

The Far-Reaching Benefits of a Fellowship Grant Program

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Centers for teaching and learning are often at the forefront of innovation and provide the backbone of support to faculty and departments exploring effective teaching practices. At our midwestern, land-grant doctoral-granting institution, a competitive internal faculty grant program focused on developing and implementing new and effective teaching practices has dispersed over \$4.5M to 241 projects during the past thirty years. Analysis of survey results seeking quantitative and qualitative input on the impact of the grant from its recipients reveals multiple program benefits across stakeholders, including notable curricular changes, significant impact on the student experience, and faculty career benefits. Output from the grant program provided opportunities for university change, amplifying teaching excellence and contributing to SoTL outputs. We conclude with suggestions for teaching and learning centers to develop a similar teaching grant program.

Keywords: grant, fellowship, program

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Centers of teaching and learning serve as places of teaching innovation in which instructors can consider new teaching approaches and experiment

with technology and modalities. Centers are also increasingly positioned to disseminate campus-wide strategies. As cited in an Inside Higher Ed article, Mary Wright, Director of the Sheridan Center for Teaching and Learning at Brown University, stated, “A key principle for many centers for teaching and learning is to be responsive to institutional goals and priorities, and to work in collaboration with faculty and academic units, guided by their learning goals” (Lieberman, 2018, n.p.). She continued that responsiveness should not be read as mere reaction and that centers express leadership and innovation in how best to support strategic initiatives in serving as effective change agents. Abbot et al. (2024) noted that education developers (i.e., those typically housed in teaching and learning centers) often shoulder the responsibility of systematic approaches to the scholarship of teaching and learning (SoTL). Further, institutionalizing effective teaching practices, including SoTL, is a multi-faceted, strategic, and incremental journey (Gansemer-Topf et al., 2023). Moreover, Kenny et al. (2016) suggested that leadership commitment, peer networks, and appealing to faculty rewards are helpful for building efforts to facilitate change.

The overall purpose of this study was to utilize assessment data to determine the impacts of an internal, competitive grant program on participants’ scholarly outputs, students, and careers. Recognizing that many factors influence a scholar’s profession, our objective was to survey a specific group of individuals who received internal institutional grant funds to explore and innovate teaching to ask how the program affected them. The guiding assessment questions for the project were: (1) How many, and what types, of scholarly outputs resulted from the internal grant program, (2) What are the curricular and student impacts of the Fellowship, and (3) What do faculty report as the impact of the Fellowship on their careers?

The present study is significant because it provides outcomes of an internal grant program designed to improve teaching and learning – and, by extension, to enhance faculty members’ careers and their effectiveness, at our research university. Overall, the findings of this study have helped communicate the value of continuing the grant program to college and university administrators, particularly during times of lean resources and difficult budgeting decisions. Results demonstrate numerous outcomes beyond the initial financial investment.

About the Fellowship

Background

The Miller Faculty Fellowship began at our doctoral-granting, land-grant midwestern university in 1996. Endowed funds were provided to the university by the F. Wendell Miller estate to support innovative teaching and learning, with funds distributed annually at the discretion of the President's Office. The funding aims to "provide recipients with opportunities to enhance their scholarly work in the university's undergraduate academic programs. It also allows recipients to develop innovative approaches to enhance student learning." The call for grant proposals occurs in the fall semester (August), with due dates in the mid-academic year (December), announcements of successful projects in the spring semester (March), and funds dispersed during the following fiscal year (July 1 to June 30). Final reports detailing outcomes, setbacks, and use of funds are due by August 1 to center staff. Because of market fluctuation, annual allocations for the Fellowship have ranged from \$0 (during the Great Recession of 2009-2010) to over \$330,000, averaging \$158,452 annual disbursement.

Staff in the Center for Excellence in Learning and Teaching (CELT) manage the application, review, and logistics for the Fellowship. Any university faculty member, regardless of rank or discipline, can submit a proposal for consideration for a maximum project award of \$50,000. CELT's Advisory Board members, comprised of one tenured faculty member from each of the seven academic colleges, a staff member with teaching responsibilities, a student, and an ex-officio member from the division of student affairs reviews proposals using an established rubric (see Appendix A). Before the review, each of the seven academic colleges's leadership provides a ranking with rationale for proposals submitted from their colleges, providing context to the Advisory Board's review. The final list of recommended projects is forwarded to the Senior Vice President and Provost, who provides final approval of the projects.

