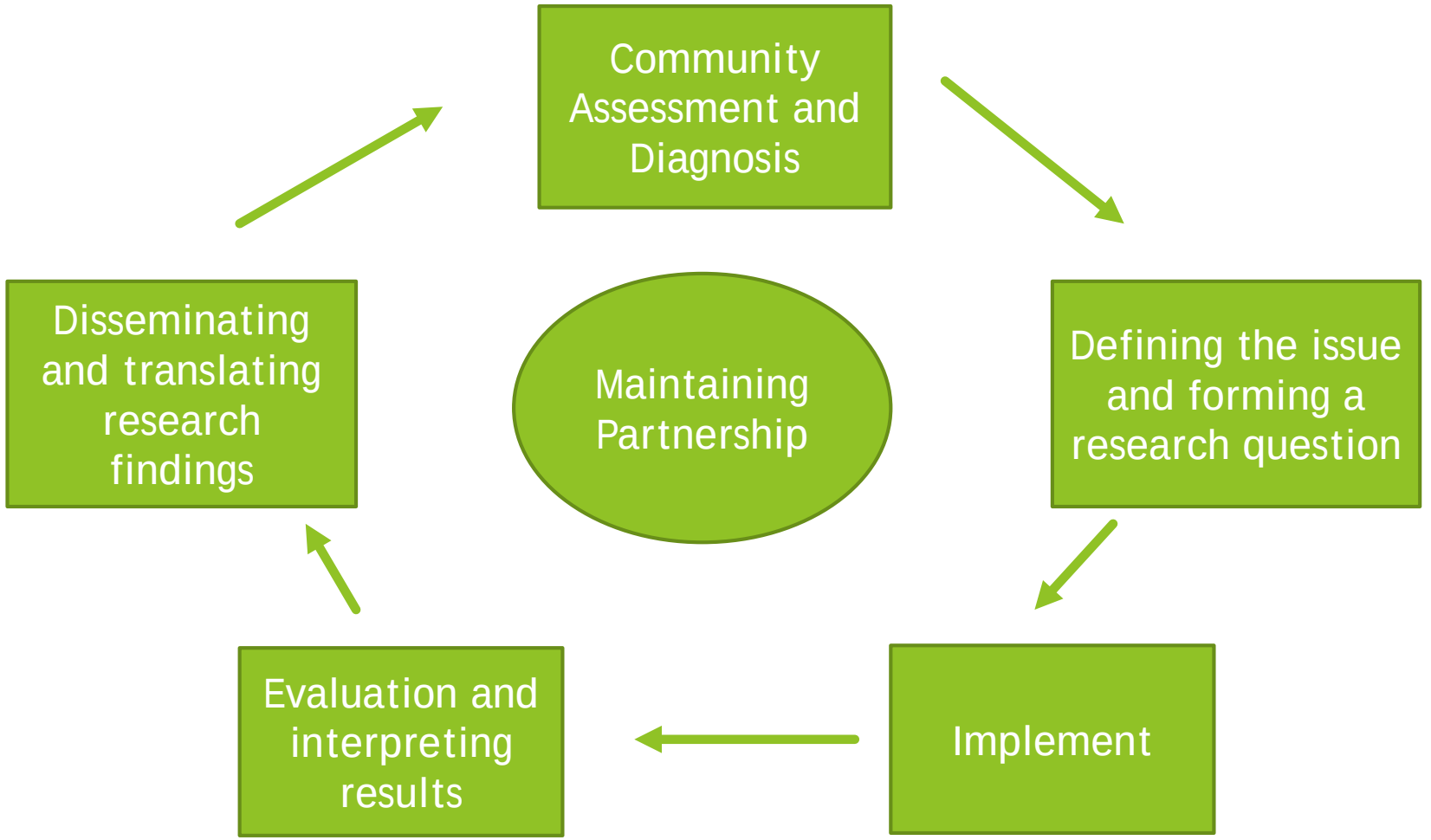
- Research that equitably involves community members, organizational representatives, and researchers in all aspects of the research process and in which all partners contribute expertise and share decision making and ownership*.
- Used heavily in health research, the aim of CBPR is to increase knowledge and understanding of a given phenomenon and integrate the knowledge gained with interventions and policy and social change to improve the outcomes for community members.


