



University of Colorado
Boulder

Laura L. B. Border, Director, Graduate Teacher Program

**Teaching is an Intellectual Act:
Sharing Faculty Expertise & Research with
Graduate Students**



Philosophy

- The University is accountable for effective undergrad teaching.
- The University is responsible for excellent graduate education.
- Preparation in teaching is an essential aspect of graduate education.
- Professors do research on teaching.
- Research should be used!



Teaching is an Intellectual Act

- Teaching at the graduate level forms scholars.
- Local professors represent a treasure trove of knowledge, expertise, skills, and research that can be shared across campus.
- A centralized discussion of teaching on campus supports excellence in all departments.



Plan for the Session

- Goals
- History of the GTP
 - Centralized program
 - Lead Network
 - COPFF Network
 - Collaboration with Career Services
 - TIGER/CIRTL
- Outcomes
- Conclusions



Original Goals

- 1) To prepare graduate students for current roles on the Boulder campus and as future faculty in postsecondary institutions
- 2) To bring scholars from across campus together to share their experience and research on college teaching
- 3) To showcase outstanding CU Boulder research faculty members as teachers
- 4) To use research on teaching to improve classroom performance & student learning

History: Graduate Teacher Program

- 1983: 5 units collaborated
(DGS, VCSS, Dean of Education,
University Learning Center, and GSG)
- Created name and initial idea for program
- Hard line funding secured through Chancellor
- Set up hiring committee



History (cont.)

- February, 1985: Laura Border hired as “Coordinator” of centralized GTP
- Created focus of program
 - 1) College pedagogy
 - 2) Personal & Professional Development
 - 3) Assessment & Evaluation
 - 4) Timely topics (as they arise)



Centralized GTP: Spring 1985

- Friday Forum with Faculty
- *The Tutor* Newsletter showcases professors and informs graduate students of the existence of the program
- Campus-wide needs assessment survey (chairs, faculty, and graduate students).
- Collaboration with the Graduate School

History (cont.)

- Fall 1985: Fall Intensive workshops open to all graduate students
- Fall 1985: *Tutor* Newsletter: request for departments to develop discipline-specific support



History (cont.)

- Spring 1986: Collaboration with Economics
- Economics developed materials, videos, and workshops
- Economics sent graduate students to the Fall Intensive



History (cont.)

- Participation in the Friday Forums and the Fall Intensive grew
- 1986: 1st National Conference on the Education & Employment of Graduate Students, OSU, Columbus, OH



History (cont.)

- 1988: The reporting line moved to Graduate School
- “Coordinator” became “Director”
- The Director and Dean designed the “Graduate Teacher Certificate” (now the Certificate in College Teaching”



History (cont.): 1989

- The Certificate was implemented as a “carrot” to attract participation and interest
- The connections with departments had grown to 13.
- Training for unfunded liaisons was in place



History (cont.): 1992

- The Chancellor funded the Lead Network
- 20 graduate student Leads were trained and placed in their home departments
 - Job: to liaison between GTP & home department & assist with TA training in department



History (cont.): 1995

- The Director was invited to host the 5th National Conference on the Education and Employment of Graduate Students (Funded by the Pew Charitable Trusts)
- 536 deans, faculty, graduate student developers, and graduate students attended



Preparing Future Faculty: 1997-2002

- PFF Project (CGS & AACU) asked GTP to submit grant
- CU Boulder received 4 PFF grants: the first through the centralized GTP (1997); others through Physics (NSF, 1999), Psychology and Political Science (Atlantic Philanthropies, 2000)



Collaboration with Career Services:

2004

- Create graduate student focus & position in the Career Services Office
- Career Services offers specific workshops for graduate students
- Career Services organizes off-campus internships for interested graduate students
- Participants attend GTP & Career Services activities



2006-2011

- GTP joins the Center for the Integration of Research, Teaching & Learning (CIRTL) project (\$10 million NSF grant shared between 6 campuses)
- GTP creates TIGER: STEM focus on teaching & TAR



2006-2011

TIGER = CIRTL at CU

- TIGER Workshops: Teaching in the STEM disciplines
- TIGER Teaches: Guidance and training in research on teaching & learning
- TIGER TARP: funded Teaching-As-Research Projects for graduate students
- TIGER DAD: design & development of courses in college pedagogy

