Synthesis Project Utilizing Citation Analysis to Document Decade of Program Impact

Valerie K. York
Cynthia A. Shuman
B. Jan Middendorf
Wendi M. Stark

October 18, 2013

American Evaluation Association (AEA) Annual Conference 2013
Research in Disabilities Education Synthesis Project (RDE-SP):

- National Science Foundation
- Three-year research project (2011-2015) Award HRD-1145541

**Purpose:** summarize/synthesize findings of the initiatives aimed at broadening participation and achievement of individuals with disabilities in STEM education and associated professional careers.

**Scope:**
- RDE Program
- 2001 - 2011
- 117 projects; 97 unique PIs
Citation analysis is:

- a form of bibliometric analysis that “consists of tracking the number of citations to published works typically using a citation database and then analyzing the data using statistical, content, or network analyses” (Greenseid & Lawrenz, 2011)

- used to identify contributions of project team members (e.g., researchers, grant partners)
  - individually or collectively
  - within or across projects

- one component of our synthesis efforts to identify the collective impact or reach of the RDE PIs across the 117 RDE projects
Setting Parameters

- **Who should you include?**
  - PIs, co-PIs, originally funded or replacement PIs

- **What publications should you include?**
  - All or a sample (based on type, topic, date, etc.)
  - Type: Journal articles, books, conference presentations
  - Topic: Disability, education, evaluation
  - Date: 2001 – 2011

- **Where will you locate the list of publications?**
  - Direct request to individual for vita or list of publications
  - Internet research for vita, bio, or publications
  - If you receive a low response rate to the direct request, do you supplement with Internet research?

- **When are you collecting and verifying the data, and conducting the analysis (what is your time frame)?**
Process

✓ Compile the publications list
  We conducted Internet research to compile our list by
  - locating available vitas and biographies
  - supplementing with citation database searches

✓ Search for each publication in selected citation database(s)
  We searched for publications in Scopus, Web of Science, and Google Scholar

✓ Record all citing works for each publication
  We recorded the citation of each citing work, and in which database(s) we located each citing work

✓ Analyze data
  We conducted descriptive statistical and network analyses
Descriptive Statistics

- Total Publications Produced = 675
- Publications by PI
  - Average = 7.0 (SD = 11.5)
  - Median = 3.0
  - Min/Max = 0 - 78
- Total Citing Works = 9,001
- Citing Works by Publication
  - Average = 13.3 (SD = 29.8)
  - Median = 3.0
  - Min/Max = 0 - 414
- Citing Works by PI
  - Average = 92.8 (SD = 196.8)
  - Median = 10.0
  - Min/Max = 0 - 1021
Presenting Results

Descriptive Statistics

**Publications by Year**

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**Citing Works by Year**

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GIS Mapping/Infographic

RDE-SP Number of Publications per State

Number of Publications
From State
- 1 - 20
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100

Presenting Results
GIS Mapping/Infographic

RDE-SP Number of Publications per Institution
Network Mapping

Presenting Results
Other Possible Analyses

- Number of publications by topic area (e.g., disability type), and corresponding number of citing works
- Number of publications by journal impact level (low, medium, high), and corresponding number of citing works
- Number of publications by product type (e.g., journal article, conference presentation, print resource), and corresponding number of citing works
Considerations

The amount of work required for a citation analysis is based on several factors, including:

- Number of authors
- Data collection method - Do you have to locate the original publications, or will a list be provided to you?
- Number and type of databases you use
  - Google Scholar changes daily (things appear, even disappear, makes verifying data difficult)
  - Choose the database based on topic of project (not all databases are applicable to all topics)
- Presentation format of the results
  - Are you presenting descriptive statistics only or mapping GIS for publications and creating infographics?
- GIS-related decisions
  - Will you assign GIS coordinates based on the author’s location when that work was published or the author’s most recent location?
  - Do you want to capture co-authors’ locations as well?
  - Do you want to identify GIS for citing works?
Lessons Learned

- Consider what data best fits your client’s needs
  - Plan specific analyses and data formats prior to data collection to streamline the process.

- Start on a small scale
  - You can’t do it all – define your parameters and stick to them.
  - For example, one database, small group of authors

- Obtain the list of publications directly (from client or authors) rather than building the list through Internet research.

- Learn about the databases’ focus and features.
  - Determine which databases are appropriate to your project topic. There are many databases to choose from.
  - Identify any helpful searching tips/tricks.
    - For example, some databases allow you to set up a reminder for publications of interest that will email you if new citing works are added.
Questions/Comments?

October 18, 2013
OEIE Contacts

Jan Middendorf  
*Director*  
785.532.4716  
jmiddend@ksu.edu

Cindy Shuman  
*Associate Director*  
785.532.3463  
cshuman@ksu.edu

Valerie York  
*Evaluator*  
785.532.5266  
vYork@ksu.edu

Wendi Stark  
*Evaluation Projects Coordinator*  
785.532.5489  
wstark@ksu.edu

Office of Educational Innovation and Evaluation  
2323 Anderson Avenue, Suite 220  
Manhattan, Kansas 66502  
785.532.5930  
www.oeie.ksu.edu

This material is based upon work supported by the National Science Foundation under Grant No. HRD-1145541. Any opinions, findings and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.