



Sigma Xi Can Change the Culture of Institutions

10 Steps For Improving Your Institution

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Texas A&M Chapter

2006 Annual meeting, Detroit



**There should be more
to Sigma Xi**

than a vita bullet, lectures,
and an annual banquet.



What I Will Cover

1. Case Studies, Texas A&M Chapter
2. Examples of things other chapters could do
3. 10 Strategies other chapters can use

Institutionalizing Undergraduate Research

- The need
- The task force
- The deliverable
- Implementation efforts
- Results

**We want more than
trained seals**



The General Need

- **All college graduates need to understand the:**
 - process of research, promises and limitations of research.
 - role that research plays in the state economy and public welfare.
 - need for research infrastructure support.
- **To get this understanding, the university needs to provide all students with:**
 - appropriate instruction about research in their courses.
 - an actual research experience.

The Need at Texas A&M

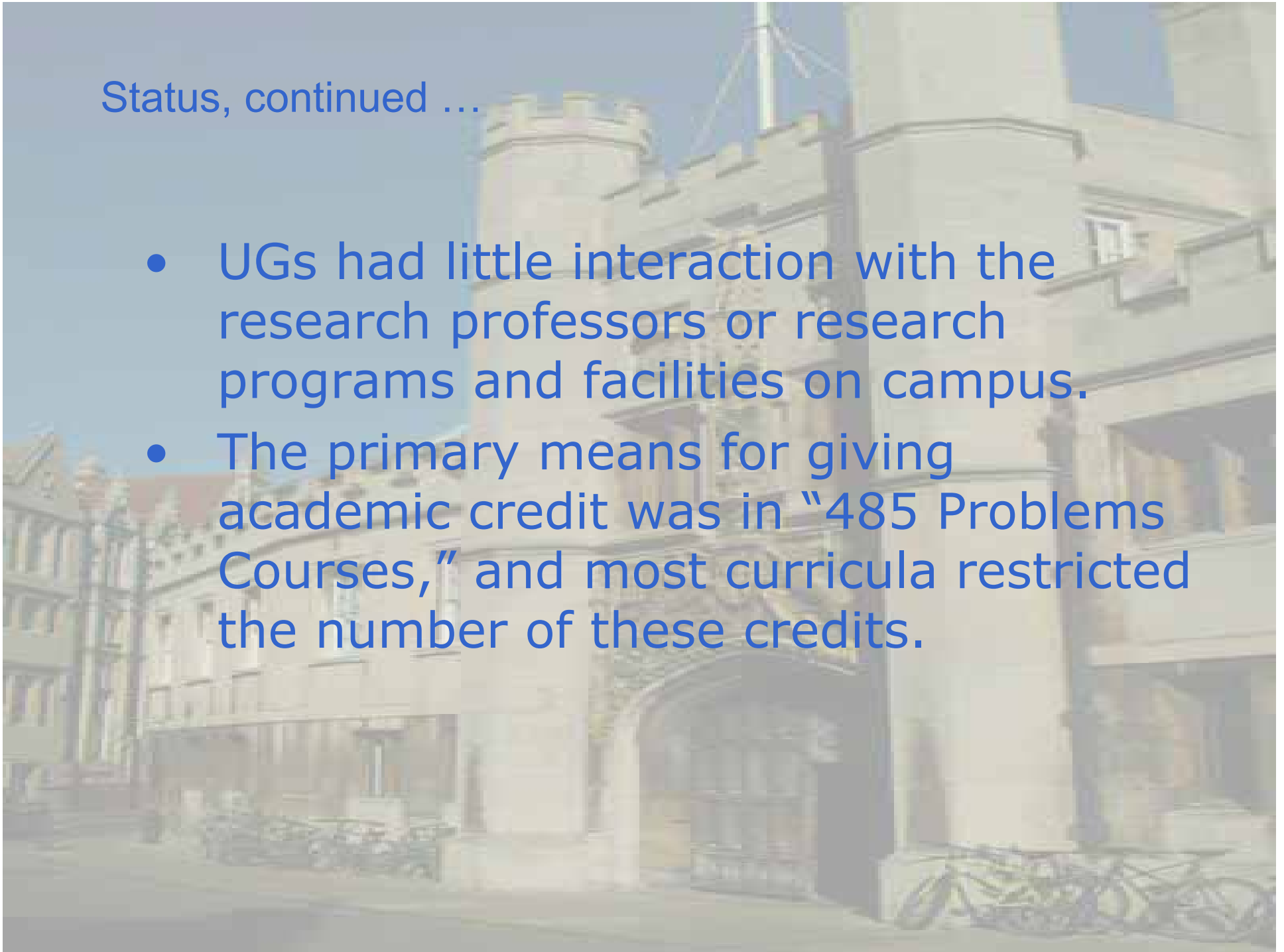
- **Texas A&M was not promoting UG research. Major policy changes would be needed to make these changes.**
- **No one university official had jurisdiction over UG research and multiple administrators had overlapping and vague responsibilities in this area.**