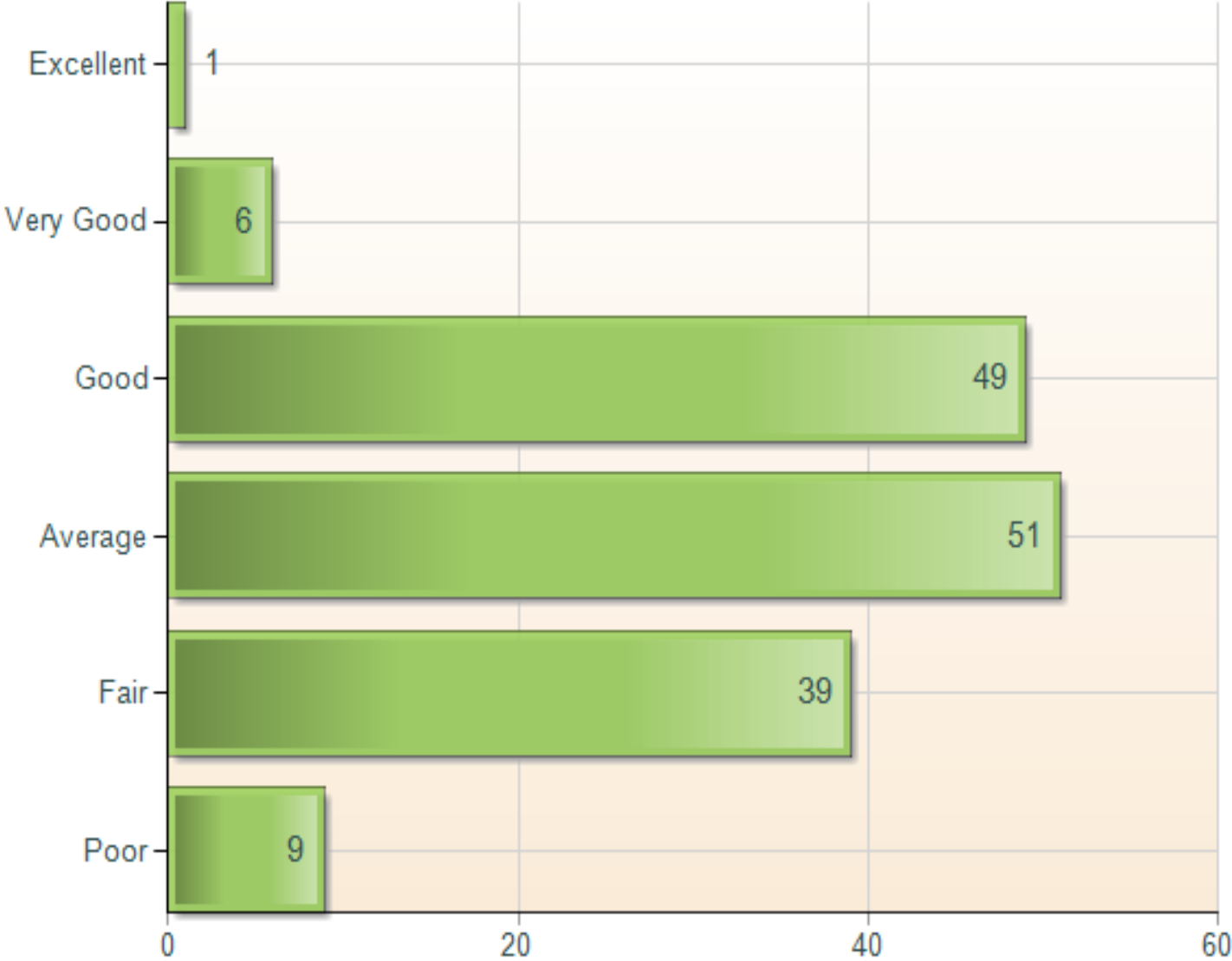


Outcomes: Centralized GTP

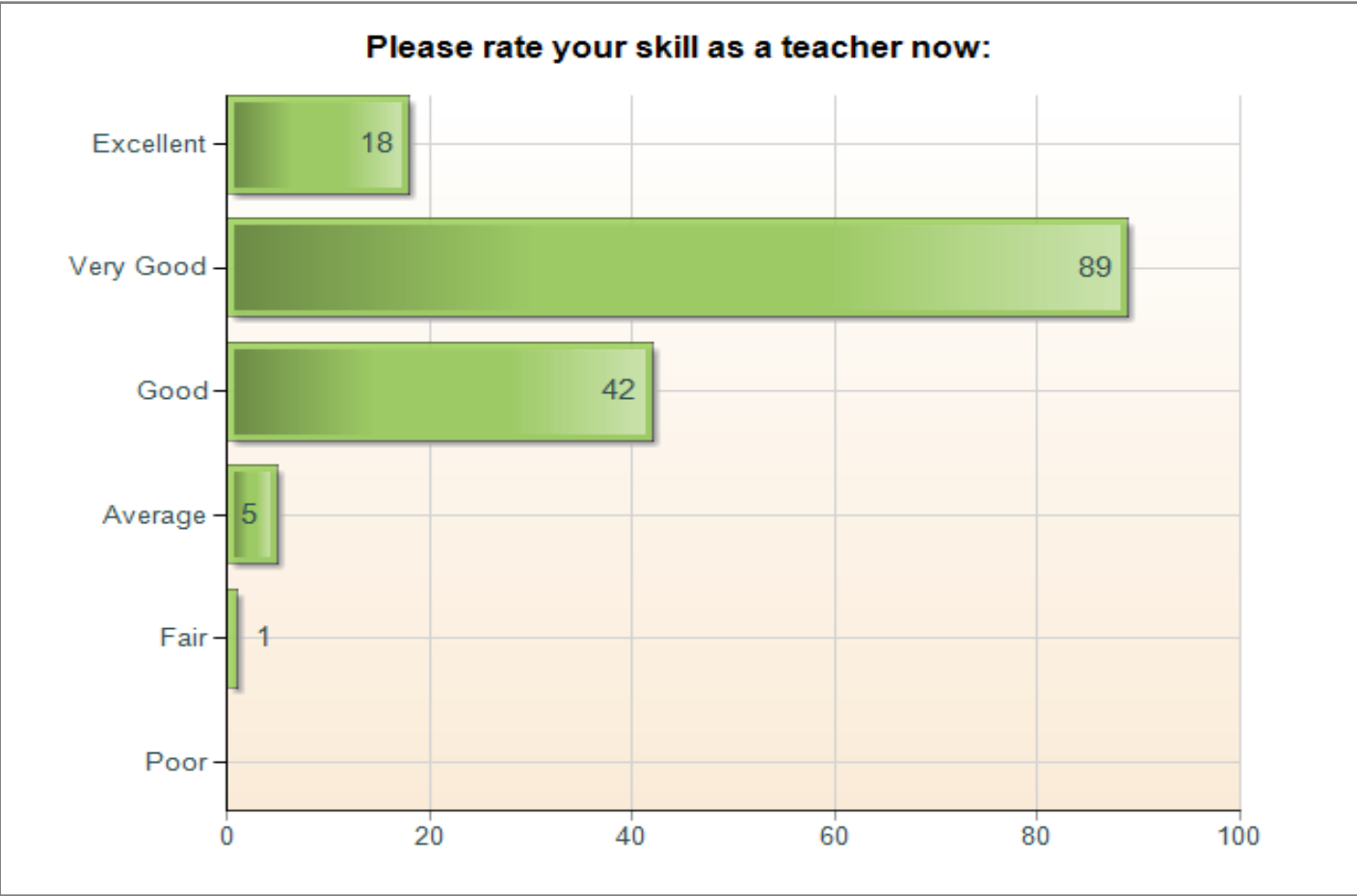
- The GTP currently has 1200 graduate students participate each year in centralized workshops.
- Close to 12,000 students have participated since 1992
- Around 400 have been certified
- Exit survey on CCT shows how students judge their own progress based on their work in the program:



Please rate your skill as a teacher when you began the program:



Certificate in College Teaching Exit Survey: Please rate your skill as a teacher now:



