AC 2010-1526: UFAST – PRACTICAL ADVICE FOR ACCELERATING NEW FACULTY SCHOLARSHIP

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UFAST – Practical Advice for Accelerating New Faculty Scholarship

Abstract

The issue of accelerating faculty scholarship is a key item especially for new/untenured faculty. New faculty future career success depends on developing scholarship productivity quickly. Previous research has shown how mentoring new faculty at the early stages of their career has had significant impact on new faculty success. Mentorship is especially important at institutions that have an increasing demand for faculty scholarship. The new untenured faculty must also learn and balance teaching and service responsibilities. In addition to essential mentoring of untenured faculty by senior faculty, untenured faculty can also benefit from peer mentoring by other untenured faculty. This paper reviews practical advice for creating a collaborative, untenured faculty peer scholarship team, in our case called Untenured Faculty Accelerated Scholarship Team (UFAST).

In this paper, the authors will discuss what drove the need to form UFAST and the practical advice which has been developed by the UFAST team. This paper will also provide an account of individual experiences in developing scholarship agendas as new faculty. The authors conclude with the advice that operating as a collegial and collaborative scholarship team, especially one whose members' existence depends on the team's success, allows the untenured faculty members to quickly share, support, and achieve individual scholarship success.

Introduction

Beginning a new career as a faculty member in higher education has many challenges, among these is developing new course material, completing your service goals, attracting and supervising student assistants, and developing your individual funded scholarship foci. Several excellent resources exist to assist new faculty as they develop their individual teaching styles,[1-5] but in the authors' experience practical advice is lacking for new faculty to develop and accelerate their scholarship productivity. Therefore, this paper will provide practical advice and individual experiences in operating as an untenured faculty scholarship team.

Rochester Institute of Technology is a teaching institution focused on career-oriented education enjoying a good reputation regionally. Like many universities the institution is in the process of refocusing faculty priorities toward more research and scholarship than has been done in the past. Because many faculty have not been research-active, it is crucial for them to quickly develop their scholarship foci, and research plans to allow them to achieve tenure.

A successful tenure program requires a balance of teaching, scholarship, and service; however, developing a robust research and scholarship agenda while trying to maintain the excellence in teaching and a broad service agenda is a challenge. In addition, teaching-oriented colleges often lack research laboratories, have a very limited number of graduate students, and offer little or no startup funds to new faculty. Because of economic constraints, both administrators and faculty are being asked to do more with less support [6]. Simply put, the "action figure" portrait of today's engineering/engineering technology professor[7], who has to do it all—from top-notch lesson plans to award-winning research—has become our reality.

Libscomb[8] suggests new faculty develop an acceptable tenure dossier, get a mentor, develop an area of expertise, and avoid inefficiency by being a team player. While our senior faculty are excellent mentors in the areas of teaching and service, few have extensive experience in scholarship. Therefore, the authors chose a peer mentoring approach that shares some similarities to that of the untenured working group at the University of Pittsburgh at Johnstown[9]. The creation of UFAST is expected to inspire other group collaborations within the college and the university, so the faculty can successfully achieve tenure while fulfilling the main goal of "uniquely blending academic programs with experiential learning for students' success," established in the Rochester Institute of Technology strategic plan 2005-2015.

Advice- Scholarship Support Team Formation

UFAST was formed out of our mutual interest and need as untenured faculty. Our institution had raised the scholarship and external funding expectations, while many (8 out of 25) faculty in our department were still earning tenure. Note: the term "scholarship" is used to encompass the full scope of Boyer's dissemination model; 1) discovery, 2) application, 3) integration and 4) pedagogy.[10] Although some senior faculty excelled at scholarship and generating external funding, most tenured Associate and Full Professors, had little experience, interest, or need in participating in these endeavors. As untenured faculty, our shared need to develop significant and effective scholarship in a timely manner (before tenure review) is the glue that binds us together. We started UFAST out of our mutual need, to serve our mutual purposes and for our mutual benefit. Like our nation's form of government, UFAST is quite literally "of the people, by the people, and for the people" [11]. During the founding meeting we had frank discussions about co-authorship entitlement, intellectual property, mutual respect, the ability to refuse offers of help, and the need to review papers fully before publishing jointly. These concepts are interrelated and will be discussed to expound on the concepts as they were developed in our discussion.