*https://www.rri-tools.eu/how-to-pa-science-education


Strengths-based and empowering
Interactive
Community as a unit
Collaborative
CBPR
Co-learning
Mutual benefits of all partners
Dissemination of findings to all partners

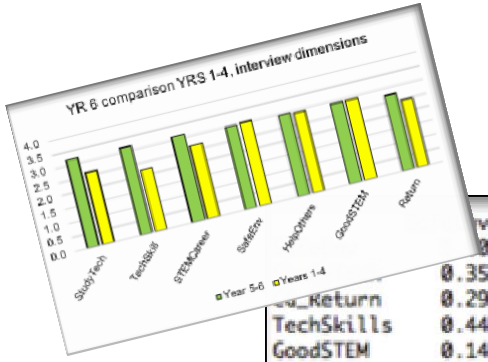



Israel, B. A. (2005). Methods in community-based participatory research for health (1st ed.). San Francisco, CA: Jossey-Bass

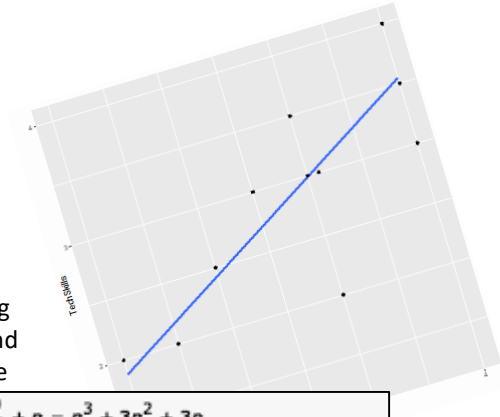
# Many Hats of Evaluation

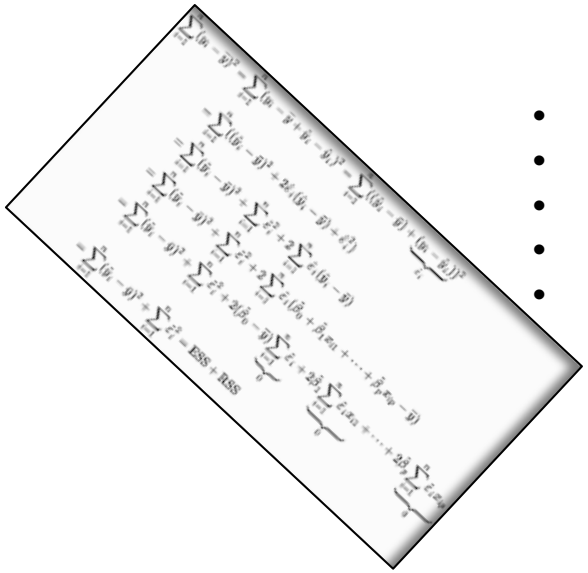
David Reider, Education Design, INC

# Evaluation

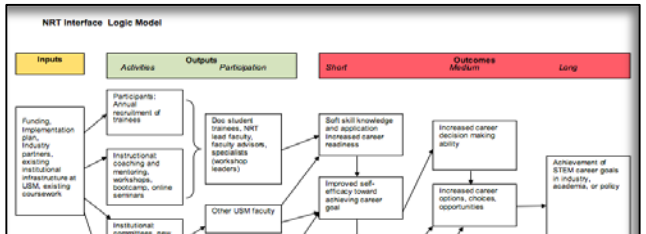



| | StudyTech | CG_Return | TechSkills | GoodSTEM | STEMCareer | HelpOthers |
|---|---|---|---|---|---|---|
| StudyTech | 1.00 | 0.35 | 0.29 | 0.44 | 0.14 | 0.39 |
| TechSkills | 0.35 | 1.00 | 0.02 | -0.08 | -0.14 | 0.30 |
| CG_Return | 0.29 | 0.02 | 1.00 | 0.30 | 0.07 | 0.25 |
| TechSkills | 0.44 | -0.08 | 0.30 | 1.00 | 0.57 | 0.36 |
| GoodSTEM | 0.14 | -0.14 | 0.07 | 0.57 | 1.00 | 0.31 |
| STEMCareer | 0.37 | 0.16 | 0.05 | 0.31 | 0.34 | 0.31 |
| HelpOthers | 0.39 | 0.30 | 0.25 | 0.36 | 0.31 | 1.00 |



