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2016-2017 Process Outcome Survey Results

*Descriptive Statistics Compiled from
Industry, Faculty & Student Surveys*

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REPORT PROCESSING & DATA ISSUES

This report provides descriptive statistics on the IUCRC Process Outcome Questionnaires. Data were collected during the fall of 2017 and spring 2018 and refer to the Center activity for FY 2016-2017.

Since most evaluators use this report to benchmark their Center compared to a program-wide “norm”, we have reported “Center-level” means and standard deviations. That is, means (unweighted) for each center were used to calculate a Center-level mean. For forced choice questions, frequencies for individual respondents were also reported.

Industry Questionnaires

Starting this year, data were collected using two industry surveys; A Pulse Survey and Benefits Inventory, administered at alternate semi-annual Center IAB meetings. See the IUCRC Evaluation project website for current and past versions of the surveys (<http://www.ncsu.edu/iucrc/ResourcesForEvaluators.htm#Surveys>).

Faculty Questionnaires

The faculty questionnaire includes two versions: a long version (13 items) that is used by centers during the first phase (in year 1-5) and a short version (6 items) that is used by centers during the second and third phase (in year 6-15) of NSF funding. Since both the faculty long and faculty short questionnaires share some of the same questions, data for these shared questions were pooled for analysis. In the tables below, questions only included in the long version are noted as follows: (L).

Student Questionnaires

The student questionnaire was implemented as a required instrument towards the end of the 2016 reporting year.

RESPONSE RATES

Industry

| Category | Center Level | | Individual Level | |
|--|--------------|----------|------------------|----------|
| | Pulse | Benefits | Pulse | Benefits |
| Response Frequency | | | | |
| Continuing Population from CD report | 70 | 70 | 1214 | 1214 |
| 1 st Year Reporting Population from CD report | +2 | +1 | +12 | +9 |
| Retired/Defunct Centers | 9 | 9 | 127 | 127 |
| Retired/Defunct Centers Reporting ¹ | +2 | +2 | +4 | +6 |
| Population ² | 65 | 64 | 1103 | 1102 |
| Centers That Did Not Return Data ³ | 7 | 15 | 245 | 393 |
| Available Population ⁴ | 58 | 49 | 858 | 709 |
| Data Received | 58 | 49 | 457 | 317 |
| Received/Population | 87.69% | 76.56% | 41.43% | 28.77% |
| Received/ Available Population | 100% | 100% | 53.26% | 44.71% |

Faculty and Students

| Category | Center Level | | Individual Level | |
|--|--------------|----------|------------------|----------|
| | Faculty | Students | Faculty | Students |
| Response Frequency | | | | |
| Continuing Population from CD report | 70 | 70 | 900 | 1432 |
| 1 st Year Reporting Population from CD report | +1 | +0 | +12 | +0 |
| Retired/Defunct Centers | 9 | 9 | 88 | 241 |
| Retired/Defunct Centers Reporting ¹ | +0 | +1 | +0 | +5 |
| Population ² | 62 | 62 | 824 | 1196 |
| Centers That Did Not Return Data ³ | 28 | 45 | 402 | 883 |
| Available Population ⁴ | 34 | 17 | 422 | 313 |
| Data Received | 34 | 17 | 269 | 108 |
| Received/Population | 54.84% | 29.03% | 32.64% | 9.03% |
| Received/ Available Population | 100% | 100% | 63.74% | 34.50% |

LONG FACULTY FORM VS. SHORT FACULTY FORM

| | Long Form | Short Form |
|---------------------------------|-----------|------------|
| # of items | 13 | 6 |
| # of questions in common | 6 | 6 |
| # of unique questions | 7 | 0 |
| # of Centers using form | 17 | 17 |
| Sample size | 165 | 104 |

¹ Retired/defunct Centers are not required to submit data, but some do. If so, those data were included in the analysis. This year, a previously graduated Center that was not included in the FY2017 population from the CD report also reported data. Their data are counted in the individual counts, but not the center level.

² Population was defined as centers that were at least 1 year old.

³ Centers were excused for reasons such as being in the midst of center restructuring, high respondent turnover, and respondent refusal to complete surveys.

⁴ Numbers based on population minus excused and not returned counts.

