



Industry/University
Cooperative
Research Centers

Predictors of Graduated I/UCRC Success

Thesis Proposal Research

by

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Purpose of Research

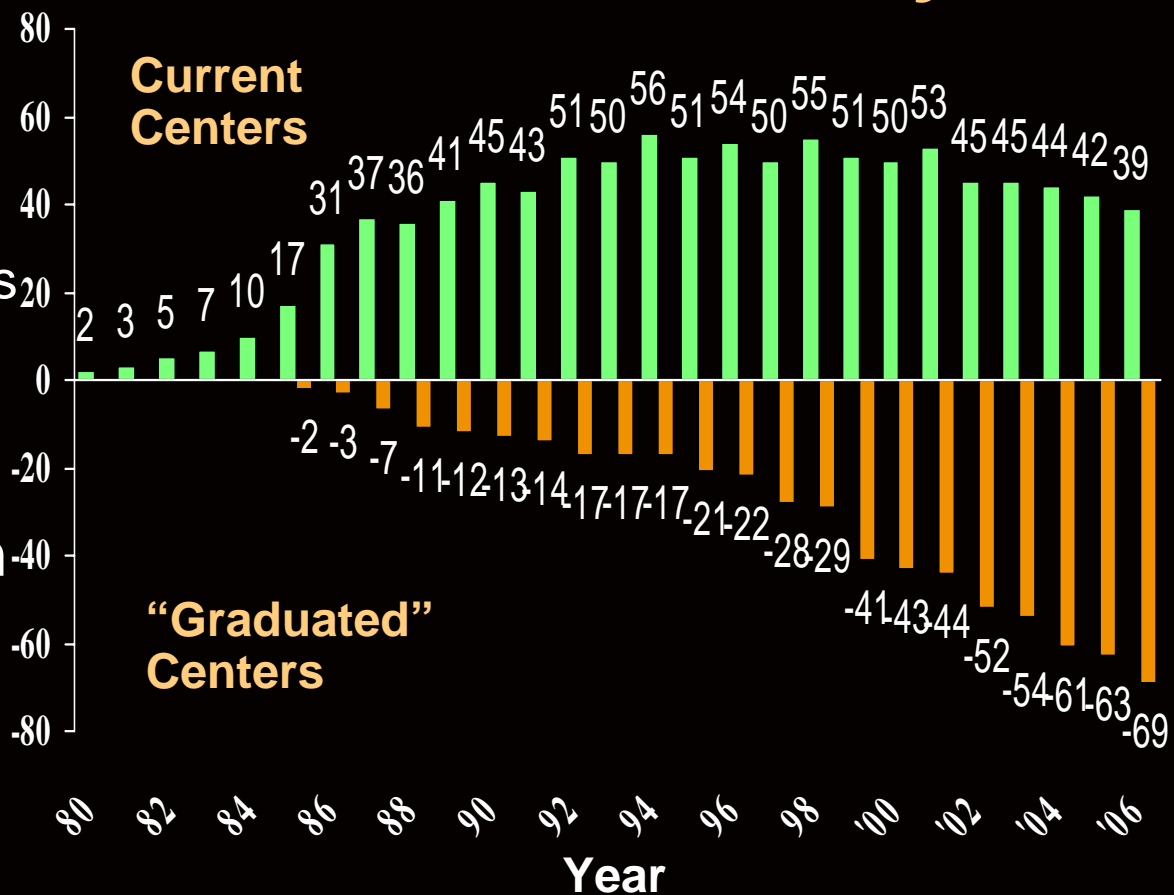
- To assess the extent to which the Centers become “successful” after graduation
- To assess the extent to which graduated Centers maintain fidelity to the I/UCRC model
- To determine what factors predict Center “success” post graduation from NSF support



What is known about NSF's track record of producing sustainable Centers?