- Process evaluation
- Impact evaluation
- Outcome evaluation
- Developmental evaluation
- In-situ data capture




Evaluation will be an integral part of the project and will include both process and outcome components. The process evaluation will assess on an ongoing basis how the program is being implemented, the strengths of various strategic efforts and any challenges they are facing, and the extent to which program goals and methods evolve during the grant period. The outcome evaluation will assess the extent to which intended project outcomes were a

$$3\sum_{i=1}^{n} i^2 + 3\frac{n(n+1)}{2} + n = n^3 + 3n^2 + 3n$$

$$3S = n^3 + 3n^2 + 3n - (3\frac{n(n+1)}{2} + n)$$

$$= n^3 + \frac{3n^2}{2} + \frac{n}{2}$$

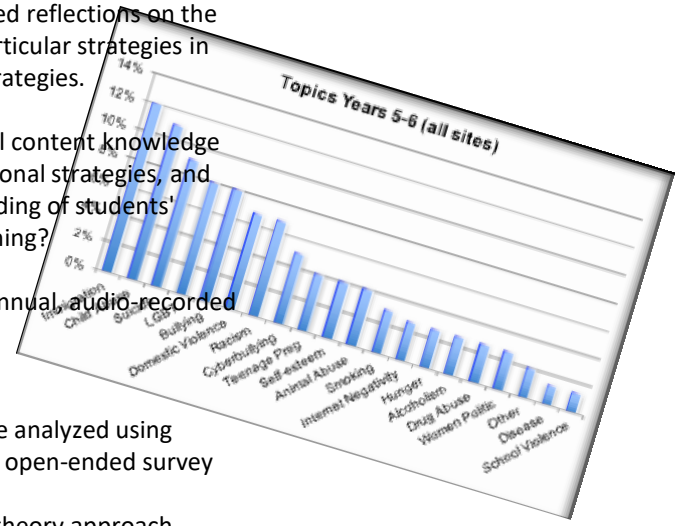
$$S = \frac{n^3}{3} + \frac{3n^2}{6} + \frac{n}{6}$$

$$= \frac{2n^3 + 3n^2 + n}{6} = \frac{n(2n^2 + 3n + 1)}{6}$$

$$= \frac{n(n+1)(2n+1)}{6}$$

Evaluation Questions and Methods:

- The process evaluation will be designed to address the following questions:
  - 1) How did the group decision-making tools used in the project c faculty leverage skills, knowledge, and resources across traditior boundaries?
  - 2) How, if at all, did the nature of the program goals and metho experience during the grant period?
  - Data collection strategies will include the external evaluator attendance at quarterly project team meetings where field notes will be taken, an annual online survey administered to lead project members, and semiannual guided reflections on the "big ideas" instructors intend to convey to students, their particular strategies in teaching these topics, and their rationale for the choice of strategies.



