Evaluating Research Education: Frameworks and Common Measures

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Presenting on behalf of the Research Education Special Interest Group (SIG)
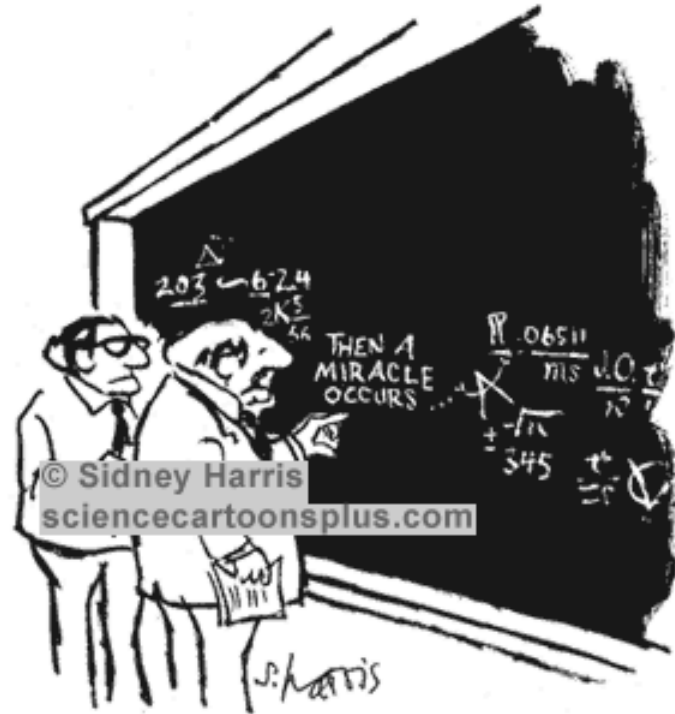
CPACHE Bi-Annual Meeting

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Beyond Counts

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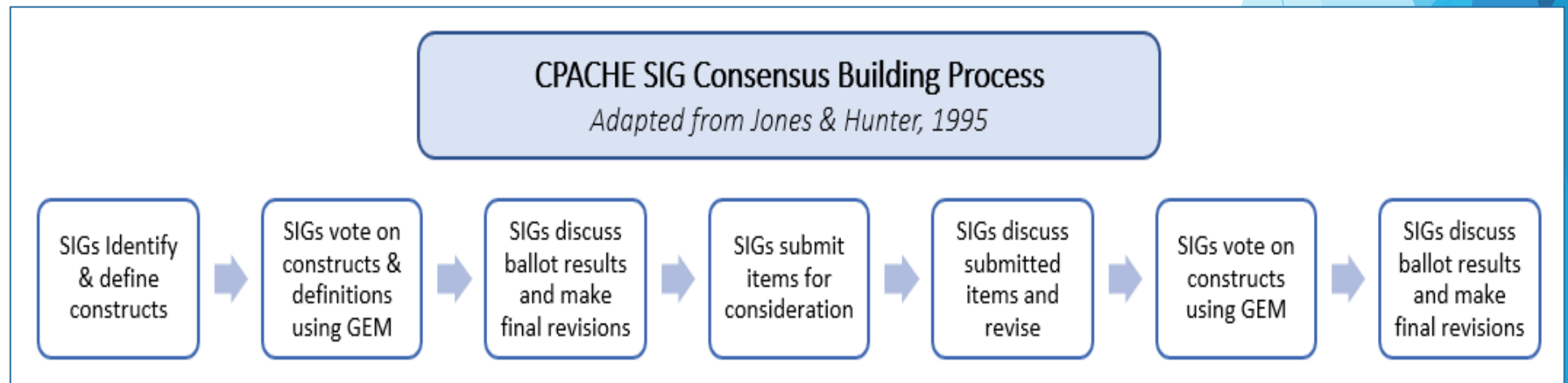
"I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO."

► Counts tell us "whether," they do not help us understand "why" or "how."

