# Multi-Campus New Faculty Development to Improve the Culture of Teaching

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# Abstract

The strategic plan of the University of Missouri calls for renewed emphasis on student learning and the creation of learner-centered environments. As major step in achieving this vision, the University of Missouri (UM) system launched the New Faculty Teaching Scholars (NFTS) Program in 2001-2002.<sup>1</sup> It is a system-wide development program for early career faculty on its four campuses: Columbia, Rolla, St. Louis, and Kansas City. The program is open to tenure-track faculty from any discipline within the first few years of their appointment. Participation carries institutional recognition and backing because nominations rise through academic administrative layers, with final selection made by campus program directors representing the system Vice-President for Academic Affairs.

The NFTS program sponsors three system-wide retreats (on course-design, teaching renewal, and academic portfolios) and campus-based activities scheduled throughout the year. These enable new faculty to interact and collaborate with other new scholars who are based across the system. They become acquainted with the process of student learning and its assessment, are exposed to a variety of teaching pedagogies, and interact with excellent teachers on their own campuses. All of these experiences help new faculty improve their effectiveness in promoting actual student learning in a variety of teaching environments, while promoting system-wide collegiality. The scholars also learn how to increase their teaching efficiency so that they can more effectively balance their time among teaching, research, and service responsibilities.

This paper will provide an overview of the NFTS program. Assessment results, based on the evaluation<sup>2</sup> of the 2001-2002 program, will be summarized and analyzed. Lessons learned will be discussed. Special emphasis will be placed on aspects, benefits and modifications to the NFTS approach that can be used to enhance the professional development of engineering faculty at any institution.

### Introduction

Scientific studies, reports from national panels, and institutional constituents have all recognized that change is needed in the process by which research universities train engineers. Rigorous studies such as those described by McKeachie and Felder have found that active learning

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methodologies are more effective than lecturing in promoting student learning.<sup>3,4</sup> Yet most engineering instructors continue to use lecturing as their primary teaching method despite ready access to a variety of educational materials.<sup>5</sup> The National Science Foundation, commissions that include eminent educators, and organizations such as ASEE have all called for improvements in the process by which engineers are educated (i.e., replace straight lecturing with more effective teaching methods).<sup>6-8</sup> Other external pressures such as legislative mandates for post-tenure review provide additional motivation for re-evaluation of the teaching methods. Even with these pressures, most engineering faculty at research universities do not receive training in effective teaching methods, let alone educational theory. In these trying financial times, most new faculty members perceive that hiring and tenure decisions are based on the potential to develop an externally funded research program or a proven research record. The institutional emphasis on research is reflected in a reward structure that values research accomplishments over teaching improvement. For new tenure-track faculty, the lack of external motivation for change in teaching methodology combined with the lack of formal training, leads to a "trial by fire" indoctrination into teaching. As a result, most engineering educators tend to teach others as they were taught. Faculty simply emulate the professors that they remember from their own schooling.

To improve the quality of engineering education, it is necessary to "break the cycle" and replace lecturing as the dominant method for communicating content to the students. To that end, the focus of engineering education must shift from teaching in which students are passive recipients of knowledge to one of learning. In the learning environment, students actively participate in the discovery/acquisition of knowledge and the development of higher level cognitive skills (Bloom's Taxonomy).<sup>9</sup> These skills cannot be taught by straight lecturing, but must be mastered through practice. To enable these paradigm shift, the strategic plan of the University of Missouri (UM) outlines six strategic themes to help it become "an eminent learner-centered research university" in all fields of study. Specific objectives are outlined within each theme. Most relevant to this paper, one of the strategic objectives that UM has set is to "provide meaningful learning experiences that contribute to the knowledge, skills, and personal development of students." The UM administration recognizes that faculty must be provided with training and resources to implement systemic change. The New Faculty Teaching Scholars (NFTS) program was initiated in the 2001-2002 academic year by the Vice President of Academic Affairs for the UM system in attempt to improve the culture of teaching system wide.