Proposal Evaluation Rubric

Criteria for Proposal Evaluation	Levels of Achievement		
	Excellent 5 points	Good 3 points	Not Fully Developed 1 point
Project Significance. Successful proposals will improve the quality of the undergraduate curriculum for students. Proposals should indicate why the project is important to curriculum, instructional delivery, and the students served.	The proposal is central to the development of core competencies (for students inside and outside the major), and clearly articulates how the proposal will further departmental, college and/or university outcomes and strategic planning goals.	The proposal is connected to the development of core competencies (primarily affecting students inside the major), and notes how the proposal will further departmental, college and/or university outcomes and strategic planning goals.	The proposal is a curricular add-on with little link to departmental, college and/or university outcomes and strategic planning goals.
Impact. The proposed project provides noteworthy impact on undergraduate teaching and learning at ISU. This could be a broad impact (large number of students) or a narrow-but-deeper impact (fewer students but deeply important or innovative). The proposal should directly support departmental, college, and/or university strategic planning goals.	The proposal clearly indicates how the project will create a meaningful impact in the lives of the students served. The impact is central to the success of the project and shows promise of making important future change.	The proposal shows promise of making an impact on student learning or success but needs further clarification or emphasis.	The proposal indicates minimal interaction or impact on student learning or success.

Criteria for Proposal Evaluation	Levels of Achievement		
	Excellent 5 points	Good 3 points	Not Fully Developed 1 point
<p>Enhancement of Student Learning Outcomes and the student learning experience through improvement of pedagogy and instructional delivery. Successful proposals will clearly identify intended outcomes and will demonstrate a clear connection between pedagogy that will be implemented and specific learning outcomes</p>	<p>Clear congruence between pedagogy and intended student learning outcomes. Maximizes student learning potential. Clear rationale provided that supports use of the proposed pedagogy. In- depth learning outcomes are clearly stated/identified.</p>	<p>Uses pedagogy that is appropriate to intended student learning outcomes; rationale provided that supports use of the proposed pedagogy. Shows potential for enhanced student learning.</p>	<p>Pedagogy is a mismatch with intended student learning outcomes. Rationale for the proposed pedagogy is vague or missing. Improved student learning is questionable.</p>
<p>Assessment Plan. Successful proposals will include a clear and actionable plan to assess whether the project has achieved its desired outcomes, including the intended impact on students. Effective proposals will address the project's learning outcomes and how they are measured, including data collection, analysis, and reporting plans.</p>	<p>Plans for assessment are clear and related to the learning outcomes. Measures and plans for data collection, analysis, and reporting are appropriate for all of the objectives being measured. The planned assessment will provide stakeholders with sufficient information to fully determine the extent to which the program was successful.</p>	<p>Learning outcomes with assessment plans are stated/identified. The planned assessment will provide stakeholders with valuable information for determining the extent to which the program was successful, but falls short of fully/adequately addressing all intended learning or other program outcomes.</p>	<p>Learning and/or other program outcomes and assessment plan are not clearly stated or missing. If present, the assessment plan does not address the stated learning and/or other program outcomes.</p>

Criteria for Proposal Evaluation	Levels of Achievement		
	Excellent 5 points	Good 3 points	Not Fully Developed 1 point
Statement on Intended Scholarship and Dissemination. Scholarship resulting from the project enhances the understanding of teaching and student learning in the discipline. A solid assessment strategy fosters this.	The proposal will make a worthwhile contribution to the enhancement of teaching and student learning in the discipline. Utilizing an in-depth assessment strategy, the proposal offers a concrete plan to disseminate what is learned by the project to others locally, regionally and/or nationally.	The proposal will make a contribution to the enhancement of teaching and student learning in the discipline. The proposal includes an assessment plan and a plan to share what is learned by the project with others.	The proposal shows little promise to make a contribution to the enhancement of teaching and student learning in the discipline. There is little or no plan for assessment and no clear intention to share what is learned by the project to others locally, regionally and/or nationally.
Project Plan. Successful proposals will have a clear design, a strong link between design and intended outcomes, and a high likelihood of the proposers being able to complete the project within the timeline provided.	High likelihood that the project will be completed within the timeline provided. High congruence between the project design and intended outcomes. The resources identified are appropriate and available. Proposer(s) and department(s) are highly motivated and committed to the project's success.	Good likelihood that the project will be completed within the timeline provided. Appropriate match between project design and intended outcomes. The resources identified are appropriate and available. Proposer(s) and department(s) demonstrate commitment to the project's success.	Low likelihood that the project will be completed within the timeline provided, or timeline is missing. Mismatch between project design and intended outcomes. Resources are unavailable or are inappropriate. The proposer(s) and department(s) motivation and commitment to the project's success are unclear.