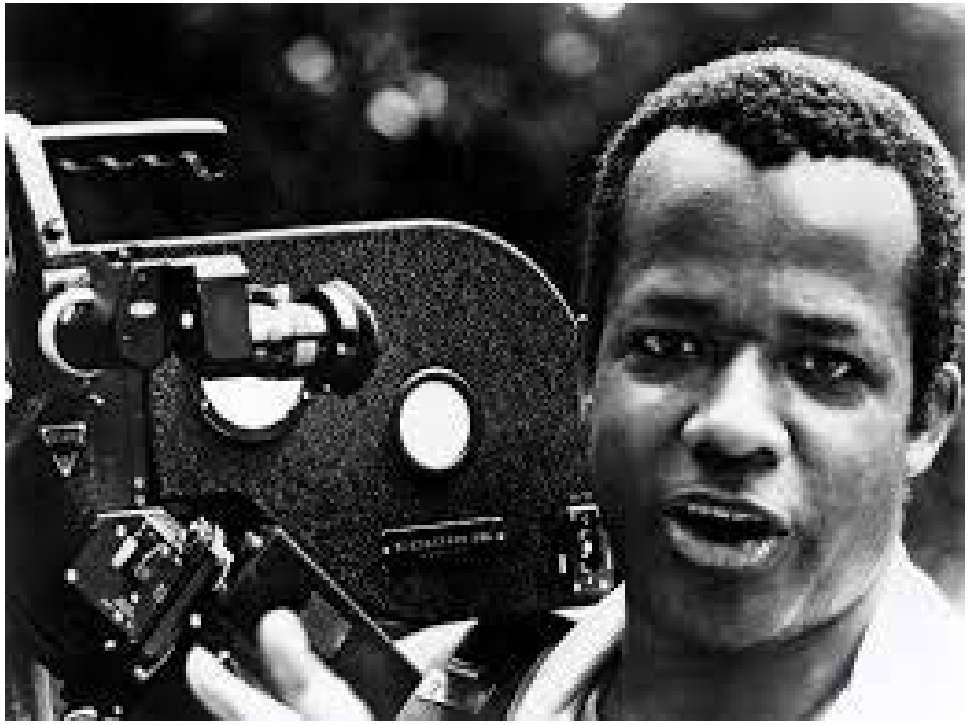

The outcome evaluation will focus on the question: Using the pedagogical content knowledge framework (knowledge of content, curriculum, student thinking, instructional strategies, and assessment), in what ways, if any, did the project grow faculty understanding of students' learning progressions from MS to HS to undergraduate level science learning?

The primary data collection strategy for the outcome evaluation will be annual, audio-recorded focus groups conducted by the external evaluator with key
members of the project team.

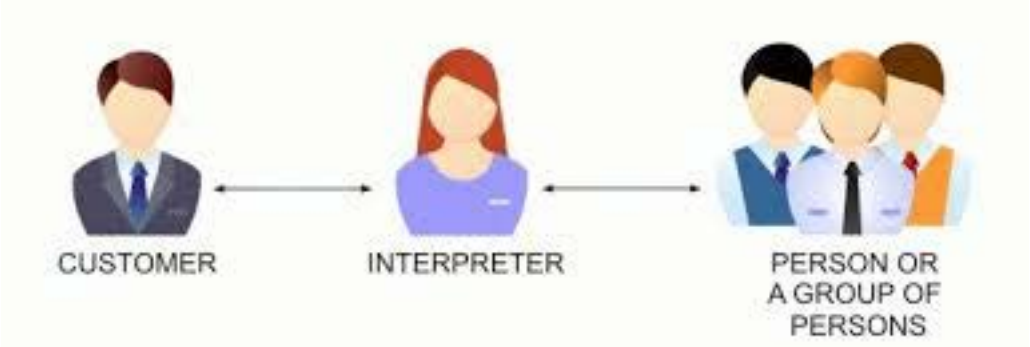
Program Evaluation Data Analysis and Reporting: Quantitative data will be analyzed using descriptive and inferential statistics as appropriate. Qualitative data from open-ended survey questions,
staff reflections, and the focus groups will be analyzed using a grounded theory approach, through which