The University of Missouri has four campuses. The institutional demographics are summarized in Table 1. As with any multi-campus institution, the demands on faculty vary within the UM system. Among the campuses, the Columbia campus (UMC) is the largest and is a traditional residential full service institution, which includes a medical school. The Carnegie Foundation classifies UMC as a doctoral/research extensive institution, while the other three UM campuses are doctoral/research intensive. Another characteristic that distinguishes UMC from the other campuses is that the UM system offices are located on its campus. The St. Louis (UMSL) and Kansas City (UMKC) campuses are metropolitan institutions offering a full range of traditional degree programs, with large numbers of part-time and non-traditional students. While both serve about the same number of students, UMSL has more undergraduates while UMKC serves a

greater number of professional degree candidates with its dental, pharmacy, medical, and music programs. The Rolla campus (UMR) is a non-urban technological institution and the smallest of the four UM campuses. Although each campus is different, faculty members face many of the same pressures. System wide, faculty are under increasing pressure to address recruiting and retention issues and to promote student engagement. Simultaneously, an increasing emphasis is being placed on research productivity and scholarly activity. Decreasing state revenues have also forced the UM system become more accountable for the expenditure of state funds. Together, these pressures have given new faculty the impression that the system wants to shift the emphasis away from student learning. The NFTS program was initiated by the system Vice President for Academic Affairs to affirm the university's commitment to student learning.

	UMC	UMSL	UMKC	UMR
Carnegie	Doctoral	Doctoral	Doctoral	Doctoral
Classification	Research Ext.	Research Int.	Research Int.	Research Int.
Tenured/tenure track	1164	295	520	275
Other Faculty	524	806	1049	180
Undergraduates	19,698	12,251	8262	3756
Graduate students	6426	2742	4595	1127
Total students	26,124	14,993	12,857	4883
PhD Disciplines	79	11	27	19
PhDs/year	~250	~40	~64	~45

Table 1. Demographics of the campuses of the UM system.

The purpose of this paper is to describe a faculty development program that has been initiated by the University of Missouri called the New Faculty Teaching Scholars program.

# **Overview of NFTS Program**

The NFTS program is open to tenure-track faculty from all academic departments at any of the four University of Missouri campuses. The inaugural program participants were selected to provide a balance among the four campuses and among the academic disciplines offered throughout the system, as summarized in Table 2. The selection process remained unchanged after the first year. Department chairs initially nominate the participants, but it is recognized that the nominees must believe that learner-centered education is beneficial to the students and they must be willing and able to commit a significant amount of time to the endeavor. The nominations are forwarded through the administrative levels of the campus with final selection coming from the campus program directors acting on behalf of the UM Vice President for Academic Affairs. A total of 93 participants were selected for the 2001-2002 NFTS group, the inaugural year of the program. The activities for the first year of the NFTS program included several short on-campus meetings, four multi-campus teleconferences, and three system-wide gatherings. Each of these activities will be discussed in more detail below.

Campus	NFTS
Columbia	31
Kansas City	21
Rolla	24
St. Louis	17
Total	93

Table 2.	Breakdown	of NFTS	participants by	campus and	teaching area.
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<b>Teaching Area</b>	Number
Math/Physical Science	9
Engineering	18
Health Sciences <sup>*</sup>	17
Business/Economics	6
Liberal Arts/Sciences	16
Education	6
Fine/Performing Arts	10
Other	10

\* Includes medicine, dentistry, veterinary medicine, optometry, nursing, and pharmacy

The on-campus events for the Rolla NFTS group are summarized in Table 3. The year began with a kick-off luncheon in late September. Lunch was informal, giving the participants time to meet their colleagues from around campus. After lunch, the Chancellor of the Rolla campus gave encouragement to the participants. Next, Dr. Ron Bieniek, the campus program director, gave an overview of the NFTS program. The second stand-alone campus activity at UMR was a round table discussion in mid-December that gave NFTS participants a chance to meet and talk to administrators from the UM system. UM Vice President for Academic Affairs Dr. Stephen Lehmkuhle and Associate Vice President for Academic Affairs Dr. Steven W. Graham gave their views on the NFTS program and then answered questions from the NFTS group. That same evening, a purely social after dinner gathering was held at the home of the Rolla campus program director. The next official campus meeting of the NFTS group was a round table on the three year (mid-tenure period) review process, which was held in early March. The final event was a second after dinner social at the Bieniek home in early April.

Table 3.	Rolla camp	us activities	for the	2001-20	<b>)02 NFTS</b>	group.
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Date	Activity	Purpose
September 20	Kick-off luncheon	Program overview, networking
December 17	System administrators roundtable	Networking, encouragement
December 17	After dinner reception	Social
March 7	Third year review roundtable	Information on the tenure process
April 14	After dinner reception	Social

During the inaugural year of the NFTS program, four system wide teleconferences were held. The topics of the teleconferences are summarized in Table 4. Each campus organized and hosted one teleconference. The teleconferences featured a speaker or speakers who focused on student learning. The intention was to have the featured speaker make a presentation and then answer questions from all four campuses. Following the multi-campus session, the host campus had a face-to-face, interactive discussion with the speaker.

