

# Pathways for Assessing Interdisciplinarity

Bethany Laursen, Nicole Motzer, & Kelly Anderson

Presented at the  
Workshop on the Implications of Convergence for How NCSES Measures the Science and Engineering Workforce  
October 23, 2020

## Resources

### Systematic Review Methods & Dataset

We will publish our dataset, including the datafile and codebook, for public use on Harvard Dataverse once our systematic review has been published in a peer-reviewed journal. Please contact [laursen3@msu.edu](mailto:laursen3@msu.edu) to request to be notified of publication. Meanwhile:

1. Explore the data online through an interactive visualization created by our data science colleagues at SESYNC, Quentin Read and Kelly Hondula.  
<https://shiny.sesync.org/apps/evaluation-sankey/>
2. View our brief summary of the systematic review, presented at the 2020 SciTS conference:  
<https://youtu.be/q89CcZyHfr8>

### Basic Description of the Dataset

Between June 2018 and June 2019, we searched Google Scholar (no patents or citations) with the following terms: 'interdisciplinary research evaluation,' 'evaluating interdisciplinary research,' 'how to evaluate interdisciplinary research,' 'interdisciplinary research monitoring,' 'measuring interdisciplinary,' and 'interdisciplinarity indicators' (n=544). We also examined all those citing Wagner et al 2011 (n=470), and we searched 'evaluation,' 'assess,' and 'measure' in the archives of the journal *Issues in Integrative (Interdisciplinary) Studies* (n=4). We included articles that assessed transdisciplinarity (TD) only if emphasized features were shared by ID. We excluded TD studies if they emphasized what makes TD unique from ID. We found no studies of multidisciplinarity. Ultimately, 142 articles were included in the systematic review based on the following:

- Conducted or proposed measurement of some aspect of ID research or education,
- Published in a peer-reviewed setting (e.g. conferences, journals, books, organizations),
- Published between January 2000 and June 2019, and
- Written in English.

Variable	Quantity	Variable (cont'd)	Quantity
Assessment Pathways	1,006	Observation Scales	16
Literature Sources	142	Analysis Scales	17
Author-stated Criteria	256	Analysis Methods	21
Standardized Criteria	40	Analysis Method Type	4
Author-stated Standards	309	Aggregation Methods	33
Author-stated Measures	889	Aggregation Method Type	3
Observation Phases	6	Progress Along Assessment Pathway	6
Analysis Phases	6		

# Rigorous Evaluative Reasoning

1. Davidson, E. J. (2013). *Actionable Evaluation Basics: Getting Succinct Answers to the Most Important Questions*. Auckland, New Zealand: Real Evaluation, Ltd. Retrieved from <http://www.amazon.com/gp/search?index=books&linkCode=qs&keywords=9781480102699>
2. Davidson, E. J. (2010, February 4). Why genuine evaluation must be value-based. Retrieved October 23, 2019, from <http://genuineevaluation.com/why-genuine-evaluation-must-be-value-based/>
3. Davidson, E. J. (2014). Evaluative Reasoning (No. 4). *Methodological Briefs*. Florence: UNICEF.
4. Vo, A. T., & Archibald, T. (Eds.). (2018). Evaluative Thinking: A Special Issue. *New Directions for Evaluation*, 2018(158). <http://doi.org/10.1002/ev.2018.2018.issue-158>
5. Fournier, D. M. (Ed.). (1995). Special Issue: Reasoning in Evaluation--Inferential Links and Leaps. *New Directions for Evaluation*, 1995(68). Retrieved from <https://onlinelibrary.wiley.com/toc/1534875x/1995/1995/68>
6. Scriven, M. (1991). *Evaluation Thesaurus*. Thousand Oaks, CA: SAGE.

## Evaluation-specific and Mixed Methods

1. King, J., McKegg, K., Oakden, J., & Wehipeihana, N. (2013). Evaluative rubrics: A method for surfacing values and improving the credibility of evaluation. *Journal of MultiDisciplinary Evaluation*, 9(21), 11-20.
2. Davidson, E. J. (2014, November 24). 'Minirubrics': 7 hot tips for using this cool tool to focus evaluative conversations. Retrieved September 17, 2015, from <http://genuineevaluation.com/minirubrics/>
3. Scriven, M. (2014, April 29). Evaluation-Specific Methodology. Evaluation Cafe. Retrieved from <https://vimeo.com/94194499>
4. Better Evaluation. (n.d.). Synthesize data from a single evaluation. Retrieved October 20, 2020, from [https://www.betterevaluation.org/en/rainbow\\_framework/synthesise/synthesise\\_data\\_single\\_evaluation](https://www.betterevaluation.org/en/rainbow_framework/synthesise/synthesise_data_single_evaluation)
5. Plano Clark, V. L., & Ivankova, N. V. (2016). *Mixed methods research: A guide to the field*. Thousand Oaks, CA: SAGE Publications, Ltd.

## Contact Information



[laursen3@msu.edu](mailto:laursen3@msu.edu)



<http://bethanylaursen.com>



@bklaursen



[nmotzer@sesync.org](mailto:nmotzer@sesync.org)



[kellykja@terpmail.umd.edu](mailto:kellykja@terpmail.umd.edu)



<http://www.sesync.org>



@sesync



Center for Interdisciplinarity  
MICHIGAN STATE UNIVERSITY

