Evaluating the VIP Consortium

EVALUATING VIP “ALGORITHMS” FOR BETTER PROGRAMMING

Dr. Julia Melkers, Associate Professor
Dr. Gordon Kingsley, Associate Professor
School of Public Policy Policy
Georgia Tech
“...science is inherently a social enterprise—in sharp contrast to a popular stereotype of science as a lonely, isolated search for the truth.

With few exceptions, scientific research cannot be done without drawing on the work of others or collaborating with others.”

(NAS, 2009)
What is the Purpose and Scope of the VIP Consortium Evaluation?

- Ability to capture multiple aspects of the VIP activities and outcomes.
- Assess:
  - progress toward goals.
  - capacity development across the VIP Consortium.
- Track
  - institutionalization and structure of project (relevant to project goals).
  - collaborative development, integration processes, and related (early and on-going) outcomes.
- Identify and assess impacts of VIP structure and activities on teams, students, faculty, institutions and the broader community.
- Detailed understanding of how VIP is working, and the results of VIP activities.

**Formative**
- Areas of concern and opportunity
- Recommendations

**Summative**
- Early developments
- Outcomes and impacts
- Evidence
Informing the Evaluation of the VIP Consortium

Multi-disciplinary Approach to Evaluation Design

<table>
<thead>
<tr>
<th>Evaluation Research</th>
<th>Science Policy Studies</th>
<th>Organizational Science</th>
<th>Education</th>
<th>Sociology</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Design</td>
<td>• Team Science</td>
<td>• Institutional change and transformations</td>
<td>• Student learning</td>
<td>• Social capital</td>
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<tr>
<td>• Measurement Principles</td>
<td>• Collaboration</td>
<td>• Organization culture</td>
<td>• Student efficacy &amp; identity</td>
<td>• Social network theory &amp; analysis</td>
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<td></td>
<td>• Knowledge transfer</td>
<td>• Organizational learning</td>
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<td></td>
<td>• Innovation Processes</td>
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Evaluation approach informed by evaluation design principles and methodological approaches, but also a range of social science theory and prior studies.
<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities/Strategies</th>
<th>Outputs</th>
<th>Early/Mid Term</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions</td>
<td><strong>Institutional Development</strong></td>
<td><strong>Institutional Development</strong></td>
<td><strong>Institutional Development</strong></td>
<td><strong>Institutional capacity for VIP</strong></td>
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<tr>
<td></td>
<td>VIP planning, staffing</td>
<td>Enrollment, credit and requirement systems aligned</td>
<td>Curricular change</td>
<td>Implementation and Sustainability VIP projects scaled to higher ed institutions</td>
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<tr>
<td></td>
<td>Credit Issues</td>
<td>Faculty support systems and incentives in place</td>
<td>Maturation of student and faculty recruitment and development strategies</td>
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<td></td>
<td>Course creation</td>
<td>continued enrollment, Skill development</td>
<td>Maturation of teams, external partnerships</td>
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<td></td>
<td>Faculty recruitment</td>
<td>STEM interests</td>
<td>expanded VIP models</td>
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<td></td>
<td>VIP team planning</td>
<td>Knowledge acquisition</td>
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<tr>
<td>Existing Resources</td>
<td><strong>Teams</strong></td>
<td><strong>Students</strong></td>
<td><strong>Students</strong></td>
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<td></td>
<td>Create/refine</td>
<td>Enroll, engage, clarify roles</td>
<td>Increased: motivation, engagement, confidence, retention, self-efficacy, capacity, learning</td>
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<tr>
<td>Leveraged Resources</td>
<td><strong>Students</strong></td>
<td><strong>Students</strong></td>
<td>Increased: motivation, engagement, confidence, retention, self-efficacy, capacity, learning</td>
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<tr>
<td>Leadership</td>
<td><strong>Faculty</strong></td>
<td><strong>Faculty</strong></td>
<td>Collaborative attribution (prototypes, pubs, etc)</td>
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<tr>
<td>Courses &amp; Curriculum</td>
<td>Recruitment, alignment with VIP principles</td>
<td>Faculty development project advancements, prototypes, publications, pedagogical approaches</td>
<td>Integration of knowledge across the students’ curriculum Jobs, advanced degrees</td>
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<td>Technology</td>
<td>Development of team activities/goals</td>
<td><strong>Management</strong></td>
<td><strong>Faculty</strong></td>
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<td>Staff</td>
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<td>Develop Consortium process, support systems, interactions</td>
<td>Faculty innovation in VIP, publications, patents, other advancement</td>
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<td>Students</td>
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<td>Coordination of institutional resources</td>
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<td>Interact with evaluation team</td>
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<td>Dissemination</td>
<td><strong>Dissemination</strong></td>
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<td>Cross-institutional interaction</td>
<td>Relationships established Communication products</td>
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<td>Material development</td>
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VIP Evaluation Components

Integration
- Teams
- Faculty
- Students
- Consortium
- Cross-Disciplines

Collaboration
- Teams
- Faculty
- Cross-VIP Sites
- VIP-World

Learning
- Students
- Faculty
- Teams
- Institutions
- Consortium

VIP Progress and Outcomes
- Students
- Faculty
- Teams
- Institutional Issues
- Leadership
Evaluating the VIP Consortium
Formative and Summative On-Going Study of VIP

How well is VIP working, and to what end?

- **(Institutionalization)** How is the VIP Consortium developing on each campus, as well as across campuses?
  - Barriers? Facilitators? Resources and support? Institutional effects?