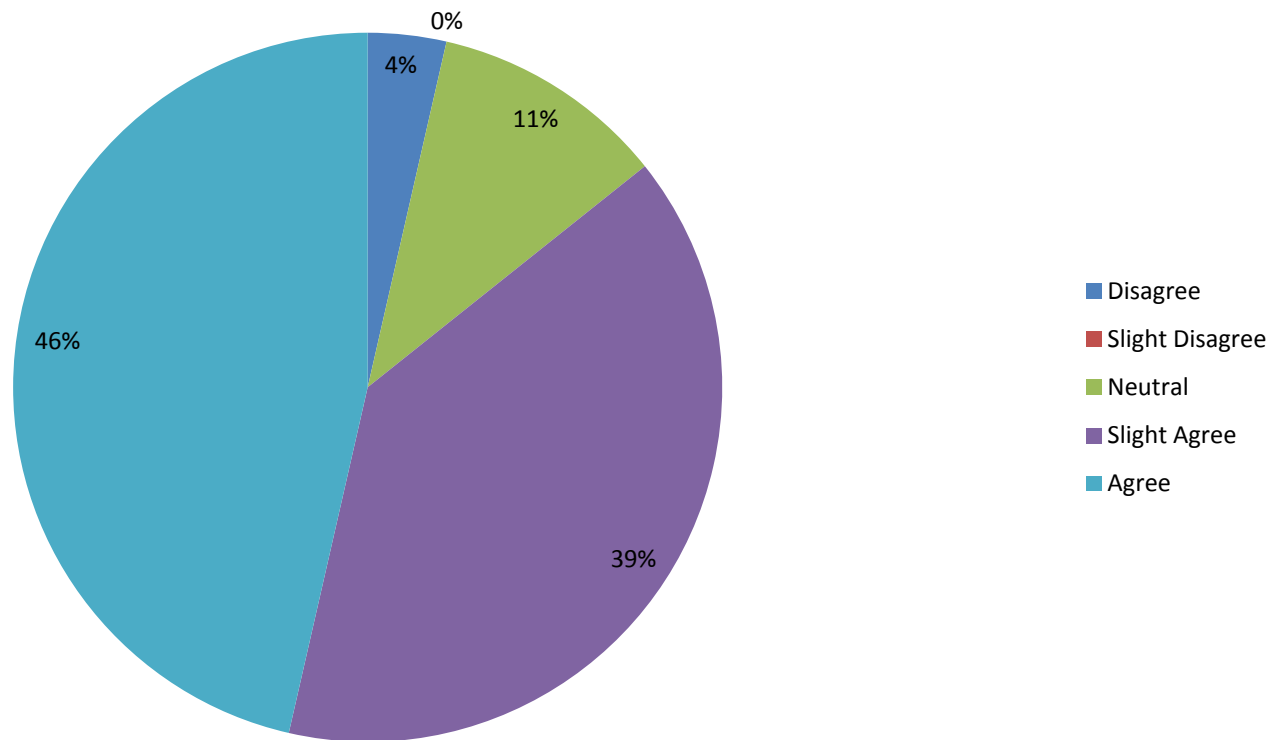
Outcomes: Lead Network

- The GTP's Lead Network operates in 7 Schools & Colleges
- It connects leads in 46 departments and has 4 undergraduate leads who work with SUEP
- Research on the leads shows gains in learning to think about teaching in a scholarly way
- 46 current graduate leads
- 4 current undergraduate leads



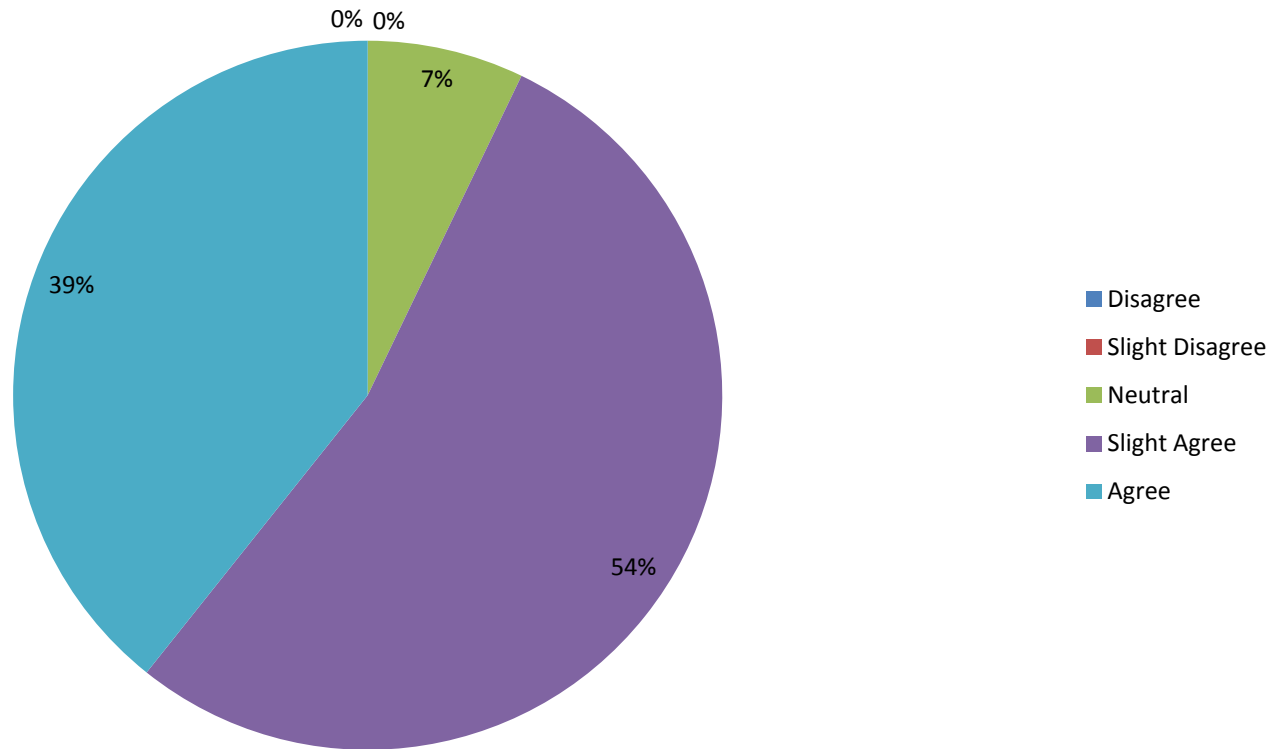
Q18. I am able to identify an educational problem, develop a solution and make a plan for its resolution.