Criteria for Proposal Evaluation	Levels of Achievement		
	Excellent 5 points	Good 3 points	Not Fully Developed 1 point
Budget. Clarity, appropriateness, and relevance of the proposed budget. Successful proposals will include a budget with a clear rationale for each expenditure in accordance with the project's overall plan and desired outcomes. Proposals with matching funds are preferred.	Detailed budget narrative and worksheet are provided. Clear rationale is provided for each expenditure—directly related to the intended outcomes. Appropriate use of funds. Matching funds are identified and verified as available.	Budget narrative and worksheet are provided. Proposed costs are justified. How proposed expenditures relate to the intended outcomes needs clarification.	Budget narrative or worksheet is missing or incomplete. Rationale not provided for expenditures; inappropriate or unclear use of funds.
The proposed project is sustainable. The future of the project, including financial viability and continuation of the research, learning interventions, or learning outcomes. <i>(This criterion is not scored.)</i>	Projects do not necessarily need to be sustainable to be fundable. However, reviewers are interested in knowing from applicants what the (ideal) envisioned future of the project looks like. For example, whether this is a pilot for larger grant funds, or might the changes within this proposal be embedded in all future departmental curriculum. The reviewers acknowledge there are no guarantees, but would like to hear about future goals of this proposed work. <i>(This criterion is not scored.)</i>		

Since 1996, 241 faculty-led projects have been funded, representing over \$4.5M in dispersed funds. The number of proposals submitted each year has ranged from five to twenty-nine, with funded projects ranging from four to fifteen annually. The acceptance rate ranges from 25 to 100%, averaging a 53% acceptance rate. Most projects contain multiple faculty primary investigators, including cross-departmental and cross-college collaborations. On average, in any given year, about 30 faculty within approximately 14 departments, and almost every college is engaged in a Fellowship project. Appendix B provides comprehensive details of the program's history.

Fellowship History by Year

Academic Year	Total Funding Available	# of Submitted Proposals	# of Funded proposals	Total Amount Funded	# of Faculty Involved	# of Depts Involved	# of Colleges Involved (by PI)
1996-97	\$ 245,453	N/A	11	\$ 245,435	46	17	7
1997-98	\$ 252,000	N/A	11	\$ 252,000	28	12	7
1998-99	\$ 209,218	N/A	13	\$ 209,218	27	11	5
1999-2000	\$ 243,500	N/A	13	\$ 243,592	35	19	6
2000-01	\$ 249,457	N/A	11	\$ 249,597	51	23	7
2001-02	\$ 217,484	22	11	\$ 217,484	46	18	5
2002-03	\$ 249,689	29	15	\$ 249,689	38	21	7
2003-04	\$ 251,499	24	11	\$ 251,499	46	10	8
2004-05	\$ 245,475	24	12	\$ 245,475	41	18	6
2005-06	\$ 192,486	32	12	\$ 192,486	51	19	7
2006-07	\$ 202,277	15	10	\$ 202,277	32	14	7
2007-08	\$ 248,093	26	10	\$ 248,093	27	13	5
2008-09	\$ 250,807	19	10	\$ 250,807	34	15	6
2009-10	\$ 0	0	0	\$ 0	0	0	0
2010-11	\$ 29,105	9	6	\$ 29,105	26	11	4
2011-12	\$ 21,499	6	4	\$ 21,499	8	4	2
2012-13	\$ 32,347	5	4	\$ 32,347	13	4	3
2013-14	\$ 55,730	12	4	\$ 53,730	9	6	4
2014-15	\$ 60,000	26	7	\$ 60,000	27	22	6
2015-16	\$ 50,000	17	5	\$ 50,000	19	11	5
2016-17	\$ 59,000	19	5	\$ 59,131	24	12	5
2017-18	\$ 100,000	21	7	\$ 102,348	22	12	5
2018-19	\$ 100,000	29	8	\$ 74,990	35	11	6
2019-20	\$ 80,000	14	6	\$ 71,911	26	10	5
2020-21	\$ 100,000	7	7	\$ 81,550	26	13	5
2021-22	\$ 100,000	7	7	\$ 93,000	24	17	6
2022-23	\$ 250,000	18	13	\$ 225,376	46	26	4
2023-24	\$ 250,000	11	10	\$ 186,826	47	27	4
2024-25	\$ 250,000	26	9	\$ 385,553	41	16	7
AVG/YR	\$ 163,108	17	9	\$ 158,104	31	14	5
SUM	\$ 4,595,119	418	241	\$ 4,585,018	895	414	