Date	Speaker(s)	Торіс
September 21	Tim Eison	Active learning
October 26	W. McKeachie and P. Seldin	Evaluating teaching
February 8	George Kuh	National Survey on Student Engagement
April 12	Karl Smith	Cooperative learning model

 Table 4. Teleconference topics and speakers for the 2001-2002 NFTS group.

The inaugural year of the NFTS program also featured three system-wide gatherings, which are summarize in Table 5. The system-wide gatherings required travel to a central location. The first system-wide activity was a course design retreat in mid-October. Faculty spent two days listening to presentations and participating in activities to learn to design courses for improved student learning. Dr. Dee Fink from University of Oklahoma led the retreat. The second system-wide event was held in conjunction with a teaching renewal conference that is organized annually by the UMC Program for Excellence in Teaching for faculty, lecturers, and teaching assistants on the Columbia campus. Several NFTS participants were selected to speak at the conference. In addition to the conference activities, additional events for the NFTS participants included a welcome reception and dinner, a reception with UM administrators, and dinner with the UM Board of Curators (regents). The final system-wide event and the final event for the 2001-2002 NFTS program was the academic portfolio retreat. This two-day event was a workshop to help new faculty produce a quantitative record of their accomplishments in teaching, research, and service. The workshop covered aspects of evaluation, documentation, and format. The end result for each participant was a document that would be consistent with the UM system guidelines for a tenure dossier. In addition to the academic portfolio, NFTS participants took part in break out sessions with members of their individual campus tenure and promotion committee to discuss standards for tenure at their campus.

 Table 5. System-wide activities for the 2001-2002 NFTS group.

Dates	Activity	Additional Activities
October 15-16	Course design retreat	None
February 14-16	Teaching renewal conference	Reception/dinner with UM officials
May 23-24	Academic portfolio retreat	Breakout session w/campus P/T committee

# First Year Experiences in NFTS from the Perspective of a Participant

The New Faculty Teaching Scholars Program had several tangible benefits. First, participants were able to meet and interact with colleagues from other departments on their own campus and with colleagues from around the UM system. These interactions led to exchanges of ideas on teaching/learning and discussions of potential research collaborations. Given the time pressures on new faculty, these interactions would not normally occur, especially the inter-campus interactions. In general, the presentations given as part of the teleconferences and the scheduled activities at the retreats were focused on ideas or methods related to improving student learning. but did not give examples of ways to implement changes in specific classes. The system-wide activities were too structured to allow time for extensive informal discussions, but the on-campus meetings gave faculty time to exchange details on specific activities or approaches that had been used successfully (or unsuccessfully). More importantly, the informal time also allowed for brainstorming on ways to implement improved learning techniques in specific courses. Another beneficial NFTS activity was meeting and talking with members of the campus promotion and tenure committee. More than any other NFTS experience, talking with members of the campus promotion and tenure committee shed light on the mysteries of the tenure process. The committee members from UMR were very open on their expectations and what they felt were important activities to document in the tenure dossier (academic portfolio to NFTS participants!). Inaugural participants in the NFTS program were left with a much more clear idea of the campus-wide expectations for tenure. For example, the Rolla campus group learned that the campus promotion and tenure committee measured the quality "scholarly activity" in terms of graduate students, journal papers, and presentation in addition to the dollar value of research contracts.

In contrast to the benefits of the collegiality, brainstorming, and time with campus promotion and tenure committee, the inter-campus teleconference presentations and discussions were an exercise in frustration. Logistical problems were encountered in each teleconference either pushing back the start time or making inter-campus communication difficult. Despite the impressive credentials of the teleconference presenters, NFTS participants found it difficult to employ the methods that were discussed because presentations focused on general ideas and not specific implementation strategies. The three system-wide retreats provided slightly more on the how-to aspect of implementation, but the content that was squeezed into the limited time left most participants feeling overwhelmed. Overall, the biggest benefit to the program had to be the development of campus and system wide collegiality through the networking.

### **Assessment of NFTS Program**

Forty two official evaluations were collected for the 2001-2002 NFTS program at the end of the academic portfolio retreat, which are summarize in Table 6. The evaluations included numeric ratings and written comments. The respondents had a generally favorable impression of the program. A vast majority of the participants indicated that they would recommend the program to a colleague (90%), would mentor a future NFTS participant if asked (78%), would participate in follow activities in year two, if they were offered (75%), and felt that the program was highly

effective (91% rated it 8/10 or higher). Most importantly, 93% of the respondents reported that the program had influenced their teaching or their interactions with students. Several common themes were found in the written comments. Many participants indicated that the program helped them understand the concept of student centered learning. The program also promoted reflective thinking about teaching improvement, a sharp contrast to the "survive and move on" mentality common among new faculty. The program also helped to promote collegiality on each campus and among the four UM system campuses. Finally, the program helped faculty understand and appreciate the differences in emphasis on teaching and research/scholarship among different academic disciplines and on the different campuses of the UM system.