Co-authorship Entitlement – There is no entitlement to co-authorship just because someone is part of the untenured team (UFAST in our case). Each paper, research project or grant proposal would have an initiator or team of initiators. Others who want to participate would need to communicate what they can contribute to the project and the initiators had the full right to graciously refuse the offer of help. There are many reasons why help might be refused. Among personal reasons is the potential participant; 1) does not know the subject well enough, 2) does not follow through on commitments, and 3) does not "play well with others." While people tend to think that these personal reasons are why people don't want their participation, there are other reasons why people might not want additional collaboration such as:
1) The project initiating faculty member is nearing tenure review and wants to establish a more individual identity, out of concerns that their scholarship could all be received as multi-author and somehow deemed less meaningful. While this is not official policy at our University, there could be individuals with minority opinions.
2) The initiating faculty member is trying to take on a growth opportunity for themselves. He wants to learn how to lead a project and feels that other participants might assert too much leadership, which would inhibit the initiator's personal growth.
3) The project is related to someone's major research focus and they want to continue in this area independently of their colleagues.

Admittedly, there are other honorable and non-personal reasons why a project initiator might want to refuse a potential participant's offer of help. It is of no benefit to take refused offers as personal offenses.

Mutual Respect – Our UFAST team has a collegial and cooperative culture. While we are not all friends, we are at least friendly, and while we don't always agree, we disagree in a professional manner. Team members often rotate from leadership roles to support roles on various activities. We are in this scholarship endeavor together. If someone is invited in and doesn't share this supportive attitude of mutual respect, we presume the team culture would prevail and the antagonist would leave the team. Fortunately, our presumption has not been tested.

Formative Meetings – Our initial meetings developed a "Mission and Vision" document that includes our Mission, Rationale, Objectives and Path to Progress, which was drafted and edited over several weeks. The resulting document is as follows:

Mission

To work jointly and cooperatively, where synergies exist, on scholarship projects that support the Rochester Institute of Technology Mechanical and Manufacturing Engineering Technology/Packaging Science (MMET/PS) department foci, College of Applied Science and Technology (CAST) scholarship objectives, member personal research interests/skills, with the end goal of earning tenure and developing expertise in the scholarship process. The team will operate on a voluntary basis to develop, support, and optimize our scholarship productivity.

Rationale

In response to the unique and critical needs of [un-tenured] faculty, a working team has been formed for effective scholarship collaboration toward tenure and beyond. This team of untenured faculty with a selected scholarship advisor will work together to address the group's collective scholarship needs.

UFAST was created to address the needs of those whose tenure depends on rapid development of effective scholarship. Our careers hang on scholarship success and we share this common cause! Our unique and common interest drives our scholarship collaboration.

Objectives

- Provide members with the ability to work on scholarship projects in a cooperative and collegial manner.
- Provide member researchers with the support to advance and the ability to publish their work.
- Determine and encourage synergies on scholarship projects to allow individuals to voluntarily work together.
- Enable and support individual scholarship plans while protecting the intellectual property (IP) of participating members.

- Establish appropriate and voluntary best practices for the scholarship activities and mechanisms to meet the above identified objectives in a way that can be sustained by all of the necessary participants.
- Not all team members will be authors on each artifact of scholarship, but rather subgroups will work where real synergies exist and are mutually agreeable. There is no entitlement to co-authorship.

Path to Progress

- Establish the Mission and Objectives of the team.
- Publish a call for participation in the team and recruit a balanced representation of members.
- Share member scholarship interests and individual skills to identify areas of synergy.
- Build a collaborative scholarship matrix which would include the timeline, synergies and deliverables of items of scholarship synergy based on the individual team member's research agenda.
- Organize and conduct a regular team meeting to ascertain an efficient means for accelerating content distribution and optimizing the use of resources for team and student scholarship.
- Prepare and publish grants, journal articles, conference papers based on results of the collaboration scholarship plan and tenure track plans of work of the members.

Scholarship Support Group Participation – UFAST is for untenured faculty. Our paradigm is that senior faculty (tenured Associate and Full Professors) are a mixed group, who either independently excel at scholarship, or have not developed skills in this area. This is a result of recently increased emphasis on faculty scholarship in our University, College and Department. While many tenured faculty have an interest in developing in scholarship, they don't share the urgent need to develop scholarship, since their tenure is already established. By way of illustration, many people have an interest in losing 15 pounds of body weight, but people with health concerns have a heightened need to manage their weight carefully. Additionally, some senior faculty are accustomed to being in charge in group meetings, and yet might not have the knowledge base to lead in scholarship endeavors. While our colleagues are a reasonable and professional group, there is a possibility of individuals trying to direct the scholarship efforts of untenured faculty in an unfruitful direction, and then sit on the tenure review committee of the yet untenured faculty. This potential dynamic is foreseeable and extremely difficult to manage, even though it is unlikely among reasonable colleagues. Also, with 8 untenured faculty, the team was large enough and would lose focus and efficacy if it grew larger. Out of these concerns, the team agreed at the onset that we must be comprised of untenured faculty who are in our department. The logical counterpoint was a concern that we have many excellent tenured senior faculty who would be outstanding to collaborate with. The team recognized that anyone could collaborate with anyone they wished, but that the UFAST scholarship team would be comprised of untenured faculty and remain focused on the needs of untenured faculty. Collaboration with tenured faculty would just be outside of the UFAST meetings. When the team was started, one faculty member was in the midst of tenure review and had been actively engaged in scholarship prior to and during his current appointment. Due to his experience, this