First Year Leads Pre Test Total



Q18. I am able to identify an educational problem, develop a solution and make a plan for its resolution.

First Year Leads Post Test Total



Outcomes: PFF Grants

- COPFF Network (26 institutions linked)
Annual COPFFN Forum
- Bi-annual site visits to Network campuses
- Course in College Teaching at Colorado School of Mines
- Graduate Teacher Program at UNC
- Professional Development Certificate for PFF
- Physics PFF continues



Outcomes: Career Services

- Collaborative Professional Development Certificate for Business, Government, Industry, and the Arts
- Deliberately discuss potential of PhD to transfer skills
- Some BGIA students have transitioned to industry careers in industry



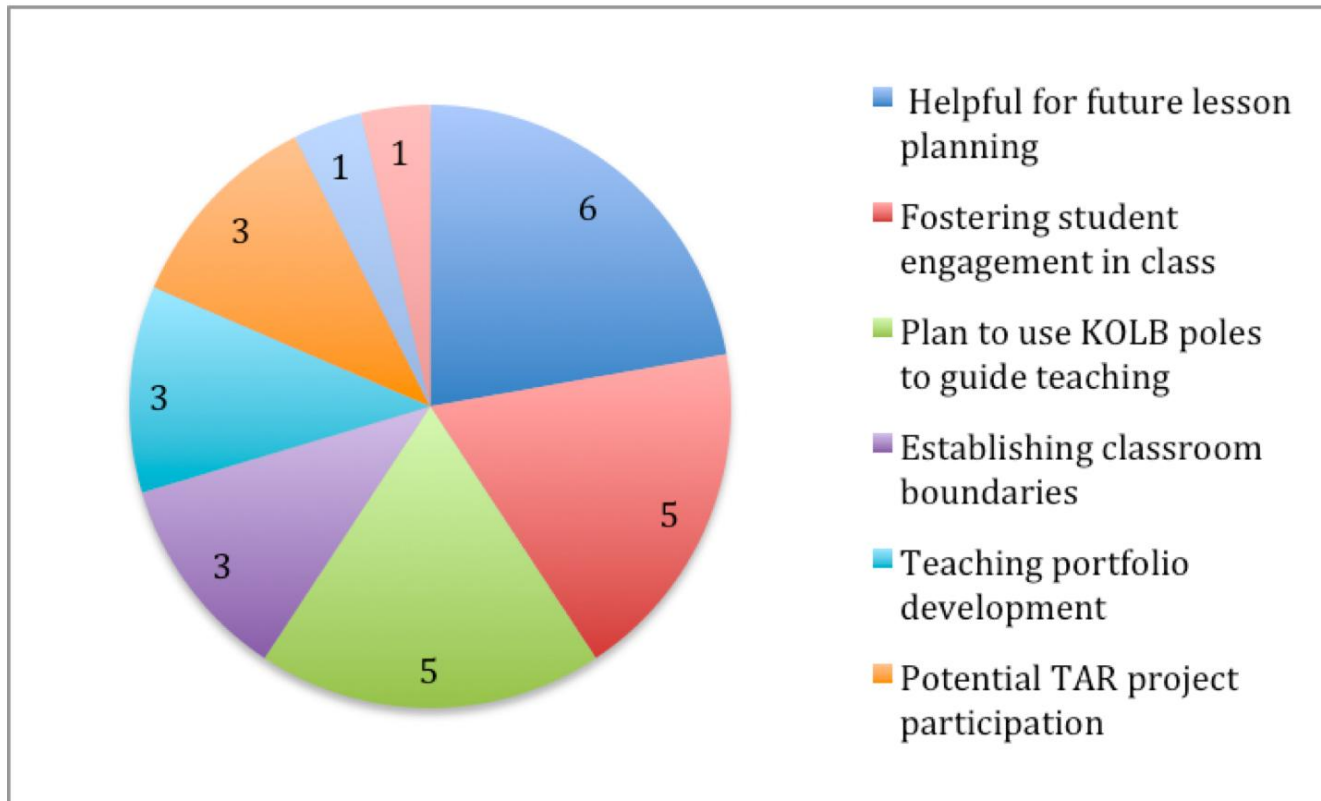
Outcomes: TIGER

- Data collected on TIGER project
- TIGER workshop data over 5 years shows an increase in participation
- We have completed 2 TAR projects and 2 Campus Exchange visits
- Our focus is “changing the teacher’ as the following slide demonstrates:



How participants plan to apply the knowledge gained in TIGER workshops...

Graph 6 How participants plan to apply the knowledge gained in TIGER workshops



Outcomes: Campus-wide

- Continue close liaison with United Government of Graduate Students
- Continue collaboration with SASC (former ULC) to support underrepresented undergraduates to pursue the doctorate & become faculty
- Developing courses in college teaching in departments



Outcomes (cont.)

The GTP now covers the full gamut of graduate student preparation for faculty roles:

- TA training
- Continued, experienced graduate student training and support
- Professional and leadership development
- Research on teaching (SOTL)
- Job search



Conclusion

The Graduate Teacher Program:

- ① helps graduate students teach well while they are on the Boulder campus and later as future faculty
- ② provides professional development opportunities to create academics (and non academics) who understand higher education and make good choices about their career tracks



Kristi Anseth, Professor, Chemical & Biological Engineering, CU Boulder