Questions on Overall Content and Presentation	Avg
Would you recommend NFTS to a colleague?	9.4
Would you participate in year two follow activities, if offered?	8.4
Would you participate in occasional activities next year, if offered?	9.1
Rate the effectiveness of the 2001-2002 NFTS program for you	9.0

# Table 6. Official Assessment of the 2001-2002 NFTS program.

For questions 1-3, 10 = enthusiastically yes, 1 = absolutely not For question 4, 10 = extremely valuable, 1 = not valuable

In addition to the information conveyed in the formal evaluations, the inaugural year of the NFTS program was a rich learning experience for the organizers. Several important lessons were learned through the surveys and by way of informal feedback from the participants. Most importantly, participants wanted to feel that the program was considered important at all levels of administration; recognition from local and system-wide administrators is vital to the success of the program. One of the biggest potential benefits of the NFTS program is the potential to help participants become more efficient in their teaching, freeing valuable time for other activities. This efficiency was not stressed in the inaugural year. In the surveys, participants indicated that the program would have the most benefit to faculty early in the tenure process, although the program would probably be overwhelming to a first year faculty member. This was in keeping with the original tenet of the program. The diversity of campuses, colleges, and disciplines was important to the participants and will be maintained in subsequent years. Finally, the organizers and the participants recognized that it was important to recruit faculty who would choose to participate as pressure to apply could be counter productive. Campus program directors and the staff of the office of the Vice President of Academic Affairs carefully considered all of these points when preparing the promotional material for the second year.

The NFTS program is now in its second year of operation. Assessment information and data have begun to be collected from current participants. Furthermore, feeback from last year's alumuni will be solicited to help assess the follow-through impact of the program. This will probe how their perceptions and actions as educators were modified and how the program generated networking and community building opportunities for tenure-track faculty.

# **Professional Development Opportunities**

The NFTS program is a unique, multi-campus professional development program for the four campus of the UM system, but several aspects of NFTS could benefit early career development of faculty at any institution. Aspects of the NFTS program that may enhance the professional development of faculty at any institution are summarized in Table 7. First, the NFTS program provided an opportunity for collegiality across campus and among campuses. The program served as a catalyst for potential teaching and research collaborations. Faculty, especially new tenure-track faculty, did not seek collaborations on their own, but they were eager participants when opportunities were provided. Second, to change the culture of teaching/learning, it is necessary for the administration to send a unified message from all levels that student learning is valued. Without a unified voice, faculty will make choices based on their own values and their perception of what is important for promotion and tenure. In addition to the department chairs, deans, campus program directors, and UM system administrators, representatives of the campus promotion and tenure committee were an important voice in the fight for improved student learning environments. Knowing that administrators from the campus and system levels value teaching and that the campus promotion and tenure committee considers teaching activities to be important can only serve to improve the attitude of faculty toward their teaching assignments. Finally, NFTS participants overwhelmingly showed that faculty are willing to try classroom techniques that have been shown to improve student learning when given the information on the theory behind the techniques and ways to implement them.

Activity	Benefit
Networking w/ colleagues from other campuses	Teaching and research projects
Administrative support of teaching activities	Well-rounded faculty, faculty morale
Implementation of improved teaching methods	Improved student learning and retention

# Table 7. Beneficial Aspects of the New Faculty Teaching Scholars Program.

### **Summary and Current Activities**

The New Faculty Teaching Scholars Program is a multi-campus professional development program designed by the University of Missouri to promote student centered learning on its four campuses. In its first year, 93 faculty participated in on-campus activities, multi-campus teleconferences, and system-wide retreats aimed at helping them become better teachers. The program was highly successful in promoting collegiality among participants and improving the student learning environment system-wide. More than 90% of participants changed their teaching or their interactions with students based on things they experienced in the program.

Now in its second year, subtle but substantive changes have been made in the NFTS program in response to input from first-year participants and the observations of the campus program directors. The teleconferences have been eliminated and replaced by additional on-campus activities. The intent is to give campus program directors increased flexibility to tailor the

activities to the needs of their faculty. Hopefully, individual distinguished figures from the educational field will still be invited to each campus, but the elimination of the multi-campus teleconferences will allow for the discussions to focus on the interests of a particular campus. Finally, participants from the inaugural year are now available to mentor current and future participants, adding another dimension to the possible activities.

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