faculty member was requested by the group to serve as a "Faculty Advisor" after he became tenured.

Finding Synergies – In our early meetings we developed a skills and interests matrix to facilitate collaboration. For this purpose we define "skills" as transferable abilities that can help with a wide variety of scholarship endeavors (e.g., statistics, Design of Experiments, survey construction, etc.) "Interests" were defined as technical and pedagogical areas of study (e.g., women in technology, teaching methods, electronics manufacturing, automotive propulsion, etc.). Table 1 shows the skills and interests matrix that was developed to give an introduction and overview of each team member, so that synergies could be identified.

Table 1: Skills and Interests Matrix

	Skills	Interests
	Items that are transferable from project to project.	Things that I would like to work on.
Carol Romanowski	Statistical Analysis, scholarship publication process, writing/editing, project management	Data mining, maintenance and reliability, quality, and decision support for engineering design
Chris Greene	Statistical Based Quality Improvement, DOE, 6 σ, Lean, Agile, Lean 6 σ, Production Planning & Control	Manufacturing Systems - Electronic, Automotive, Pharmaceutical; Healthcare Management Systems, Engineering Education, Underrepresented Groups
Dianne Amuso	CAD, FEA, Technical Writing, Product Design, Project Management	Electronics Packaging, Mechanical Packaging of electronic components, FEA, Women in Engineering, K-12 Outreach, ME-EE Integration
Jim Lee	System energy analysis, system and component efficiency, Design Structure Matrix analysis, measurement methods, chemistry, combustion	Alternative energy, internal combustion engines, expanding the use of natural gas, fuel production from waste, fuel cells
Larry Villasmil	Computational Fluid Dynamics. Rotor dynamics & Turbomachinery Industrial Power Generation & Refrigeration, Heat Transfer, Fluid Power	Turbomachinery operation and components design. Engineering Education Women/Minorities
Mario Castro-Cedeno	High strength steels and project management	Rapid prototyping , materials and applications of rapid prototyping

Mike Slifka	Mechanical design, electrical design, interconnections, wiring, product layout and concepts, automation	Engineering Education, Electrical/Mechanical Packaging, Electronics, Product Design, K-12 Outreach
Rob Garrick	Product Design (Electro-Mechanical), Statistics (classical/robust DOE); DFSS; Problem Solving process, innovation (TRIZ/Goldfire), Fluid dynamics	K-12 Outreach, Smart Building (Energy), Engineering Education, Energy, Product Design/Innovation
Scott Anson	Statistics (classical DOE), Electronics failure analysis, materials characterization, mentoring students	Electronics Packaging, Manufacturing Importance, Failure analysis

Managing the Support Group – Once a support group has been established, the group should setup a management system for information sharing, communication and tracking. Set up a group site that is capable of storing information and being used for communications. This could be a wiki, a website developed specifically for this task, or courseware (i.e. Black Board). The UFAST team uses the courseware available at our institution. This site is used to archive scholarship tracking and share resource information. It could also be used to keep a calendar of upcoming events and due dates. Examples of shared information include: University's Tenure Expectations and Required Documentation, PowerPoint slides from presentations and workshops, sample grant applications, grant writing resources, journal databases and other items deemed useful by the team. For example, one member developed a "How to Get Funding for Student Travel" document that is posted on the site.

Get to Know Your University's Support Staff – Take advantage of opportunities at your university to get to know support staff in the areas of scholarship and writing support. Opportunities include workshops and information sessions sponsored by these groups but should also include scheduling one-on-one meetings to discuss your individual needs and questions.

- When developing your individual research agenda, it is critical to get to know your college representatives in Sponsored Research, Foundation Relations and Corporate Relations. Meet with these representatives to discuss your individual research interests. Find out the type of assistance they can offer with grant writing and searching for funding opportunities. They can also inform you as to the proper procedure and timing for submitting grant proposals at your institution. With Foundation and Corporate relations, working through these departments is important because the university may already have established relationships or on-going negotiations with foundations or corporations.