Industry Results:2016-2017

Industry Pulse Survey

Table 1. Satisfaction

1. Please rate your level of satisfaction with the following:

| | Individual Frequencies | | | | | | | | | | Center Level | | |
|--------------------------|-------------------------------|-----|------------------------|-----|------------------------|------|---------------------|------|--------------------|------|---------------------|------|------|
| | Not Satisfied (1) | | Slightly Satisfied (2) | | Somewhat satisfied (3) | | Quite Satisfied (4) | | Very Satisfied (5) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | N | % | | | |
| a. Center Research | 1 | 0.2 | 5 | 1.1 | 46 | 10.2 | 218 | 48.2 | 182 | 40.3 | 5 | 4.25 | 0.34 |
| b. Center Administration | 1 | 0.2 | 5 | 1.1 | 31 | 6.9 | 155 | 34.6 | 256 | 57.1 | 9 | 4.43 | 0.40 |
| c. Center Meetings | 2 | 0.4 | 2 | 0.4 | 32 | 7.2 | 195 | 43.9 | 213 | 48.0 | 13 | 4.29 | 0.39 |

Table 2. Areas for Improvement

3. How can the Center improve? Please mark areas that need improvement.

| | Individual Frequencies | |
|--|-------------------------------|-------------------------------|
| | N of Responses | % of Respondents [^] |
| a. Planning the Research Program | 78 | 17.1 |
| b. Project Selection | 83 | 18.2 |
| c. Project Development and Management | 76 | 16.7 |
| d. Project Results Reporting | 90 | 19.8 |
| e. Dissemination of Results via Publications | 58 | 12.7 |
| f. Technology Transfer | 79 | 17.4 |
| g. Intellectual Property Management | 44 | 9.7 |
| h. Fundraising & Recruiting New Members | 121 | 26.6 |
| i. IAB Meetings | 47 | 10.3 |
| j. Communication | 73 | 16.0 |
| k. Center Personnel | 2 | 0.4 |
| l. Other | 25 | 5.5 |

“Academic leads and IAB members need to work more closely together to recruit, especially at conferences. It may become easier when the results get presented at conferences.”

“The group can work together to improve project results reporting and archiving, access to results, and technology transfer”

[^] Respondents were encouraged to check as many boxes as applied. Therefore, the percentage across all items may total to greater than 100%.

Table 3. Renewal Intentions

5. Will your organization renew its membership?*

| | Individual Frequencies | | | | | | | | | | Center Level | | |
|--|-------------------------------|-----|------------------|-----|---------------|-----|------------------|------|--------------------|------|---------------------|------|------|
| | Definitely Not (1) | | Probably Not (2) | | Uncertain (3) | | Probably Yes (4) | | Definitely Yes (5) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | N | % | | | |
| | 0 | 0.0 | 1 | 0.2 | 44 | 9.7 | 216 | 47.6 | 193 | 42.5 | 3 | 4.28 | 0.38 |

Industry Benefits Survey

Part 1: Networking Benefits

Table 4. New Connections & Partnerships

1. Please indicate which of the following networking benefits listed below, if any, were realized by your organization, during the current membership year.

| | Member Level | | Center Level | |
|---|---------------------|----------|---------------------|-------------|
| | N | % | Mean % | S.D. |
| In the current membership year, has your organization established any new, valuable connections with other Center participants (industry, government, faculty, students, others)? | 256 | 81.0 | 74.81 | 28.98 |

2. In the current membership year, has your organization started to explore or initiated a partnership with any of the following individuals or groups, as a result of your involvement in the center? Check all that apply.

| | Member Level | | Center Level | |
|---|---------------------|----------|---------------------|-------------|
| | N | % | Mean % | S.D. |
| a. Developed partnerships with other IAB members (e.g., research partnership, collaboration, joint investment) | 95 | 30.1 | 30.03 | 27.22 |
| b. Developed partnerships with university faculty or research scientists (e.g., one-to-one research contract, collaboration on a grant, consulting) | 163 | 51.6 | 52.80 | 25.79 |
| c-1. Hired any students working on center research projects as a full-time employee, contractor, or intern. | 54 | 17.3 | 18.05 | 22.26 |
| d. Other | 19 | 6.1 | 5.91 | 10.77 |
| e. None of these | 76 | 24.4 | 23.08 | 21.25 |

Table 5. Students Hired

2c-2. If “yes” to “Hired any students working on center research projects as a full-time employee, contractor, or intern.” How many students hired? *Sample: N of members = 294; N of centers = 48*

| Member Level Scores | Member Level | |
|---|----------------------|-------------|
| | Mean | S.D. |
| Number of students hired per respondent organization | 0.15 | 0.48 |
| Center Level Scores | Center Level | |
| Number of students hired per respondent organization per center | 0.15 | 0.27 |
| Number of students hired by respondent organizations per center | 0.94 | 1.48 |
| Program Level Scores | Program Level | |
| Total number of students hired by respondent organizations | 45 | |

3. How have these new connections and partnerships benefited your organization (e.g., new business opportunities, access to resources or information, enhanced research capability, etc.)? (quotes)

“Our membership has been a critical part of almost every business relationship we currently enjoy. Absolutely irreplaceable in the growth and maturation of our company.”