- Lots of archival data while supported by NSF
 - Total budget, by source
 - Industry membership descriptors
 - Faculty and student stats
 - Center Director info
 - Degrees, hires, publications
- No info post-graduation
- Estimated 80% graduation success rate
- What does "success" mean?

Center Life Cycle



Old Lit: Empirical Reports



Ailes, Roessner, & Coward (2000)

- **Goals:** To explore issues of self-sustainability, funding, cultural change for graduated ERCs

- **Methodology**

- Interviews with Center leadership
- N = 16, response rate = 100%, Centers from 5 cohorts, 1985-1990, Data collected year before graduation and year of graduation (11th year)

- **Results**

- Outcomes:
 - » All centers survived as research entities to some extent
 - » Fidelity to ERC model varied
 - » Changes in research focus
 - » Negative effects
- Hypothesized Predictors:
 - » Infrastructure
 - » Transition planning
 - » Center management
 - » Faculty involvement
 - » Institutional factors
 - » Research area
 - » Industrial participation
 - » Educational programs

Mujumdar (2005)

- **Goals:** Investigated what happened to ERCs after graduation, how Center's changed, and the consequences of graduating from NSF support.

- **Methodology**

- 22 item survey completed by Center leadership
- N = 10, response rate = 62.5%, follow-up to Ailes et al. (2000) study

- **Results**

- Outcomes:
 - » Sources of Funding
 - » University (75%)
 - » Industry (100%)
 - » Government (63%)
 - » Other (89%)
 - » Funding Range \$500K - \$27M
- Predictor Factors Identified
 - » Mission/Vision
 - » Tech Transfer
 - » Research
 - » Education/Outreach

Old Lit: Social Entrepreneurship



NSF I/UCRCs bridge the gap between industrial and academic sectors, by (Dees, 2001):

- Adopting a mission to create and sustain industrial collaboration,
- recognizing and pursuing opportunities,
- engaging in a process of continuous innovation, adaptation, and learning,
- acting boldly without being limited by resources currently in hand
- and exhibiting heightened accountability to the industry, faculty, and university served and for technology transfers.

Sector

- Private
- Non-profit
- Public
- Academic

A typology of the construct (Peredo & McLean, 2006):

- Integrated social entrepreneurship
 - Double bottom-line: social & financial
 - Earned income activities themselves create social value
 - Hybrid organizational structure
- Partnered social entrepreneurship
 - Partnerships with for-profit entities make social value creation possible
 - Licensing, contracting, job creation
- Market-based social entrepreneurship
 - Social goals guided by market demands
 - Business orientation toward social value

New Lit: Sustainability

(the Public Health Perspective)



- Search terms: confirmation, continuation, durability, incorporation, institutionalization, level of use, maintenance, routinization, stabilization, sustainability, and sustained use (Johnson et al., 2004)
- Sustainability develops out of the program lifecycle in which program design, development, and implementation inform long-term success (Kline & Rosenberg, 1986; Tornatzky & Fleisher, 1990; Yin 1979).
- Four main components: continued **outcomes** and **benefits**, continued program **activities**, **capacity** for continuation, continued **mission/vision/values** (Shediac-Rizkallah & Bone, 1998; Weiss, Coffman, & Bohan-Baker, 2002)

New Lit: Sustainability

(Factors Identified)



Three categories of factors that influence sustainability. Emphasis on alignment across categories.

- Program Factors
 - Alignment
 - Stakeholder positive relationships
 - Implementation quality
 - Durability to adaptations
 - Effectiveness
 - Ownership among stakeholders
 - Funding
- Organizational Factors
 - Formal structures
 - Champion roles and leadership actions
 - Resources
 - Administrative policies and procedures
 - Technical expertise
- Environmental Factors
 - Stakeholder involvement - IAB, Faculty, University Admin. (Tornatzky & Fleisher, 1990)
 - » Buy-in, network of support, tailoring
 - Alignment b/t the program, the host organization, and the stakeholders served
 - » Values, needs, resources, structure, process