- Meet with your library representative to find out the availability of research tools at your university such as electronic journal access, interlibrary loan, and tools for the organization

of research documents (such as End Note). Your library may also have its own tracking system for faculty publications.

- Be sure to share information from these various resources with your scholarship support group. If an individual meeting covered topics that you feel would be of interest to your support group, invite the individual to speak to your support group.

- Find out about writing support available for faculty. Take advantage of editing services and courses or workshops for effective technical writing and grant writing.

- If your research interests include the Scholarship of Teaching, take advantage of workshops, courses and funding opportunities that support teaching and learning. Not only are these valuable sources of information and tools, they will give you the opportunity to meet other faculty and staff at your institution who may be interested in collaborating on research projects.

- Apply for internal funding opportunities to support your research. These opportunities are effective ways for establishing a research program. They also provide experience writing grant proposals, managing a program budget and reporting on funded activities.

Mentoring – To supplement mentoring from senior colleagues, UFAST provides peer mentoring through information sharing, collaboration and positive peer pressure. We meet weekly and track our progress on collaborative efforts and individual proposals such as internal funding opportunities.   Additionally, each untenured faculty member is required by the college to have an official mentor. While we recognize the value of mentor continuity as a faculty member progresses toward tenure, we recommend 1 year renewable mentor-protégé relationships. This provides a natural stopping point for the relationship and allows the junior faculty to connect with more effective senior faculty and avoid the uncomfortable predicament of needing to "fire" a mentor for non performance. We estimate that at times, more productive peer mentoring occurs in UFAST than with an average official college/department assigned mentor.   Our college also provides a Faculty Associate for Scholarship Affairs, who is a senior faculty member who is fully engaged in scholarship and has been assigned to meet at least three times a year with untenured faculty and provide mentoring in the area of scholarship.   In the end, it is wise to take mentorship from all available sources and realize that this can and should, include peer mentoring.

Individual Experiences

Our department has had two new faculty members added since UFAST was formed. A third new UFAST member who was not previously involved in UFAST has recently begun participating in UFAST. These three new members have a unique perspective of not being involved in the formative meetings and yet have become engaged in UFAST activities. Each of them shares their individual perspective below.

Member1 - Key benefits to a new faculty member of a collaborative group with the common purpose of achieving tenure include gaining institutional knowledge, professional networking, and gaining student knowledge. All of these areas are critical to achieving tenure and having one source of information about these areas smoothes the path to tenure. The remainder of this section describes each area in more detail and how UFAST benefitted me, a new faculty member, in becoming more competent in each area.

Institutional knowledge, as intended here, is the knowledge of how the college or university functions and work gets done. Institutional knowledge can be formal, as in knowing how to obtain the required signatures prior to submitting a proposal, or informal as in knowing what type of funding the dean prefers to pursue. A collaborative group can make obtaining this information easier whether it consists of all new faculty members or a mix of people at different stages of the tenure process. If there are members of the group that are close to achieving tenure they will already possess the knowledge and be able to pass it on to new members. If everyone is new, the multiple tasks of discovering how the university functions can be divided among the members so that it is less work for everyone. Examples of how my membership in UFAST has helped in this area include:

- members attending workshops and providing a summary and a copy of the material handed out during the workshop,

- members summarizing the process for obtaining university approval and funding for student travel to conferences,

- members scheduling outside organizations to present to the group (i.e. Foundation Relations department) which greatly increases my knowledge.

Professional networking can be enhanced at least two ways through a UFAST type collaborative group. The group members themselves have a great opportunity to combine their collective talents and respond to funding opportunities that they would not be qualified to respond to individually. In addition, each member is able to bring their own professional network to the group. So that members feel comfortable bringing their professional contacts to the group, each member must treat all contacts with the upmost respect. UFAST members have introduced me to senior faculty members that have similar research interests which have led to a proposal, and a company contact which will hopefully lead to future research opportunities.

One very difficult aspect of starting a research program is attracting high quality graduate and undergraduate students. A group like UFAST can help facilitate this process by expanding the knowledge of the group about individual students and telling students about opportunities that may exist with a fellow UFAST member. I was able to find a high quality graduate student based on the recommendation of a fellow UFAST member and that member telling the graduate student about my research.

As a result of my participation in UFAST I have increased my competency in each area described above. This will undoubtedly increase my chances of obtaining tenure in the future. In addition, UFAST has been a great source for social interaction which enhances the enjoyment of each day.