Status of UG Research at TAMU in 1998

- Faculty had few incentives and many disincentives for providing research experiences for the UG.
- The Honors Program was not attracting many of those qualified into a research thesis activity.
- No one academic official was charged with promoting or over-seeing UG research, either in the university or in most of the colleges.

Status, continued ...

- UGs had little interaction with the research professors or research programs and facilities on campus.
- The primary means for giving academic credit was in “485 Problems Courses,” and most curricula restricted the number of these credits.



Sigma Xi Action

- Chapter president (John Fackler, former Dean of Science) appointed a task force.
- Task force membership: Bill Klemm (Chairman), Director of Honors Program (& former Sigma Xi President), two engineering profs, one who later became Dean of Faculty and the other an Assoc. Provost), and 8 other prominent profs in various colleges.

Action by the Task Force

- Met frequently over 3 semesters
- Identified the various existing means of credit for non-traditional learning experiences
- Obtained pertinent data from Registrar's office
- Identified extent of UG research at other universities
- Identified how the various TAMU colleges were providing research opportunities
- Prepared a report for the university President, Provost, and Deans. Report made 13 recommendations and provided implementation plans for each.

University Initial Response

- Positive response, widely hailed. Our proposal fit right in with their “Vision 2020 Goals”
- In 2004, Univ. Research Council urged more UG research urged by Council of Deans, Council of PIs
- In Jan. 2005, creation of Office of UG Research – director appointed.

Current Drivers for Implementation

- In April 2005, President's initiative for "Enhancing the UG Experience." It's Task Force (which included Sigma Xi) endorsed more UG research and presented a 10-year implementation plan.
- University accreditation agency asked A&M to pick one area that it will commit as a 10-year development project — UG research is it!

Status Today

- 10-year implementation plan.
- Implementing an UG Scholars program (Senior thesis).
- Inquiry Courses: campus-wide inventory now being taken to identify courses that can be converted to inquiry-intensive courses. \$150K/yr set aside for conversion
- Capstone course: intent to require all students to complete some form of a “summary research experience” (example: a capstone project or a research-intensive experience or a Senior thesis).

Institutionalizing K-12 Outreach & Partnerships

- The need
- The task force
- The deliverable
- Implementation efforts
- Results

The Need

- **K-12 education is in trouble, esp. in math and science**
 - Scores do not compare well vs. other nations
 - In Texas, growing minority populations
- **Many cultural changes make quality schooling difficult**
 - Common anti-intellectual attitudes – “not cool” to be smart, only nerds take science and math, don’t “act white,” etc.
 - Over-emphasis on sports, extra-curricular activities
 - Single-parent families, working moms
 - Too much television Etc., etc.
- **Not enough well-qualified teachers, especial in STEM areas and inner-city schools**

Status of University Involvement in K-12

- Inherent inter-dependence throughout K-16
- University trains the teachers who provide the university students
- Texas A&M has neglected K-12 – expected College Education to do everything
- Individual profs. have outreach programs, but no institutional support, coordination or leadership



Action by Sigma Xi

Created a Committee for Educational
Outreach and Partnerships (COEP)

Staffed with senior professors from
multiple Colleges

Action by the COEP

- Studied the issues. Identified local “players”
- Hosted a luncheon of all program managers and created a mailing list
- Suggested a Mission Statement for the University role in outreach
- Made a report to the President, Provost, Assoc. Provosts and all Deans
- Initiated a seminar series on K-12 outreach and partnerships

Mission Statement for Outreach & Partnerships

Texas A&M University is committed to nurturing the educational enterprise at all levels (K-16), inasmuch as all levels are inextricably interdependent. We seek to create and nurture campus-wide partnerships among our faculty, TAMU administrative entities, and the K-12 educational community. We pledge our support for educational initiatives that will benefit all students in the state, urban and rural, irrespective of their grade level, socio-economic status, or ethnicity.