“We have gained improved access to University faculty and staff for grant collaborations above and beyond the [Center] projects.”

“The interns provide fresh, state-of-the-art knowledge to our organization.”

“We have leveraged human resources and expertise from industry otherwise unavailable to us.”

“We have two collaborations with IAB members (large companies) that have directly emerged from prior center research and win-win opportunity assessment.”

Part 2: Research & Development Benefits

Table 6. Research Relevance

4. Please indicate the R&D benefits your organization has received from access to Center research, by estimating what percentage of the projects funded during the current membership year, fall into each of the following categories (Total must sum to 100%):

| | Member Level | | Center Level | |
|--|--------------|------|--------------|-------|
| | Mean % | S.D. | Mean % | S.D. |
| a. <u>Not Relevant Research</u> : % of projects that are probably not relevant to your organization's current or future needs | 29.9 | 24.1 | 29.73 | 16.07 |
| b. <u>Adjacent Research</u> : % of projects that are potentially relevant to your organization's current or future needs, but in an area that is outside your organization's current focus | 27.7 | 17.9 | 27.55 | 12.17 |
| c. <u>Core Research</u> : % of projects so relevant to your organization's current or future needs that your organization would almost certainly have conducted or contracted out a similar project within the next couple years | 28.1 | 21.3 | 26.51 | 12.45 |
| d. <u>Transformational Research</u> : % of projects that are potentially relevant to your organization's current or future needs, but too risky/blue sky for internal investment | 14.3 | 15.5 | 16.23 | 14.58 |

Table 7. Impact on Member Research & Development

5. Consider the center's research portfolio and specifically the projects in which your organization is most interested. In which of these ways, if any, have the center's research findings and outputs (including those from this year and any prior years) affected your organization's internal R&D in the current membership year? Check all that apply.

| | Member Level | | Center Level | |
|---|--------------|------|--------------|-------|
| | N | % | Mean % | S.D. |
| a. Helped accelerate the pace and/or completion of some R&D projects now underway at (or contracted by) your organization | 130 | 42.8 | 43.70 | 30.20 |
| b. Helped your organization decide against starting one or more new R&D projects that otherwise would have been initiated | 74 | 24.4 | 21.89 | 19.46 |
| c. Triggered development of new R&D projects, or significantly redirected pending projects within your organization | 96 | 31.8 | 34.05 | 28.49 |
| d. Helped advanced the Technology Readiness Level of technology being developed within your organization | 123 | 40.7 | 43.57 | 28.97 |
| e. None of these | 61 | 22.3 | 21.39 | 24.34 |

6. Thinking about the R&D benefits experienced by your organization, what has been the most important or significant impact? Please describe. If possible, provide a quantifiable measure of the economic value of that benefit (e.g., time saved, \$ saved, \$ invested, etc.).

“The most useful benefit has been providing additional insight on fundamental aspects of technologies of interest to us. This knowledge has informed project decision making and has helped guide current projects. Additionally, projects have allowed us to look at low TRL projects and determine their potential for eventual internal development.”

“This center has the highest concentration of similar companies that are not competitors. Their problems today will be mine in 5 to 8 years. We have saved 3x our fee in development costs.”

“The models developed in partnership with [Center] have reduced our internal forecast error by 60%, allowing the company to more confidently set budgets and targets.”

“Allowed us to pursue a necessary research path without adding personnel or starting a new contract. Saved 1 full time employee worth of work (\$300k) and yielded results about 8 months earlier than alternate options.”

“The most important benefit is to increase our organization's capability in characterization, leading to better formulation design. It's not the time or money saved; it is the possibility of higher quality medicine we develop, that is priceless!”