New Lit: Sustainability

(A planning model)



- Plan early – develop capacity
- Involve multiple stakeholders
- Secure/pursue necessary resources – financial, political, human
- Formalize key relationships, procedures, and structures
- Adapt to changes in the organization, stakeholders, and research area
- Evaluation/feedback

Research Questions

- What is the status of graduated Centers?
- How much fidelity to the UCRC model do graduated Centers maintain?
- How “successful” are graduated Centers?
How is success measured?
- To what extent do pre-graduation archival data predict success?
- What transition strategies do Centers use to manage graduation? To what extent does transition strategy predict success?

Participants



- Any NSF I/UCRC that is beyond the 10th year of funding and ...
 - graduated (completed funding cycle)
 - did not graduate but is no longer in the program
 - graduated and was absorbed by another Center
 - N = 69

What is the Status of Graduated Centers?

DVs

- **Status:**

- Drop out – alive
- Drop out – dead
- Graduated – alive
- Graduated – dead
- Graduated – merged/
absorbed

Method/Source

- Archival Data
 - Director Structural Report
- Interview/Survey
 - Current Director
 - Previous Director
 - Evaluator
 - Dean

Analysis

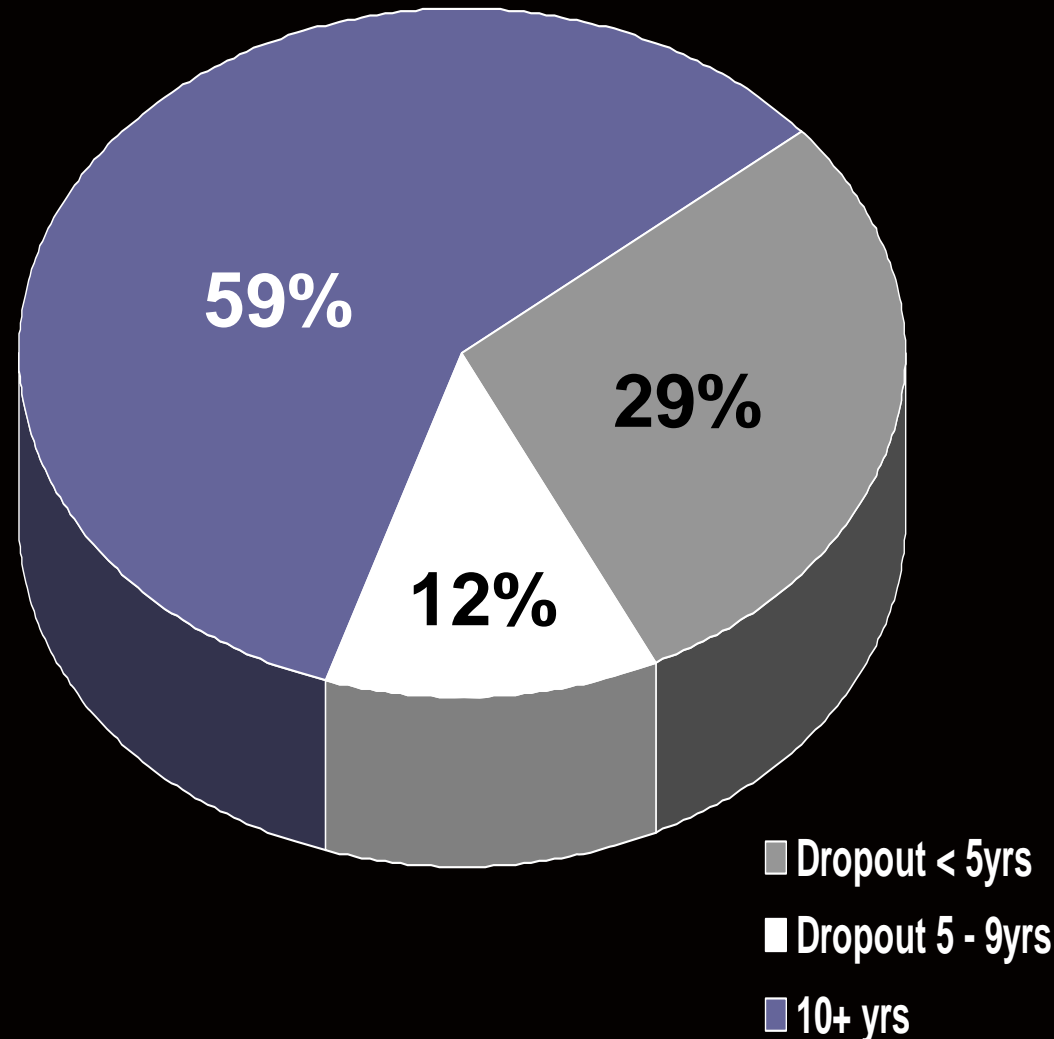
- Descriptives

Results

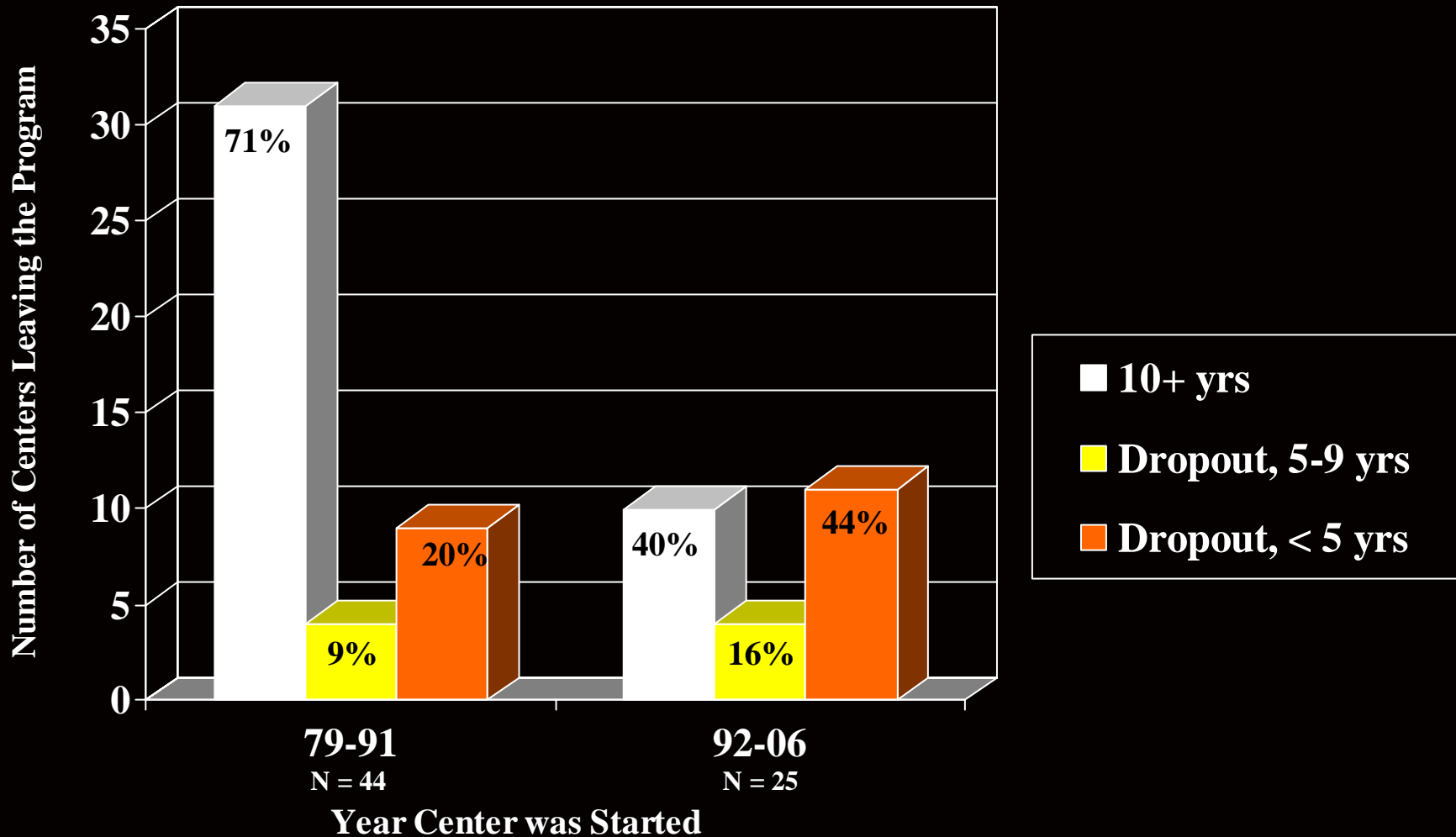
- Means by category
- ...