Rationale for Expanded Outreach

- Texas A&M seeks “blue-chip” students – but so does everybody else.
- Texas A&M does not recruit as many ethnic minorities as it wants
- Pre-college preparation today is not as rigorous as it was a decade or more ago.
- Outside money is available for good projects



**Why Is This a Priority for
Sigma Xi and a Research
University Like Texas
A&M?**

CEOP Recommendations

- Every academic associate dean should have K-12 partnership duties
- University should create an Office of Educational Partnerships
 - Job description provided
 - Office housed in seat of power

Sigma Xi Initiative with Office for Research Proposals

- NSF has instituted a requirement that grants show “broader impacts.”
- Sigma Xi made presentations to Council of PIs and to university researchers to help PIs utilize K-12 outreach to satisfy “broader impacts” requirements.

1



– Evaluate Your Sigma Xi Chapter



2



Evaluate Your College Environment



3

Leadership is a must. If you don't have it: recruit!



- 1. Create an Executive Director position**
- 2. Get a new President and Pres. Elect each year**
- 3. Fill officer positions with faculty with influence – include administrators.**
- 4. Have an Executive Committee consisting of former Presidents.**

4

Find Idea / Project & Its Champion



5

Create a Task Force

You need people who:

- **are well-connected**
- **have the relevant skills**
- **are motivated**
- **can lead**



6



Think
Small?

Think
Big?



7

Clarify What You Really Want & When You Want It Accomplished



Network with the Right People

8



Who has the power?

Who can be persuaded?



And let them be participants! Or even take the lead!

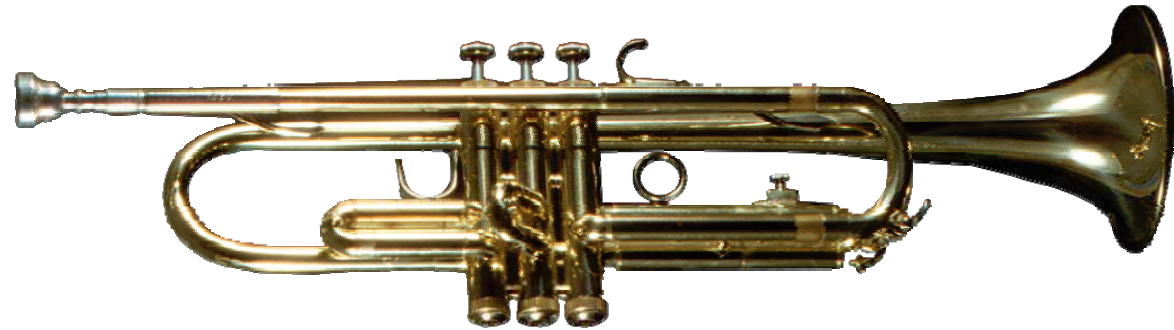
9

Monitor Progress & Adapt



10

Publicize At All Stages



The background of the slide is a faded, light-colored photograph of a city street. It shows multi-story buildings with windows and balconies. In the foreground, several bicycles are parked along the sidewalk. The overall tone is bright and airy, with a soft focus.

You want to take pride in your chapter participation. Here are other areas your chapter can consider.

- **Interdisciplinary research**
- **Creation of interdisciplinary Faculties**
- **Projects of the local Development Foundation**
- **Teaching excellence initiatives**
- **Enriching the experience of undergraduates, graduates, or post-docs**
- **Minority recruiting, counseling**

more areas ...

- **Leadership training for students, faculty**
- **Collegiality**
- **Policies and procedures in need of update**
- **Assessment programs**
- **Enhanced professional education**
- **Increase access to intellectual resources**
- **Build connections with external communities**
- **Reform governance**