Part 3: Technology Translation Benefits

Table 8. Technology & Knowledge Transfer

7. During the current membership year, has your organization realized any technology or knowledge transfer benefits related to your participation in the Center? Check all that apply.

| | Member Level | | Center Level | |
|---|--------------|------|--------------|-------|
| | N | % | Mean | S.D. |
| a. Accessed capabilities and insights (e.g., center facilities, equipment, faculty or student capabilities, insights from other members, etc.) to which your firm would not otherwise have access | 165 | 55.2 | 57.64 | 26.80 |
| b. Licensed center's IP | 8 | 2.7 | 1.94 | 9.97 |
| c. Produce your own IP related to research at the center | 19 | 6.4 | 6.01 | 11.80 |
| d. Helped your org. identify new applications for technology trying to develop | 122 | 40.8 | 44.56 | 27.93 |
| e. Helped your org. anticipate or address some regulatory issues in your industry | 52 | 17.4 | 16.32 | 24.49 |
| f. None of these | 63 | 21.1 | 20.54 | 23.62 |

Table 9. Commercial & Financial Benefits

8a. During the current membership year, has your organization realized any commercial or financial benefit that involved the translation of the center's current or prior years' research findings and outputs? Check all that apply.

| | Member Level | | Center Level | |
|--|--------------|------|--------------|-------|
| | N | % | Mean % | S.D. |
| a1. Launch new products or services based on what you learned from the center | 16 | 5.4 | 5.78 | 11.26 |
| a2. Improve existing products or services based on what you learned from the center | 81 | 27.2 | 27.58 | 25.56 |
| a3. Improve operational or manufacturing processes based on what you learned from the center | 40 | 13.4 | 12.54 | 17.54 |
| a4. None of these | 188 | 62.9 | 63.99 | 28.60 |

8b. [If yes to any] Would these commercial or financial benefits have been realized in the absence of the center?

| Individual Frequencies | | | | | | | | Center Level | | |
|---|------|--|------|---|-----|-----|------|--------------|--------|------|
| No, the center played a critical role in realizing these benefits (1) | | Yes, but the benefits would have been delayed without the center's involvement (2) | | Yes, the center had only limited influence on our ability to realize these benefits (3) | | N/A | | Missing Data | Mean % | S.D. |
| N | % | N | % | N | % | N | % | N | | |
| 33 | 30.3 | 67 | 61.5 | 9 | 8.8 | 188 | 59.3 | 20 | 1.79 | 0.43 |

| | Member Level | | Center Level | |
|--|--------------|------|--------------|-------|
| | N | % | Mean % | S.D. |
| 9. Have any of these technology translation-related benefits contributed to the addition of new jobs at your organization? | 46 | 15.4 | 16.91 | 23.54 |

10. Thinking about the technology translation benefits experienced by your organization, what has been the most important or significant impact? Please describe. If possible, provide a quantifiable measure of the economic value of that benefit (e.g., \$s saved, time saved, waste/scrap reduced, etc.).

"Technology transfer has happened between the center and the [industry regulator] which impacts our organization. We find this work tremendously valuable."

"Research projects contribute directly to our ability to maintain current jobs in our organization."

"We see the potential to utilize devices produced by two projects in pre-clinical trials which could set us ahead in terms of incorporating the technologies and potentially licensing and leveraging the devices for creating new therapies."

"We have developed new product conceptualization from examples prepared by center researchers."

"We launched an updated version of our initial product. The center helped to independently validate the technology, speed to market and provide research results to the community."

Part 4: Member Information

Table 10. Member Descriptors

| 12. How many years has your organization been a member in this center? | | | |
|--|-------------|---------------------|-------------|
| Member Level | | Center Level | |
| Mean | S.D. | Mean | S.D. |
| 3.86 | 3.59 | 4.21 | 2.40 |

| 13. Organization Type/Size | | |
|---|-------------------------------|----------|
| | Individual Frequencies | |
| | N | % |
| 1. For-Profit Large (> 500 Employees) | 174 | 59.6 |
| 2. For-Profit Small (11- 500 Employees) | 49 | 16.8 |
| 3. For Profit-Micro (< 10 Employees) | 15 | 5.1 |
| 4. Government (Federal/State/Local) | 31 | 10.6 |
| 5. Non-Profit / Other | 23 | 7.9 |
| Total Reported | 292 | 100.0 |

Faculty Results: 2016-2017

Table 1. Research

1. Compared to the research projects that you typically conduct outside the Center, would you describe your Center funded research as: (L)*

| Individual Frequencies | | | | | | | | | | | Center Level | |
|-------------------------------|-----|----------------|-----|----------|------|------------------|------|-----------------------|-----|--------------|---------------------|------|
| Much more basic (1) | | More basic (2) | | Same (3) | | More Applied (4) | | Much more applied (5) | | Missing Data | Mean | S.D. |
| N | % | N | % | N | % | N | % | N | % | N | | |
| 0 | 0.0 | 3 | 2.9 | 43 | 41.7 | 47 | 45.6 | 10 | 9.7 | 1 | 3.62 | 0.32 |

* Indicates a question that is unique to the long version of the faculty questionnaire.