- **(Leadership/Management)** How well is the leadership and administrative structure of VIP supporting its efforts?
  - Clarity, strategic goals, communication?

- **(Dissemination and Sustainability)** How effective is VIP in disseminating activities and lessons learned? How is it moving toward sustainability?
  - Information sharing, knowledge and experience transfer?
Evaluating the VIP Consortium
Formative and Summative On-Going Study of VIP

How well is VIP working, and to what end?

- **(Teams)** How well do teams function in the VIP environment?
  - Multi-layered view: Leadership? Management? Cross-team effects?

- **(Students)** How is VIP changing the student learning experience and outcomes?
  - What matters most in this process? Do some benefit more than others? Which aspects of the VIP approach have the most impact on outcomes?

- **(Faculty)** How effective is VIP in attracting faculty with “fit”? What are VIP impacts on faculty?
  - Faculty interest, motivation, productivity, interaction, learning, retention?

- **(Controls)** How is the VIP experience different from other project-based approaches?
  - How does what students and faculty do and gain in VIP compare to project-based and traditional approaches?
How will evaluation be structured?

**Document review**
- Familiarity with project and context
- Track project developments
- Respond to Helmsley feedback and requests

**Data Collection**
- Trackable quantitative survey, social network, activity and student outcome data.
- Rich qualitative data to reveal nuances of VIP activities.

**Engagement**
- Regular interaction with VIP leads and staff
- Track changes and emerging issues in project
- Midterm and annual report with recommendations.

**Possible Data Sources**
- VIP and Institutional Documents/Records
- Graduate Surveys
- Faculty, Student, Admin Interviews
- Student Records
- Faculty Surveys
- Student Surveys

**Human Subjects Protection (IRB Approved)**
Confidentiality of evaluation data
What types of information is it important to collect?

Sample Survey Structure (Students)

**Traditional Survey Items:**
- Student Background
  - Major
  - Rank
  - Demographics
  - First Generation
  - Cross-disciplinary & research experiences
  - Student efficacy
- Career Interests
- VIP Interests and Expectations
  - VIP Motivation
- VIP Experience
  - VIP-Related Skill Development (technical and professional)
  - VIP- Traditional Class Cross-Fertilization
  - Faculty/grad student interaction
  - Team efficacy
  - Mentoring experience
  - Input and suggestions

**Social Network Items:**
- Familiarity among team members;
- Collaborative and communication networks;
- Knowledge-based resource exchange within collaborative networks;
- Boundary-Crossing ties of students in the group.

**SNA Analysis**
- Integration across teams, subteams, gender, rank, disciplines, other...
SOCIAL NETWORK ANALYSIS: INTERACTION AND COLLABORATION

Intermediate outcomes that precede research outcomes

- Emerging collaborative relationships
- Integration of different types of students
- Knowledge transfer and Impacts
- Team-relevant behavioral changes
- Nature of linkages and interactions

Operationalized through Network Analysis

- Knowledge of available resources in and across teams
- Team task interaction
- Information & advice exchange
- Changed conceptual/theoretical/methodological approaches
- Cross-boundary (E-I Interaction)

Measurable through network analysis
Knowledge Resource Exchange in VIP

All Advice Combined: All Students
Number of Ties 136
Density .085
Mean Centrality 9.12
Network Centralization 13.85%
EI-Index (team) -.618
EI-Index (student rank) .176
EI-Index (Undergrad-Grad) -.250

All Advice Combined: Undergraduates Only
Number of Ties 69
Density .039
Mean Centrality 4.03
Network Centralization 9.14%
EI-Index (team) -.449
EI-Index (student rank) -.159
EI-Index (Undergrad-Grad) -1.00

Green line: within student rank
Purple line: across student rank
Node Colors: VIP Teams
Circle = Sophomore (UG)
Square = Junior (UG)
Triangle = Senior (UG)
Diamond = Graduate Student

Figure 10: VIP Resources: In your VIP team this year, who was most important in providing advice or assistance regarding any of the following issues related to your VIP project?
Observations (from the field)

**Some Important Factors for Success**

**Big Picture**
- Clear and communicated strategic vision
  - Strategic plan (meaningful and living)
- Clear and visible leadership
- Role clarity – faculty, staff, institutional support
- Non-organic approach to facilitating communication across teams, leaders, and even students
- Clarity on views of local success/failure vs system-wide success/failure
- Early, frequent, and often communication

**Resources**
- Data support
- Appropriate systems
- Sufficient payback/incentive for participants
- Sub team support roles (eg IT, staff, others)
• **Recipes for Potential Disaster**
  • Laissez-faire
  • Lack of follow-through
  • Lack of clarity in role or reporting activities and expectations
  • Uneven distribution of resources/expectations across teams
  • Lack of attention to team nuances
  • Lack of attention to institutional priorities
  • Underestimating the start-up costs of consortium building
  • Thin skin and lack of ability to learn
How will the VIP Consortium be organized?

- Scope of evaluation must reflect the principles and structure of the VIP consortium
  - Branding
  - Alignment of strategies and institutional capabilities
  - Coordination mechanisms
  - Commonalities
  - Differences
  - Management
  - Balance of local/central control
  - Disciplinary differences

**Evaluation Issues to Consider**

- Balance of central and local evaluations
- Access to institutional data
- Mechanisms/interests for coordination and data sharing
- Evaluation team composition
- Reporting audience