Supports for Fellows

To support applicants and recipients in the success of their projects, our center has developed robust resources for multiple aspects of the Fellowship. One example is the detailed evaluation rubric. The rubric is shared with applicants as a guide as they draft their proposals and is used by the faculty review team when suggesting funding to the Senior Vice President and Provost. In addition to the rubric, a proposal guide with more detailed and specific coaching within each section of the proposal, was developed and is shared on our website (<https://celt.iastate.edu/honors-and-awards/miller-faculty-fellowship/>). The website also includes sample templates for a budget and timeline and lists of previously-funded projects and abstracts for reference. In 2020, the center added an assessment coordinator to the staff. This staff member provides assessment guidance for applicants and current Fellows as well as connects previous Fellows to other internal funding opportunities, such as grants to present teaching research at conferences. Our center and university publicly and visibly celebrate the Fellows as innovators in teaching and learning, with extensive promotion of the program in the fall semester and a spring celebration in which the Fellows, their department chairs, and college deans are invited to attend and learn more about the previous and that year's funded projects. At the spring event, the previous year's fellows share outcomes of their projects. Previously, we asked for posters of results, but in recent years, have provided directions for the fellows to record short, no more than three-minute videos showcasing their efforts. This has been hugely successful in that it provides the fellows opportunity to share in their own words the outcomes of the projects, gives structure to the celebration, and becomes an artifact of the grant project.

General Project Scopes

With over 200 Fellowship projects over the span of thirty years, a few common traits across the projects are identifiable. For example, common budget requests include specialized equipment needs to facilitate learning, support for graduate and undergraduate student staffing, publications costs, and occasionally conference travel requests to support faculty or graduate

students who otherwise have limited travel funds available. According to the grant guidelines, the specialized equipment that is requested needs to be specifically for the learning in the project at hand (e.g., veterinary x-ray equipment that didn't exist previously), not general classroom equipment. Another commonality across proposals is that projects usually fall into one of two categories: either creating a new course or making substantial changes to an existing course (e.g., transitioning from a lecture-based course to using the team-based learning approach or transitioning a face-to-face course to an online only format). Beyond financial support, our findings indicate benefits to student learning, benefits to faculty careers, and the opportunity and encouragement to create SoTL scholarship.

Methods

Since the start of the Fellowship program, staff have twice surveyed past recipients about the impact of the grant award. The first survey was sent to PIs in 2013, querying those who completed their projects from 1996 to 2012. The second survey occurred in 2023, surveying those PIs completing projects from 2013 to 2022. Both surveys were administered through the online survey platform Qualtrics and were considered exempt through our Institutional Research Review Board (IRB ID 12-521). Respondents were informed that their information may be identifiable. The surveys included two reminder messages and an incentive for three respondents to receive a \$50 gift card (drawn using a random number generator). All data were self-reported by the recipients.

To maintain data consistency, we asked the same questions in both surveys with a few exceptions (see Appendix C). First, in the more recent survey, acknowledging the breadth of scholarly outputs, we asked what products were created beyond traditional journal articles, book chapters, and conference presentations. Second, we added a question about the total dollar amounts secured following the project. Finally, we added a question on the impact on student learning based on curricular changes they made. Although these changes to the survey items mean we have an incomplete data set, many participants in the first survey included this information in the open-ended "any additional comments" question.

Sample

For the 2023 survey, a list of all Fellows was compiled whose projects were funded in FY2012 through FY2022 (n = 63). From the list, we determined who could no longer be reached via email, thus removing individuals who had retired, moved on from the institution, or left higher education. We had a population of 58 possible participants. The survey received 31 responses, 26 complete and viable, for a response rate of 44.8%. The 2013 survey used similar procedures, requesting completion of Fellows from FY1996 through FY2012 for 160 Fellowship PIs, yielding 61 participants or a 38.1% response rate.

Data Analysis

For comparison and data analysis purposes, the data from the two surveys (2013 and 2023) were combined for a total data set from 87 participants (Table 1). Simple descriptive data were generated to determine the quantity of scholarly outputs to establish a quantitative understanding of the Fellowship's impacts. For the open-ended questions, we utilized qualitative analysis in which the first two authors read each comment, grouped similar ideas into themes, and then compared our findings for trustworthiness. In this way, patterns of shared meaning across the data formed a more comprehensive picture of the collective experiences of the Fellows (Braun & Clarke, 2019).

