


EVALUATING AN INSTITUTIONAL INTERVENTION ON FACULTY GENDER EQUITY IN STEM FIELDS

APPLICATION OF EFFECT MODIFIER ASSESSMENT (EMA)

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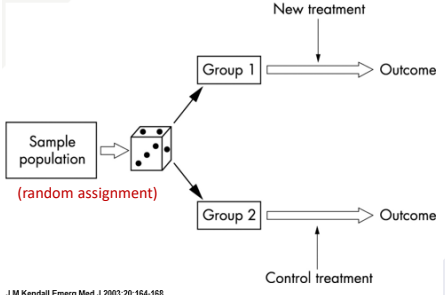

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CHALLENGES OF EVALUATING PROGRAM IMPACT

EVALUATION DESIGNS HAVE TRADEOFFS

- Experimental design**
(gold standard = randomized control trial)
 - Often not feasible, esp. for institution-level change
- Non-experimental design**
 - Does not isolate the effects of the program from other events (i.e., potential confounding)



J M Kendall Emerg Med J 2003;20:164-168


*** What else is going on in the program setting that could influence/modify the desired outcomes?**

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PROGRAM CONTEXT MATTERS

ORGANIZATIONS ARE COMPLEX AND DYNAMIC ENVIRONMENTS

- Leadership
- Policies
- Procedures
- Funding
- Technology
- Personnel




Changes or events **unrelated** to the program can influence

- Program implementation
- Program change mechanisms

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PROGRAM CONTEXT MATTERS (2)

ROLE OF CONTEXTUAL FACTORS FOR EXPLAINING PROGRAM OUTCOMES



- Competing causes
 - Independently produce the outcomes
- Other influencing factors or "effect modifiers" might either
 - Amplify** intended outcomes
 - Dampen** intended outcomes


Effect Modifier Assessment (EMA) assesses these factors in the program environment.

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CASE STUDY

APPLICATION OF THE EMA EVALUATION METHOD

- Large, public university in Massachusetts
- "Making Waves" (MW): Institutional intervention
 - Systemic approaches for gender equity in academic STEM careers - policies and practices
 - Foster a supportive institutional **culture** – bystander training to reduce microaggressions
- EMA Goal: Assess factors in the university environment that could explain MW-attributed outcomes.

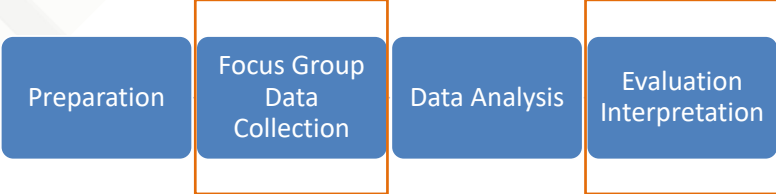


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THE EFFECT MODIFIER ASSESSMENT (EMA) METHOD

QUALITATIVELY ASSESSES CONTEXTUAL FACTORS RELEVANT FOR PROGRAM IMPACTS



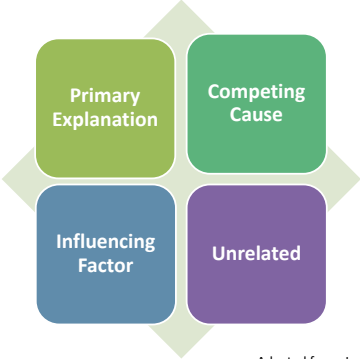
What changes or events occurred? → Thematic analysis → *What else was happening during MW?*
What effects did events have on outcomes? → Impact scoring → *How did those factors influence outcomes?*

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CLASSIFYING THE REPORTED EVENTS/CHANGES

MECHANISMS OF INFLUENCE ON "MAKING WAVES" OUTCOMES



Events related to the intervention (e.g., Making Waves)
 Events NOT related to MW that may explain the outcomes
 Events *unrelated* to MW outcomes (no known link)
 Factors that may amplify or dampen program outcomes

Adapted from: Lemire, Nielsen, & Dybdal. *Evaluation* (2012)

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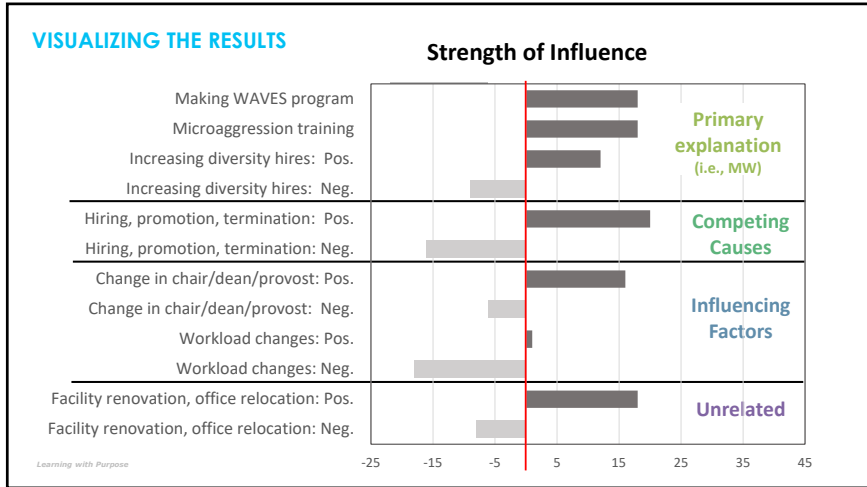
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EMA SCORING SAMPLE – CHANGES/EVENTS AND IMPACTS

n=118 event notes; 14 STEM faculty members

Theme	# Changes or Events	Effect Score (-3 to 3)	Classification of Influence
Making WAVES program	9	+2	Primary Intervention
Microaggression training	9	+2	Primary Intervention
Increasing diversity hires (pos)	6	+2	Primary Intervention
Increasing diversity hires (neg)	3	-3	
Hiring and promotion (pos)	10	+2	Competing Cause
Hiring and promotion (neg)	8	-2	
Change in chair/dean/provost	16	+1	Influencing Factor
Workload changes (neg)	9	-1	Influencing Factor
Facility renovations (pos)	9	+2	Unrelated

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INTERPRETATION OF FINDINGS

- Most events created by the MW program had positive effects for all STEM faculty (desired outcomes).
- *Competing causes* had mixed positive & negative impacts on the outcomes.
- *Influencing & Unrelated factors* had more negative than positive impacts.
- Conclusion: No evidence that positive outcomes should be attributed to factors other than the MW program.
 - MW might have had more impact with different contextual factors.

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WAYS TO IMPLEMENT THE EMA METHOD

- Assemble a team & do it yourself
 - Use EMA method article to prepare (Nobrega et al. 2023)
 - Use the Facilitator focus group script (Nobrega et al. 2021)
 - Assemble and train a research team
- Engage the UMass Lowell EMA evaluators
 - Coaching and guidance for your team

or

 - Conduct the EMA evaluation effort for your institution

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Thank You

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RESOURCES NEEDED FOR EMA DIY IMPLEMENTATION

- Expertise in focus group facilitation, including virtual focus group facilitation.
 - Co-facilitators plus an assistant is ideal
 - Practice before doing it “for real”
- Data analysis skills – textual thematic analysis, simple numeric computations
 - Qualitative analysis software helpful but not essential
 - MS Excel useful
 - **Team of analysts** to work together through all phases of coding and analysis
- Knowledge of the program setting and ongoing access to program provider team (consult for triangulation)

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