► Example:

  ► Knowing *whether* CPACHE-involved students are advancing to the next level of the cancer pipeline tells us something important about impact

  ► Knowing *how* their CPACHE experience is contributing (or not) to this phenomenon tells us:

    ► Something about attribution (in the absence of a control group)

    ► Something about how to improve programming in the absence of intended results

Guiding Frameworks

▶ Theory-driven evaluation[1,2] argues for working at the intersection of:

  ▶ Program theory (often represented in a theory of change or logic model)

  ▶ Existing social science theory and knowledge

    ▶ E.g. Social-ecological theory[3]; Social Cognitive Career Theory[4]

▶ Utilization-focused evaluation[5] argues that the quality of evaluation should be judged by its usefulness for intended users

  ▶ Especially important when developing shared measures

  ▶ *"the utilization of these evaluations is often low and frequently results in organizations finding themselves 'drowning' in data that do not contribute to their strategic decision making."* (Liket, Rey-Garcia & Haas, 2014, p. 172).[6]

Building Consensus

Research Education Special Interest Group (SIG)	
Sarah Suiter (MMC-VICC-TSU) Tessa Eidelman	Kristi Holmes (Chicago CHEC)
Linda S. Behar-Horenstein (FL-CA CaRE2)	Mirza Rivera Lugo (UPR-MDACC)
Anthony Barrios (UC San Diego-SDSU)	Tanya Penn MPH (UC San Diego-SDSU)
Kelly Laurila (Arizona CC-NAU)	Hali Robinette (UOG-UOH) Sara Bolduc
Sherri De Jesus (UPR-MDACC)	Leo Spychala (CCNY-Memorial Sloan Kettering CC)
Kimberly Harris (NCC-UNC)	Lecarde Webb (MSM-YU-UAB CCC)
Fred Snyder (NCI)	

CPACHE SIG Consensus Building Process
Adapted from Jones & Hunter, 1995

SIGs Identify & define constructs → SIGs vote on constructs & definitions using GEM → SIGs discuss ballot results and make final revisions → SIGs submit items for consideration → SIGs discuss submitted items and revise → SIGs vote on constructs using GEM → SIGs discuss ballot results and make final revisions

Constructs: Students & ESIs

Constructs	Definitions & Components
Student/ESI characteristics	Name ORCID ID and eRA Commons username Institutional Affiliation Training level Highest terminal degree Date of completion of highest degree Demographics (Age, Race, Ethnicity, Gender, First Generation)
Student/ESI research and career interests	Current cancer research foci: research type, cancer type (open-ended), population of interest (open-ended), specific cancer research focus (open-ended) Future cancer research foci: research type, cancer type (open-ended), population of interest (open-ended), career settings
Student/ESI training interests	CPACHE training opportunities of interest
Student/ESI perception of knowledge advancement	Student/ESI perception of knowledge gained through participation in CPACHE
Student/ESI satisfaction	Student/ESI satisfaction with CPACHE research activities
Student/ESI research experience and confidence	Student/ESI assessment of their first-hand experience and sense of confidence in developing, leading, and managing research projects
Student/ESI perceived benefits of participation in CPACHE program	Expected vs. actual benefits of participation in CPACHE program
Student/ESI career interests and perceived efficacy	Student/ESI assessment of their interest and ability to succeed in different future academic/career paths
ESI specific challenges and needs	Challenges experienced by ESIs in securing research funding Desired support from CPACHE (open ended)

Constructs: Mentors and Mentoring

Constructs	Definitions & Components
Mentor characteristics	Name ORCID ID Current title at primary institution Highest terminal degree Date of completion of highest degree Institutional affiliation Job title when beginning as CPACHE mentor Start date as CPACHE mentor Demographics
Mentoring experience	Number and type of mentees currently mentoring Years of mentoring experience
Mentor research interests	Cancer research foci: research type, cancer type (open-ended), population of interest (open-ended), specific cancer research focus (open-ended)
Mentor desired support	Mentor desired supports to enhance mentoring skill and ability
Mentor suggestions	Mentor suggestions to improve CPACHE mentoring experience (open-ended)
Mentor overall assessment of student/ESI	Satisfaction with professionalism, satisfaction with overall performance, areas of strength (open-ended), areas for improvement (open-ended), assessment of skill in developing, leading, and managing research projects
Student/ESI mentor interactions	Contribution of mentoring relationship to CPACHE experience Frequency of meeting Person(s) doing mentoring Major strengths and weaknesses of mentoring (open-ended) Suggestions for mentoring improvement (open-ended)
Student/ESI assessment of mentor	Student/ESI perception of mentor's competency in providing research support, giving feedback, supporting learning and engagement