Kristi Anseth, PhD
Distinguished Professor
and HHMI Investigator
Department of University
of Colorado
<http://www.colorado.edu/che/ansethgroup/>

- "The Graduate Teacher Program was one of those singular experiences that made a huge impact in my future career in academics. My department prepared me to be an expert researcher and how to discover new knowledge, the GTP prepared me to be an excellent teacher of this knowledge."

Conclusion (cont.)

1. Cross-campus collaboration allows development & stimulates change
2. Costs can be shared
External funding and collaboration builds intellectual and programmatic capital
3. Faculty service “supports” the program in many ways
4. The Graduate Teacher Program is
FACULTY DEVELOPMENT



Conclusion (cont.)

The focus on graduate student & professional development has spawned:

1. DBER at the postsecondary level
2. Grants from major funding agencies
3. Collaboration across public and private research institutions
4. Publications/journals on teaching and learning at the college level
5. New faculty roles and positions across campus



<http://ojs.jstem.org/index.php?journal=JSTEM>

Factors Influencing Underrepresented Minorities' Success

Simeon P Slovacek, Jonathan C Whittinghill, Susan Tucker, Kenneth A Rath, Alan R Peterfreund, Glenn D Kuehn, Yvonne G Reinke

Teaching Continuum Mechanics in a Mechanical Engineering Program

Yucheng Liu

The Farm Subdivision: Using the Discipline of Agricultural Engineering to Integrate Math and Science

Tim Foutz, Maria Navarro, Roger Hill, Sidney Thompson, Kathy Miller, Deborah Riddleberger

Assessing Student Scientific Expression Using Media

Michael S Mott, William J. Sumrall, Debby A. Chessin, Angela S. Rutherford, Virginia J. Moore

A Comparison of Two Engineering Outreach Programs for Adolescents

Louis S. Nadelson, Janet M. Callahan

Differences in Math and Science Understanding between NSF GK-12 Participant Groups: A Year Long Study

Jennifer Anne Wilhelm, Xiaobo She, Darrellee Clem

Thank you!

For further information, visit:

- www.gtp.colorado.edu
- <http://careerservices.colorado.edu/students/gradStudents.aspx>
- www.cirtl.net