Member2 - Collaborative learning involves multiple people learning, or attempting to learn something as a team.[12] The advantage to the participants is that new knowledge is created during the interaction instead of merely transferring and/or exchanging information. In UFAST, the knowledge that must be created is the "secret formula" for achieving tenure. Since all the participants are untenured faculty, by definition we cannot teach each other but must pool our knowledge to formulate strategies that will work for each participant.

UFAST is also a community of practice. As such, it demonstrates the three primary characteristics that distinguish a community of practice from other group activities. The characteristics are: 1) the participants have a shared domain of interest-for UFAST members this is academia-tenure, 2) the participants share common activities-in our case they are teaching, research and institution and community service, and 3) there is a shared body of knowledge-i.e., Engineering.

Collaborative learning is an active learning process. As commonly stated, "you get benefits in proportion to what you invest." The greatest benefits are reaped when participating fully in the activities of the group. Although the community of practice literature recognizes that in some communities we are peripheral members while in others we participate fully, I tend to agree with the collaborative learning point of view. It is a responsibility to the group as well as a prerequisite for internalizing the experience. Although some benefits are achieved by simply attending the meetings, much more is possible by leading or supporting an activity or the writing of a journal paper or conference presentation. The benefits are of two kinds: 1) the number of conferences, journal papers, etc. will be larger when working with others, and 2) the human capital that result from the shared experiences will pay dividends in future collaboration.

The benefit to the organization is that UFAST is an effective means to increase the retention of new faculty. It also provides benefits by jump-starting collaboration. Instead of spending the first few years attempting to know and understand each other, participation in the group will very likely result in multiple joint publications the first year. And the best thing is that collaboration will increase in publication output as well as complexity over the years.

Member3 – Having a collegial, collaborative focused, untenured team (UFAST) has enabled me to see the interest and capabilities of other tenure-track faculty without having to specifically setup meetings to gather this information. Given the present environment of increased scholarly work at Rochester Institute of Technology becoming more of a focus this was excellent knowledge to have and enabled me to quickly gain the contacts and support I needed for my projects.

The physical progression of the actual meeting is succinct which allows a member to attain knowledge of your colleague's projects and scholarship artifacts without sacrificing undo time to teach class and perform scholarly duties. The physical tracking of member's scholarly projects and anticipated publication venues gives a physical point of reference to know what your colleagues are presently working on and areas that you may be able to offer assistance. Overall, this collegial, collaborative model of a scholarship team is unique and enables contributing individuals to quickly accelerate their scholarship projects utilizing the team's expertise.

Summary
An enhanced University emphasis on scholarly productivity has been discussed with particular focus on the scholarship needs of untenured faculty. A model for forming a collaborative scholarship team has been developed and described in a practical and reproducable manner. The mission and rationale of our UFAST group has been shared. A method for identifying collaboration synergies through a skills and interests matrix has been presented. Insight has been shared by UFAST members who joined UFAST after the founding meetings. Both new and ongoing UFAST members find UFAST to be a benefit to their scholarship and external funding endeavors. Each University has a unique culture and paradigm related to scholarship, mentoring and tenure progression. New faculty must be circumspect while adapting this or any other model to their individual situation. In order to facilitate modification and replication of this model, suggested action steps are listed below.

Suggested Action Steps

1) Identify colleagues for potential collaboration on scholarship - find the interest and the need.

2) Hold a founding meeting and discuss collaboration concerns and rules of engagement.

3) Develop a skills and interests matrix.

4) Hold regular meetings (weekly or every two weeks) to discuss potential projects, upcoming training, internal and external funding sources, and ongoing projects.

5) Make it faculty led by taking imitative, but inform administration at the department and college level, if appropriate. Administration – let it be faculty led.

6) Consider an occasional informal social event (go to lunch as a group).

7) Work on a few projects at once to diversify (conference papers, journal manuscripts, grant proposals, foundation proposals) to reduce risk, but don't over commit.

8) Communicate clearly and patiently - set dates, give reminders, follow up on details.

9) Reinvest with effective participators – remember you can politely refuse help, because as we all know sometimes "help" isn't (help).

10) Operate on an "abundance principle," wherein the cultural mindset is "if we all make progress together, we all make progress." Avoid a "scarcity principle," where people feel they must take something from others, in order to get ahead.

11) Persevere, publish, generate funding, and earn tenure.

12) Replicate the model to help others succeed!

Future Work
Ongoing tracking of UFAST scholarly productivity and tenure success is underway and will be disseminated in future publications.

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