Table 1
Survey Participation

	Years Represented	Funds Spent	# Projects Funded	# Survey Participants
2013 Survey	1996-2012	\$3,108,256	160	61
2023 Survey	2013-2022	\$679,007	56	26
Total		\$3,787,263	220	87

Findings

From tangible internal and external grant funding and scholarly artifacts to less-tangible outcomes like bolstering prestige and building community among scholars, results of the Fellowship have impacted students, disciplines, and the institution. Four findings from this study reflect the self-reported positive outcomes for the faculty who received the Fellowship, described in this section, and found in Table 2. These findings include curricular change, positive impacts on the student experience, significant benefits to faculty recipients' careers, and the institutional change beyond the initial investment. We begin this section with a summary of the quantitative outcomes and continue with themes identified in the qualitative data.

Table 2
Summary of Themes

Themes
Curricular Improvements
Incorporation of new technology
Experimentation with teaching strategy
Use of alternate assessments
Positive Impact to the Student Experience
Adoption of student-centered approaches
Student increase of content knowledge, skills, and attitudes
Career Benefits
Scholarly outputs and productivity
Evidence of successful teaching and SoTL
Awards and honors
Leadership opportunities
Community building
Institutional Change
Overall teaching practices
Graduate students
Colleagues, department, and discipline
University impact

Fellowships Yielded Numerous Scholarly Outputs

Quantitative analysis provides a snapshot of the scholarly productivity (related to their Fellowship grant) of the 87 participants and the types of artifacts they created (Table 3). More scholarly artifacts were reported in the 2013 survey (n=525) than in 2023 (n=89); however, that survey represented more years, projects, and funding than the 2023 survey. In 2013, the highest number of outputs were book chapters (n=208), followed by journal articles (n=192), and then conference presentations (n=151). In 2023, conference presentations (n=50) outpaced journal articles (n=17) and then book chapters (n=9). In 2023, faculty reported other scholarly artifacts (not asked in 2013), which included invited talks, webinars, student theses, social media activity, and training materials. Fellowship PIs stated an average of two journal articles, two book chapters, and two conference presentations stemming from their projects.

Table 3
Summary of Scholarly Activity for Fellows

	Types of Scholarly Outputs				Grants Received		
	Journal Articles	Book Chap.	Conf. Pres.	Other*	Internal	External	Grant \$*
2013 Survey	175	199	151	-	209	203	-
2023 Survey	17	9	50	13	4	4	\$2,215,272
Totals	192	208	201	13	213	207	\$2,215,272

(*) = *This question was not asked in the 2013 survey.*

It is common for faculty, across disciplines in STEM, social sciences, and the humanities, to utilize the internal grant to springboard subsequent internal and external grant submissions. Remarkably, the 2013 survey revealed 213 internal grants and 207 external grants received. The 2023 survey revealed a more modest amount of four grants received internally and four grants received externally. Although both surveys asked about the quantity of grants received, the amount of funds secured was asked only in 2023, which totaled over \$2.2M.

Respondents often indicated that the results of the Fellowship provided proof of concept and preliminary data to serve as a basis for more extensive external grant proposals sourced from prestigious grantors, such as the National Science Foundation (NSF), allowing for larger-scale projects. A 2013 respondent stated, “This Fellowship allowed me to create the initial virtual project, which led to two later NSF grants and established me as a researcher in my field.” A different 2013 PI indicated that the results of this project were used to show proof of concept in receipt of a multi-institutional USDA grant. In 2023, a respondent stated, the project provided “seed money to do work that led to successful external grant proposals that were important in my promotion.” Although these data are self-reported by the Fellows, which can be limiting, it is clear the grant program supports the proliferation of SoTL activity and aligns with the reward mechanisms of faculty.

Fellows Made a Wide Variety of Curricular Changes

Across both categories of new course development and course re-design, faculty approaches to curricular change included the incorporation of new technology, experimentation with a teaching strategy, or concentration on an assessment project documenting pedagogical interventions. The incorporation of technology often focused on (then) cutting-edge technologies of virtual reality, laser cutting, 3D training tools, web-based enhancements, and student engagement tools. These technologies may be incorporated as a learning module for students (such as learning how to develop virtual reality tools) or embedded as part of the learning process (e.g., clickers as a form of audience response). Experimentation with teaching strategies included projects implementing case studies, and high-impact practices such as service-learning and problem-based learning.

