Stevens Institute of Technology

School of Business

**AACSB  
ASSURANCE OF LEARNING**

**Doctor of Philosophy in Data Science**

**(Ph.D.)**

**Indirect Measurement**

**Name of indirect measurement: Citation Analysis**

Responsibility: Feng Mai

**Date**

**May, 2024**

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# 1. Introduction: Indirect measurement standards definition

Indirect measures of learning refer to evidence attained from third-party input that is not based on direct observation of individual performance behaviors or outcomes. For example, an employer survey asking for an assessment of how a school’s learners have performed on internships relative to learners from peer institutions is an indirect measure. However, a learner who completes an internship for degree credit and is assessed by the company on individual performance, with such feedback provided to the school, is a direct measure. Examples of indirect assessments include exit surveys, alumni surveys, advisory council feedback, employer input, career fair feedback, inspection of course documentation, external outcome measures, focus groups, and interviews. As with direct assessments, indirect assessment should be supportive of the competency goals of the particular degree program, including the successful achievement of those competency goals.

# 2. Program Indirect Measurements

Particular competencies:

Google Scholar citations at the graduation year serve as a robust indirect measure of the impact and relevance of a PhD program. Citations are a testament to the academic community’s recognition of a scholar’s work. High citation counts indicate that the research produced by the PhD candidates is being utilized and built upon by other researchers and reflect the quality and significance of their contributions.

**Competency Goal Alignment:**

* **Research Competency:** The ability to conduct high-quality, impactful research is a core competency for PhD candidates. Google Scholar citations directly measure this by showing how often their work is referenced by peers.
* **Scholarly Communication:** High citation counts suggest that the research is well-written and communicated effectively, making it easier for other scholars to understand and cite.
* **Field Influence:** Citations demonstrate that the research has made a meaningful contribution to the field, indicating successful achievement of the program’s goal to produce influential scholars.

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# 3. Assessment Process

|  |  |  |
| --- | --- | --- |
| **Where & When Measured?** | **How Measured?** | **Criterion** |
| Graduation year. Data is collected at the point of graduation for each PhD candidate. | *Assessment:*  The number of citations each PhD candidate’s research work has received on Google Scholar is tallied. | A minimum of 5 citations by the graduation year is considered satisfactory, indicating that the research has gained initial traction in the academic community. |

# 4. Results of Assessment: Spring 2024

|  |  |  |
| --- | --- | --- |
| Student | Year in the Program | Citation |
| A | 6 | 1 |
| B | 6 | 0 |
| C | 5 | 27 |
| D | 5 | 0 |
| E | 5 | 7 |

The results of the Google Scholar citation analysis for PhD candidates at the time of graduation show a varied distribution of citations. One candidate achieved a high number of 27 citations, indicating significant recognition of their work, while another garnered 7 citations, also surpassing the criterion of 5 citations. However, two candidates had no citations, and one had only 1 citation. This mixed outcome suggests that while some graduates produce highly impactful research, there are others whose work has not yet gained substantial visibility or recognition. These results highlight the need for ongoing support and strategies to ensure more consistent citation performance across all candidates to ensure student success on the market.

# 5. Outcomes from Previous Assessments

N/A; Spring 2024 is the first time that the DS PhD program is assessed.

# 6. Close Loop Process – Continuous Improvement Record

N/A; Spring 2024 is the first time that the DS PhD program is assessed.