# Researcher

# Documentarian

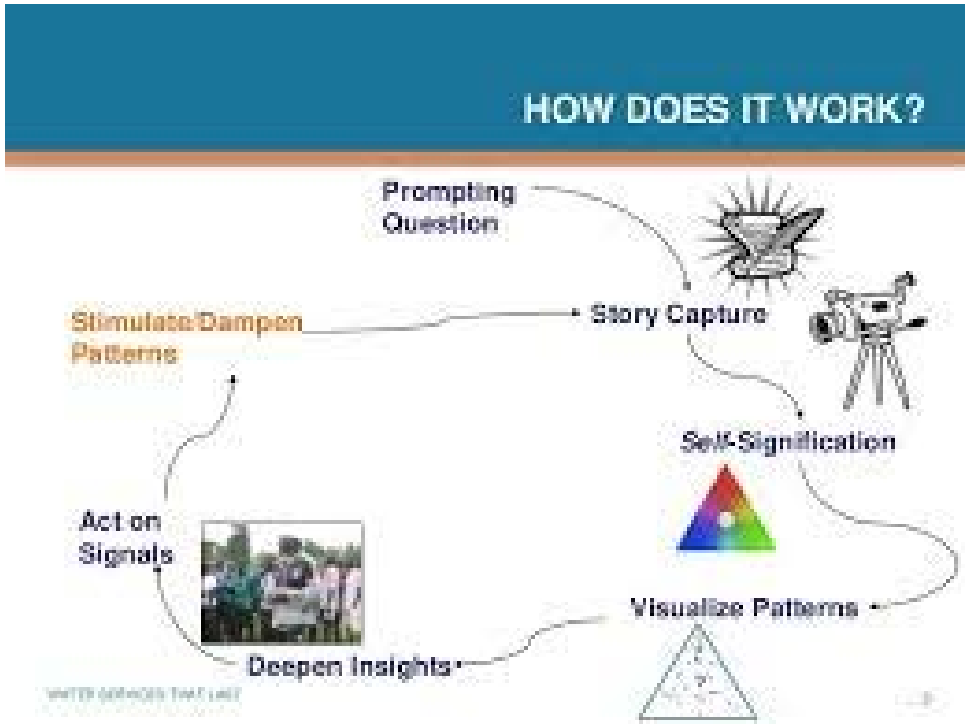


# Interpreter



# Critic

# Sensemaker


HOW DOES IT WORK?
Prompting Question
Story Capture
Self-Signification
Visualize Patterns
Deepen Insights
Act on Signals
Stimulate/Dampen Patterns

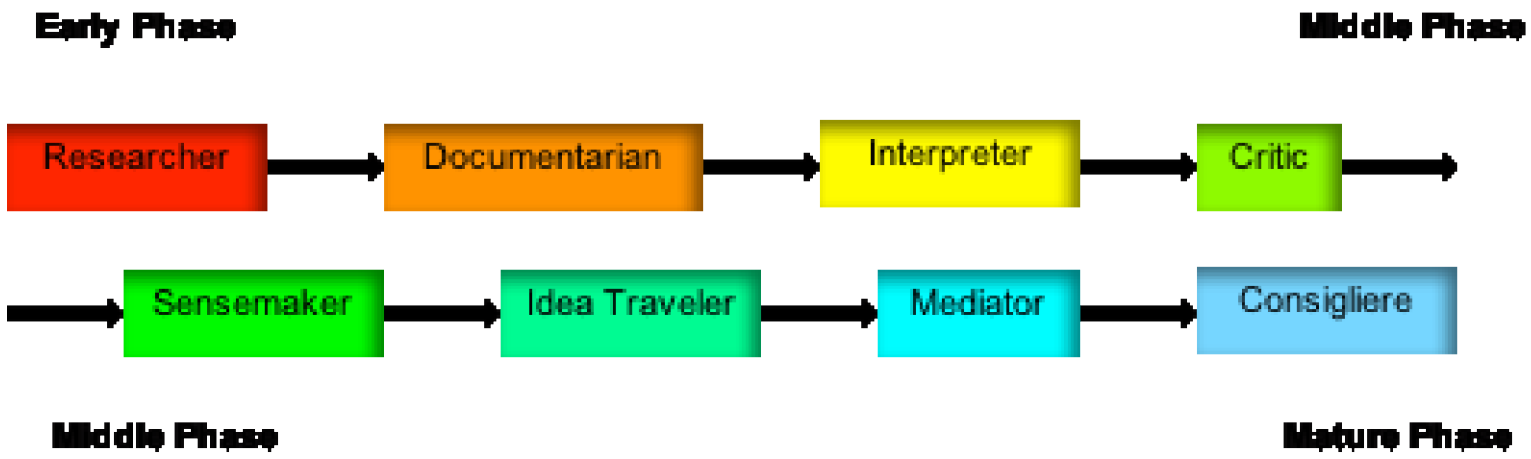
# Idea Traveler

# Mediator

# Judge

# Consigliere

# Hat Compounding



# Get to Work