Post-Graduation Status: Preliminary Results

- There are 69 Centers that were started and are no longer funded by the I/UCRC Program
 - 41% did not reach 10 year graduation
 - » 29% did not reach 5 year renewal
 - » 12% reached the 5 year renewal, but not 10 yr graduation
 - The status of the remaining 59% that did reach 10 year graduation will be determined based on future data collection



Preliminary Results: Cohort Effects





How much fidelity to the IUCRC model do graduated Centers maintain?

DVs

- Fidelity/Core Components: (high, medium, low)
 - Industry support
 - Consortial/ membership format
 - » Shared research & IP
 - Biannual meetings
 - Strong industrial influence
 - » LIFE forms

Method/Source

- Interview/Survey

Analysis

- Regression
- Descriptives

Results

- Scores by cohort/category

How successful are graduated Centers?



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DVs

- Success:
 - Funding changes – overall, by source
 - » NSF criteria
 - Size – Faculty, Students, IAB, Projects
 - Research – survival, focus, scope
 - Tech transfer???
 - Publications, patents

Method/Source

- Archival Data (pre-grad)
 - PO Data
 - » Research, tech transfer
 - CD Report
 - » Funding, size, tech transfer
- Interview/Survey (post-grad)

Analysis

- T-test/Chi Square
 - Change over time – pre-grad, 3yrs post, 6+yrs, post
- Descriptives

Results

- Changes in Center success over time
- Means by category

To what extent do pre-graduation archival data predict success?

DVs

- Status
- Success

IVs

- Director Structural Report
 - Funding at year 10
 - N of members
 - Change in members
- Process Outcome
 - Industry
 - » Satisfaction
 - » Research relevance
 - » Etc
 - Faculty
 - » Satisfaction
 - » Commitment
- Social Ent./Champion
 - Satisfaction w/ admin.
 - Leadership

Method

- Archival data
 - Director Structural Report
 - Industry Process Outcome
 - Faculty Process Outcome

Analyses

- Predictive OLS Regression
- Logistic Regression
- Event history

Results

- Correlations among variables
- % of variance in DVs accounted for by IVs (R^2)

What transition strategies do Centers use? Do they predict success?



DVs

- Status, Success

IVs

- Plan exists
 - Components
 - » Research
 - » Member recruitment
 - » Faculty recruitment
 - » Other funding sources
 - » IP & Tech. transfer
 - » Other
 - Stakeholders involved
 - » Center Administration
 - » Faculty
 - » Industry
 - » University
- Plan does not exist

Method

- Interviews/Surveys

Analyses

- Qualitative analyses of interviews
 - What contributed to success?
- Descriptive
- Regression

Results

- Strategic Planning
 - % using various tactics identified
 - % plan exists
 - % no plan
 - Correlation b/t planning IVs and DVs