Constructs: Institutional-level Changes

Construct	Definition
URM Supportive Policies	Creation or change of policies that support URM (student/ESI/other faculty)
URM Supportive Practices	Creation or change of practices that support URM (student/ESI/other faculty)
URM Supportive Partnerships	Development of institutional partnerships that compliment and/or enhance the work of the U54

Instruments & Examples

Table 4: Survey Instruments Aligned with Constructs	
Instrument	**Included Constructs**
Student/ESI Tracking Survey	Student/ESI characteristics Student/ESI research and career interests Student/ESI training interests
Mentor Tracking Survey	Mentor characteristics Mentoring experience Mentor research interests
Student/ESI Pre-Survey	Student/ESI research experience and confidence Student/ESI perceived benefits of participation in CPACHE program Student/ESI career interests and perceived efficacy ESI specific challenges and needs
Student/ESI Post-Survey	Student/ESI mentor interactions Student/ESI perception of mentor competency Student/ESI perception of knowledge advancement Student/ESI research experience and confidence Student/ESI satisfaction Student/ESI perceived benefits of participation in CPACHE program Student/ESI career interests and perceived efficacy
Mentor Post-Survey	Mentor desired support Mentor suggestions Mentor overall assessment of student/ESI
Impact Metrics for Institutions	URM Supportive Policies URM Supportive Practices URM Supportive Partnerships

Future Plans

Please rate how much INTEREST you have in each of the following on a scale of 1 to 5 (1= very little/no interest; 5 = a lot of interest; N/A = Not applicable) as well as how much CONFIDENCE you have in your ability to succeed in these areas (1= very little/no confidence; 5 = a lot of confidence; N/A = Not applicable).

Note: some items overlap.

Career in education or teaching		
Career in clinical practice		
Career in health disparities research		
Career in biomedical research		
Career in cancer research		
Career in community engagement		
Research career in an academic setting		
Research career in private industry		
Other career interest (please specify)		

Expand

Submit

Access to the Research Education Toolkit

- Toolkit includes:
  - Shared instruments (Word versions and REDCap data dictionaries)
  - Suggested additional instruments
  - Instructions for use (periodicity, intended respondents, data formatting)
- Toolkit access:
  - Posted on GEM (Grid-Enabled Measures Database)
- Goals and next steps:
  - Site capacity to *manage* as well as monitor outcomes
  - Cross-site capacity to explore shared research questions
  - Opportunity to advance the science of evaluation

References

1. Chen, H. T. (1990). *Theory-driven evaluations*. Thousand Oak, CA: Sage

2. Rogers, P. (2008). Using programme theory to evaluate complicated and complex aspects of interventions. *American Journal of Evaluation, 14*(1), 29-48.

3. Estrada, M., Burnett, M. Campbell, A., Campbell, P., et al. (2016). Improving underrepresented minority student persistence in STEM. *Life Sciences Education,15*(es5), 1-10.

4. Lent, R. W., Brown, S. D. and Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior 45*, 79-122.

5. Patton, M.Q. (2008). Utilization-focused Evaluation, 4th Edition. Thousand Oaks, CA: Sage Publications

6. Liket, K., Rey-Garcia, M. & Haas, K. (2014). Why evaluations aren't working and what to do about it. American Journal of Evaluation, 35(2), 171-188.

The following NCI resources made this national collaboration possible:

- Grid Enabled Measures (GEM) https://cancercontrol.cancer.gov/brp/research/grid-enabled-measures-database

- NCI Community HUB https://ncihub.org/