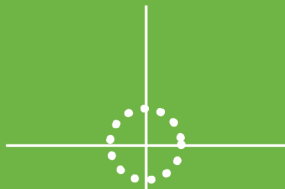# Eberly Center

Teaching Excellence & Educational Innovation

ANNUAL REPORT

AY2013-14

Connecting people, research, and practice...

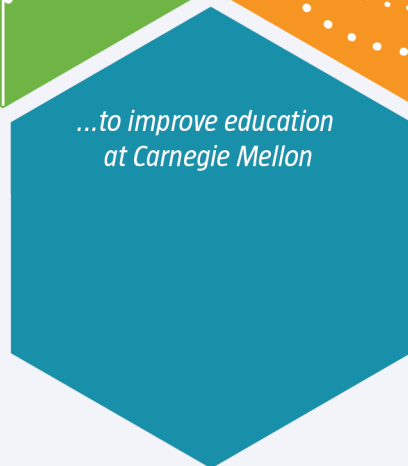**Inspiring** faculty to innovate in their teaching

Adapting our efforts to meet the growing needs and...

...emerging opportunities for learning

...to improve education at Carnegie Mellon

Carnegie Mellon University

Table of Contents

Executive Summary

45% of our consultations helped faculty teach more effectively with educational technology.

Connecting. Inspiring. Adapting.
Those three words aptly describe the Eberly Center in 2013-2014. The support and services we provide to our faculty and graduate students are in high demand, as the record-setting numbers in this report attest. And we have responded — by maintaining our high-quality offerings and extending our impact on teaching and learning at CMU — through innovative, targeted programs. In AY2013-14, we have...

Provided 339 consultations on teaching and learning to 203 faculty members.

Served more than 400 unique graduate students through our seminars, workshops, one-on-one consultations, and teaching observations.

Developed and hosted 2 new series: *Spotlight on Innovative Teaching* and *Special Interest Groups* to support faculty implementing evidence-based strategies.

Provided 30 customized workshops and seminars, further tailoring our support for faculty as well as for graduate students.

Advised 22 programs and units on effective strategies for technology-enhanced learning, learning space design, and/or curriculum review and revision.

Through these efforts, we reached faculty and graduate students across **all schools and colleges** at CMU and thereby have facilitated new strategies, technologies, and perspectives in teaching and learning, while building a community of educators.

An important component of teaching excellence and educational innovation — and hence of our work — is the effective use of educational technology. We help faculty (and graduate students in their teaching-related roles) incorporate technology deliberately to promote student learning, starting with what is known from learning science research and leveraging additional data for ongoing improvement. As such, we exemplify the best of **The Simon Initiative** and are proud to play a central role in translating these practices to teaching and learning at Carnegie Mellon University.

Connecting people, research, and practice
to improve education at Carnegie Mellon.

Inspiring faculty and graduate students
to innovate in their teaching.

Adapting our efforts to meet the growing needs
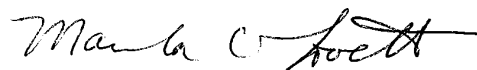and emerging opportunities for learning.

We supported
20 faculty members,
including **ProSEED
Simon Initiative
Grantees**, in using
learning outcome
data to inform
their instructional
design and use of
technology.

Leveraging expertise in both pedagogy and technology, the Eberly Center is an internationally recognized leader among university teaching centers. The book, *How Learning Works: 7 Research-Based Principles for Smart Teaching*, co-authored by current and former Eberly members, continues to receive acclaim. It is currently #3 on The Chronicle's "Top 10 Books on Teaching" and has a world-wide audience, with translations into Korean and Chinese with Japanese forthcoming. Our **award-winning website** received more than 2 million visits this year and is referenced by universities and teaching centers around the globe.

Amidst all our achievements, we still recognize the need to stretch and grow. Given the expanding responsibilities and opportunities that today's educators face — and the increased demand for Eberly Center services — we must continue to connect, inspire, and adapt. In the coming year, we envision making an even greater impact on teaching and learning at CMU by helping more faculty and graduate students **collect and use data** to improve their students' learning and by working

with programs to support their **curricular transitions and innovations**.