Although many of the projects involved the curriculum of one academic program, there were often collaborations within the department and across campus. For example, in one project, “the outcomes were deliberately threaded throughout all of [the] curriculum and deliberately included in learning outcomes.” In another project, a PI noted, “This Fellowship was critical towards development of a non-departmental minor a couple of years later because the grant activities gave reason to bring together in

collaborative effort a number of faculty who otherwise would have been unlikely to interact.”

For Fellows who created new courses, participants often noted new curricula accompanied by changed teaching practices. For example, a 2023 participant stated, “We created an entirely new course that was highly successful. My collaborator and I integrated things we learned from our co-teaching arrangement into other courses.” Another 2023 participant stated, “The most important curricular change I have made...is to introduce no-stakes quizzing and retrieval practice activities. This has impacted all courses I have taught since the Fellowship.” A 2013 PI stated, “I completely changed my course, what was taught, how it was taught, and what laboratory exercises were completed in the class. Since 2004, other colleagues have also made changes for continuous improvement.”

Projects Positively Impacted the Student Experience

Ideally, the funding request for curricular change would result in a positive impact on the student experience. For participants, the student experience was improved through 1) the adoption of more student-centered teaching approaches and 2) student increase of content knowledge, skills, and attitudes. Often, faculty could make connections between more student-centered teaching and improved learning outcomes. For example, A 2023 fellow stated,

Students expressed several observations about the case study protocol that we designed:

1. They noticed more continuity in the goals/objectives of the courses in which they were enrolled as they relate to their professional goals.
2. Using case studies helped them practice using professional judgment in situations that don't have a clear right answer, boosting their confidence that they can handle many common classroom scenarios. Relatedly, this also changed their relationship with their own learning, helping them see the benefits of deep learning vs. earning points.
3. Students indicated that they felt less anxiety around preparing, which led to deeper learning strategies.

A 2023 PI expressed delight and surprise that “students shared that they appreciate the no-stakes approach to checking their conceptual thinking and

computational competencies.” After utilizing a flipped-learning approach, a 2023 participant indicated, “The students are coming to labs more prepared. Their lab report quality has improved.”

The use of student-centered approaches often increased content knowledge, skills, and attitudes. A 2023 participant indicated,

We have stayed in close contact with the students who took the initial course. All of them have expressed a renewed or reinforced passion for (our discipline’s) study, for the broader subject, and for the importance of (disciplinary knowledge) to understand the wider world.

Another participant indicated, “Our project led to statistically significant gains in content knowledge.” And yet another stated,

The significantly increased accuracy rate in students’ answers to knowledge-based questions from the pre- to the post-survey demonstrated the effectiveness of team-based learning. Students’ expectations on the benefits of the learning outcome for their continual academic activities as well as future professional or career development at the beginning of the semester were fulfilled by the end of the semester.

While the previous detailed comments make explicit student learning and experience improvement, some respondents expressed more global comments such as, “All of my classes are more student-centered because of the work done on this multi-college team.”

Fellowships are Beneficial to Careers

Survey participants shared multiple ways that being a Fellow benefited their careers. In addition to seed funding for external grants, recipients noted the number of scholarly outputs, such as conference presentations, peer-reviewed publications, and overall evidence provided through the Fellowship of being viewed as a successful and effective instructor, necessary to earn promotion and tenure. For example, a 2013 respondent stated, “This has strengthened a course that I teach regularly, helping keep student evaluation of teaching responses high.” These student ratings are used as evidence for teaching excellence at our university.

Like most research-extensive institutions, faculty research productivity is vital in successful promotion and tenure cases. Our university also highlights the importance of recognizing, rewarding, and encouraging

effective teaching. This is evidenced by SoTL being equally valued to disciplinary research, as codified in the Faculty Handbook for over a decade (Iowa State University, 2024). A 2023 respondent shared, “It helped me prove my contribution to teaching scholarship, as well as confirm my teaching effectiveness as a university instructor.” A Fellow from 2013 indicated that they wished they could change their previous responses after reflecting on the magnitude of the Fellowship on their career, saying in the final comments of the survey,

Now that I think about it more in-depth, I realize that this grant increased my knowledge [in the research stream of my discipline]. Since then, I have written three articles and am currently composing a book. I have also written and obtained a grant from the Department of Education. Until now, I didn't realize that all of these projects had their basis in the grant funding.