2. During the past year, how satisfied were you with the following?

| | Individual Level | | | | | | | | | | | Center Level | |
|--|-------------------------|-----|------------------------|-----|------------------------|------|---------------------|------|--------------------|------|--------------|---------------------|------|
| | Not Satisfied (1) | | Slightly Satisfied (2) | | Somewhat Satisfied (3) | | Quite Satisfied (4) | | Very Satisfied (5) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | N | % | N | | |
| a. Quality of the Center-supported research program | 2 | 0.7 | 6 | 2.2 | 26 | 9.7 | 100 | 37.3 | 134 | 50.0 | 1 | 4.25 | 0.69 |
| b. Relevance of the Center's research program to my professional goals | 2 | 0.7 | 6 | 2.2 | 35 | 13.0 | 82 | 30.7 | 142 | 53.2 | 2 | 4.19 | 0.81 |

Table 2. Impact

4. During the past year, what impact has participation in the Center had for YOU in the following areas? (L)*

| | Individual Level | | | | | | | | | | | Center Level | |
|--|-------------------------|------|------------------------------|------|--------------------------------|------|--------------------------|------|-------------------------------|------|--------------|---------------------|------|
| | No Impact (1) | | Somewhat Positive Impact (2) | | Moderately Positive Impact (3) | | Very Positive Impact (4) | | Extremely Positive Impact (5) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | N | % | N | | |
| a. The feeling of accomplishment I get from the research I do. | 4 | 3.9 | 4 | 3.9 | 11 | 10.7 | 54 | 52.4 | 30 | 29.1 | 1 | 4.07 | 0.53 |
| b. Opportunities for research contracts/grants. | 8 | 7.7 | 9 | 8.7 | 9 | 8.7 | 41 | 39.4 | 37 | 35.6 | 0 | 4.08 | 0.69 |
| c. Recognition I receive for the work I do. | 9 | 8.7 | 12 | 11.5 | 19 | 18.3 | 37 | 35.6 | 27 | 26.0 | 0 | 3.79 | 0.58 |
| d. Access to useful equipment. | 42 | 40.8 | 6 | 5.8 | 17 | 16.5 | 25 | 24.3 | 13 | 12.6 | 1 | 2.96 | 1.07 |
| e. Ability to support graduate students. | 15 | 14.6 | 15 | 14.6 | 11 | 10.7 | 22 | 21.4 | 40 | 38.8 | 1 | 3.77 | 0.81 |
| f. Ability to publish my work in quality proceedings and journals. | 17 | 16.7 | 9 | 8.8 | 13 | 12.7 | 40 | 39.2 | 23 | 22.5 | 2 | 3.73 | 0.68 |

* Indicates a question that is unique to the long version of the faculty questionnaire.

Table 3. Commitment

| 5. Which option best expresses your current intentions? | | | | | | | | | | | | Center Level | |
|---|-----------------------|-----|---------------------|-----|------------------|------|---------------------|------|-----------------------|------|--------------|---------------------|------|
| Individual Frequencies | | | | | | | | | | | | | |
| | Definitely Not (1) | | Probably Not (2) | | Uncertain (3) | | Probably Yes (4) | | Definitely Yes (5) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | N | % | | | |
| Next year I will submit my best research ideas in a center funded proposal* | 3 | 1.1 | 10 | 3.7 | 42 | 15.7 | 86 | 32.1 | 127 | 47.4 | 1 | 4.22 | 0.55 |

* Item presented for the first time on the 2006-2007 Faculty Questionnaire

Table 4. Satisfaction

| 6. During the past year, how satisfied were you with center administrative operations? | | | | | | | | | | | Center Level | |
|--|-----|---------------------------|-----|---------------------------|------|------------------------|------|-----------------------|------|--------------|---------------------|------|
| Individual Frequencies | | | | | | | | | | | | |
| Not Satisfied (1) | | Slightly Satisfied (2) | | Somewhat Satisfied (3) | | Quite Satisfied (4) | | Very Satisfied (5) | | Missing Data | Mean | S.D. |
| N | % | N | % | N | % | N | % | N | % | | | |
| 5 | 1.9 | 5 | 1.9 | 27 | 10.2 | 38 | 31.3 | 145 | 54.7 | 4 | 4.27 | 0.71 |

Table 5. Areas for Improvement

| 7. How can the Center improve? Please mark areas that need improvement. | | |
|---|-------------------------------|-------------------------------|
| | Individual Frequencies | |
| | N of Responses | % of Respondents [^] |
| a. Communication | 50 | 18.6 |
| b. Planning & development of research program | 62 | 23.0 |
| c. Management of projects | 33 | 12.3 |
| d. Project selection | 33 | 12.3 |
| e. Proposals & publications | 31 | 11.5 |
| f. Technology transfer | 25 | 9.3 |
| g. Intellectual property | 23 | 8.6 |
| h. Fundraising | 82 | 30.5 |
| i. Other | 25 | 9.3 |

[^] Respondents were encouraged to check as many boxes as applied. Therefore, the percentage across all items may total to greater than 100%.

Student Results: 2016-2017

Table 1. Satisfaction

1. How satisfied are you with the following features of the center?

| | <u>Individual Frequencies</u> | | | | | | | | | <u>Center Level</u> | |
|---|-------------------------------|-----|--------------------------|------|----------------------------|------|--------------------------|------|--------------|---------------------|------|
| | Not at all Satisfied (1) | | Moderately Satisfied (2) | | A Great Deal Satisfied (3) | | Completely Satisfied (4) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | | | |
| a. Technical quality of research | 0 | 0.0 | 3 | 3.0 | 23 | 21.3 | 82 | 75.9 | 0 | 3.75 | 0.20 |
| b. Communications between students and industrial scientist | 2 | 2.0 | 19 | 18.8 | 31 | 30.7 | 49 | 48.5 | 7 | 3.28 | 0.47 |
| c. Communications between students and faculty | 0 | 0.0 | 10 | 9.3 | 23 | 21.3 | 75 | 69.4 | 0 | 3.61 | 0.27 |
| d. Communication among the students | 1 | 0.9 | 11 | 10.2 | 32 | 29.6 | 64 | 59.3 | 0 | 3.49 | 0.34 |
| e. Opportunity to learn about research in industrial settings | 1 | 0.9 | 15 | 13.9 | 34 | 31.5 | 58 | 53.7 | 0 | 3.35 | 0.41 |
| f. Opportunity to participate in applied research | 0 | 0.0 | 5 | 4.8 | 23 | 22.1 | 76 | 73.1 | 4 | 3.70 | 0.25 |

Table 2. Comparative Evaluation

2. Comparing your work in the center with other faculty projects you have participated in, how satisfied are you?

| | <u>Individual Frequencies</u> | | | | | | | | | <u>Center Level</u> | |
|---|-------------------------------|-----|--------------------|------|------------------------|------|--------|------|--------------|---------------------|------|
| | Compares Unfavorably (1) | | About the Same (2) | | Compares Favorably (3) | | NA (9) | | Missing Data | Mean | S.D. |
| | N | % | N | % | N | % | N | % | | | |
| a. Technical quality of research | 1 | 1.0 | 43 | 43.0 | 56 | 56.0 | 6 | 6.1 | 2 | 2.62 | 0.30 |
| b. Communications between students and industrial scientist | 3 | 3.0 | 27 | 27.0 | 60 | 60.0 | 10 | 10.8 | 8 | 2.66 | 0.26 |
| c. Communications between students and faculty | 1 | 0.9 | 39 | 37.1 | 59 | 56.2 | 6 | 5.7 | 3 | 2.54 | 0.37 |
| d. Communication among the students | 0 | 0.0 | 44 | 41.5 | 55 | 51.9 | 7 | 6.6 | 2 | 2.57 | 0.31 |
| e. Opportunity to learn about research in industrial settings | 0 | 0.0 | 25 | 23.8 | 71 | 67.6 | 9 | 8.6 | 3 | 2.76 | 0.26 |
| f. Opportunity to participate in applied research | 0 | 0.0 | 24 | 23.5 | 73 | 71.6 | 5 | 4.9 | 6 | 2.77 | 0.23 |