In the survey, half of the participants reported being promoted between the time of the Fellowship and the time of the survey. Many felt advantaged by the Fellowship when considering extrinsic rewards that bolstered their scholarly prestige, such as earning tenure. A 2013 participant stated that the Fellowship “created an opportunity for course development, conference papers, presentations, and interdisciplinary collaboration. The project won a national award and showed funding potential during the tenure process.” Another respondent stated that they were “promoted to full professor and University Professor [one of three highest professorial ranks], based on my outreach and recruitment work” as part of the Fellowship.

Several recipients noted that Fellowships helped support their nominations for teaching awards, named professorships, and helped prepare them for leadership roles within their colleges, disciplinary organizations, and university administrative roles. One PI stated, “The fellowship has facilitated the completion of a signature large impact institutional development and research project and supported my progress to a new leadership role.” Another PI indicated, “I believe this Fellowship helped me to receive Master Teacher status in my college, and to receive the Foundation Award for Outstanding Achievement in Teaching.” And yet another noted, “In addition to improving my teaching, the fellowship produced a prototype idea, which helped me obtain the NSF CAREER award.”

Finding collaborative partners on campus was also mentioned. One participant noted, "By collaborating with faculty from multiple departments, I have been able to establish relationships with colleagues with common interests." Another PI noted, "I learned significantly from working with my colleague, new methods of student engagement and teaching methodologies." A 2023 PI stated, "the collaborative nature of the project itself and the continued collaborations and relate research that developed from that are invaluable!"

Other participants noted that the Fellowship provided new pathways for working with our center. A 2013 PI indicated that as part of the dissemination efforts of the Fellowship, their team led a center programming series and presented a webinar for the national consortium, the Center for the Integration of Research, Teaching, and Learning (CIRTL). The PI stated, "This was my first time leading a faculty development program. I enjoyed it so much that five years later, I applied to be a faculty fellow [in the teaching center]." A 2023 participant stated, "The Fellowship helped me build a new community of educators to work with and learn from. I became more involved with center programming."

University Change

In conducting this research, the Center staff were not surprised by findings that indicated that the grant contributed to student success, provided an opportunity for additional external funding, or helped build successful cases for promotion and tenure and award nominations. The finding that was not expected, and one that is perhaps the most important outcome of the Fellowship project, was the theme of university change because of the projects. Persistent in the 2013 and 2023 open-ended survey responses were the numerous ways the Fellowship expanded beyond the initial project and impacted more than just the recipients. This was evidenced in 1) graduate student opportunities, 2) significant systematic structure changes within departments, and 3) the overall university impact.

Participants indicated that the changes made were more far-reaching than at the course level (i.e., the initial intention of the grant). Adjustments included extending lessons learned into graduate courses, graduate student involvement, and use of the data by graduate student mentees. For example,

a 2013 PI noted, “The grant was for an undergraduate project, and I have since implemented that method of assessing in two of my graduate courses.” Another respondent stated, “It was an excellent research experience for the graduate students who helped me work on the materials.” A 2023 PI stated, “It opened up a whole new line of curriculum materials development and e-learning research that I am still pursuing with a new group of graduate students.” Other respondents noted the career impact on their graduate students, for example, “The student involved in helping me develop the project is now a professor herself and used the project to great effect in getting her first tenure track job.”

Departmental changes included deliberately creating new learning outcomes, implementing new systems of assessments such as portfolios to document student development of workforce competencies, and embedding teaching methods and technologies such as videos, case studies, and competency-based education in numerous courses across the curriculum. The non-tangible impact of the grant program included opportunities for department-wide conversations on effective teaching practices. A 2013 respondent indicated that the opportunity for discussion enabled by the grant was more helpful than any specific outcomes or measurables of the project. They indicated, “The key value of the Fellowship was to sensitize the faculty of a large research department to the importance of teaching and the approaches available for us to improve our teaching.” Another Fellow noted, “While I am proud of the positive impact the grant had on students and the resulting publications, it also provided an opportunity to encourage and support my colleagues in the department to apply and make an impact on improving the education of students in their classes and the department.”

Additionally, faculty recipients noted the importance of their projects to the institution. Several projects led to university-wide conversations or implementations, such as a campus-wide lab-safety initiative, evidence to adopt an audience response system at the enterprise, rather than individual student-level, and a university-wide task force to consider ways to holistically evaluate teaching beyond student ratings of teaching. Indeed, because of the success of the Fellowship, the Senior Vice President and Provost named a smaller grant program that supports the development of open educational resources, the Miller Open Education Mini-Grant Program. Some PIs noted that their Fellowships contributed to their

satisfaction at the university and positively to the university's status. A 2023 PI noted limited outputs but considered the Fellowship project as "one of the highlights of the time that I spent at the university." A 2023 respondent stated, "We have an extensive database that we'll be using for several years to continue refining our protocol and implementation, eventually allowing us to expand our process to other programs. In this way, the Fellowship has helped me launch a line of inquiry that contributes to our university's national reputation."

Discussion

This assessment study of an internal grant program found that the Fellowship has tremendous positive impacts on faculty who receive the funding. Our findings indicate that a modest financial investment on the part of the institution can profoundly influence a faculty member's teaching, scholarship, and career advancement success. Additionally, the benefits of the invested funds rippled beyond the individual and led to institutional changes. Benefits, such as contributing to academic literature, recognition among departmental and disciplinary colleagues (especially with a lens of embodying an excellent teacher), and better student outcomes, all encompass the core tenets of successful faculty development.

At our university, half of our tenure-track and tenured faculty in the past ten years engaged in SoTL, and SoTL accounts for approximately 10% of all scholarly activity of our faculty (Gansemer-Topf et al., 2022). Based on the number of scholarly outputs produced by the PIs (e.g., peer-reviewed publications, book chapters, peer-reviewed presentations), it is highly likely that the Fellowship program is a significant contributor to the SoTL produced at our institution. Based on the grant dollars received post-Fellowship, the program repays its investment.

To further support the positive effect of this Fellowship program, the center staff plans to coordinate with college grant officers to share more details about the Fellowship to create more connections and on-ramp opportunities for faculty to pursue internal and external grants. We are also exploring additional ways to encourage department-wide involvement. This may include offering to host lunch-and-learns within departments showcasing successful recipients or hosting college-wide conversations

encouraging Fellowship proposals. While our center is limited in changing policies, we can provide opportunities to forge connections.

Implications for Teaching and Learning Centers

We acknowledge that some teaching and learning centers operate with minimal staffing and resources to do their work. As leaders in our teaching and learning center, we are the logistic and administrative entity for the Fellowship. The compilation of the Fellowship analysis has provided ample evidence to administration the need for the funding for faculty to conduct teaching innovation at the university. Our hope in sharing our story is to provide evidence from our context that CTL leaders can use at their institutions as effective case studies of funding success.

High-quality teaching is a universal value of higher education. When faculty examine their teaching, multiple stakeholders benefit. Internal teaching grants can incentivize such activity by demonstrating the institutional commitment to teaching and learning excellence. Teaching centers without endowed funding or minimal staffing can creatively explore ways to provide nominal teaching grants by pooling one-time dollars from multiple collaborating units, such as units within student affairs and academic success centers. Institutions might partner with their advancement office to steward new funds to support faculty research on teaching. With time, these smaller awards may be able to increase. In other words, even small beginnings can have dramatic long-term positive impacts.

.....Developing new courses and implementing new strategies takes time. The number of Fellows who have mentioned the need for an extension of their project, even before COVID-19 interruptions, indicates there are many competing demands on faculty time. For those faculty with extensive teaching demands, it may be prudent for institutions to consider opportunities, such as course releases, that allow for a decreased teaching commitment to provide opportunity to significantly enhance teaching.

Limitations

We acknowledge the limitations of our study. One such limitation includes the imbalance between the two surveys. The 2013 survey, which

had more participant responses than the 2023 survey, also represented more years, more faculty projects, and more available funds. Not having asked about funding returns during the earlier survey leaves a gap in our knowledge that we cannot correct. Additionally, conditions could have influenced the second survey's participation rate. For example, during 2020-2023, several PIs asked that their projects be extended into the next fiscal year due to complications placed on face-to-face teaching environments. Related, a non-response bias may be at play as well, meaning those who did not find "success" in their project may have opted out of survey participation. As is often the case in survey work, the data from participants are self-reported. Although we trust our colleagues to report their scholarly outputs accurately, their estimation of what "counts" as SoTL – and they then, therefore, report in the survey – may differ from ours as authors or other scholars in the academy. Although the scholarly outputs we identify are common among faculty across most disciplines, our usage of journal articles, book chapters, presentations, grants, and "any other" (used in the 2023 survey) may be limiting for some disciplines.

Despite these limitations, as an assessment of one of our long-standing programs, our findings demonstrate the importance of assessment of an institutionalized grant program to encourage effective teaching practices, faculty development, and SoTL. Our study also provides CTLs, even those who are modestly staffed and funded, a source of context to advocate for developing a similar program on their campus as a way to foster innovation in teaching practices and the growth and legitimacy of SoTL locally.

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