We are confident that with our responsive approach to a dynamically shifting environment, we can empower our faculty and graduate student colleagues to create the conditions for Carnegie Mellon students to learn and, through this learning, transform their world.

Marsha C. Lovett, PhD
Director

Creating a Community of Educators

Our mission is to distill the research on learning for faculty and graduate students and collaborate with them to design and implement meaningful educational experiences. We believe that combining the science and art of teaching empowers our colleagues to create the conditions for students to learn and, through this learning, transform their world.

www.cmu.edu/teaching

The Eberly Center Works With...

All faculty members and postdocs who teach (e.g., tenure-track, teaching-track, visiting, adjunct) and graduate students (e.g., teaching assistant, instructor, and future faculty) who want to reflect on and improve their teaching. This includes those who are:

- new to Carnegie Mellon and want to calibrate to our students and the institution.
- experienced and successful teachers who want to try new techniques or technologies.
- encountering difficulties in their courses and want help identifying and addressing problems.
- new to teaching and want help getting started (including graduate students who anticipate pursuing an academic career).

Our Approach Is...

Learner-centered | We put student learning at the center of the teaching process, helping faculty, postdocs and graduate students to develop course objectives, assessments, and instructional activities that together support and promote student learning and performance.

Educational | We help faculty members, postdocs and graduate students gain a deeper understanding of the principles that underlie effective learning and teaching so that they can make appropriate teaching decisions for their own courses. We do not simply dispense teaching tips.

Collaborative | We work closely with faculty, postdocs and graduate students to help them identify their strengths as teachers and to jointly devise strategies for course improvement and educational innovation.

Constructive | We focus on providing constructive and practical feedback to help our colleagues succeed as educators. Our role is to support teaching, not to judge performance.

Data-driven | We help faculty members, postdocs and graduate students to enhance their teaching by collecting information from classroom observations, student focus groups, and examination of teaching materials.

Research-based | We distill, synthesize and apply research, integrated from a range of disciplines, to help faculty and graduate students design and teach more effective courses. We also help faculty colleagues to conduct educational research in their disciplines where gaps in the literature exist.

Significant milestones in Eberly Center's recent history

Solve a Teaching Problem
Award-winning site
launched

2008

How Learning Works
published

2010

Learning Principles
pedagogical framework
for Open Learning Initiative

2010

Number of faculty consultations

203

span **all 7** Colleges & Schools

...impacting more than **10,292** student enrollments in CMU courses

...**doubling** in the last two years

| 200 |
| 180 |
| 160 |
| 140 |
| 120 |
| 100 |
| 80 |
| 60 |
| 40 |
| 20 |
| 0 |

2005 2006 2007 2008 2009 2010 2011 2012 2013 **2014**

Consultations Are...

Strictly confidential | We do not disclose any information from our consultations. This includes the identities of those with whom we work, the information they share with us, and data we gather on their behalf via classroom observations and interactions with TAs and students.
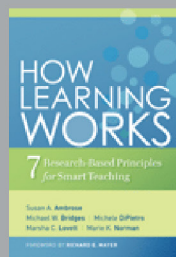
Documented for faculty and graduate student purposes alone | We provide written feedback to the colleagues with whom we consult that summarizes and documents the consultation process. We do not write letters of support for reappointment, promotion or tenure, but faculty can choose to use our documentation as they see fit.

Voluntary | We do not seek out faculty or graduate students, but we are happy to meet with anyone who contacts us.

Welcome
Marsha Lovett, PhD
New Director

Eberly Center
Teaching Excellence & Educational Innovation
2012

Eberly Center for Teaching Excellence and the Office of Technology for Education merge, integrating technology and pedagogical support

2013

The Simon Initiative announced! Marsha Lovett named Simon Co-coordinator; Eberly Center fine tunes support to address emerging need

The Simon Initiative
2013

ProSEED Grants for Technology Enhanced Learning Innovations; Eberly Center sees increase in faculty requests for help in using learning data

ProSEED
2014

Faculty Support Programs

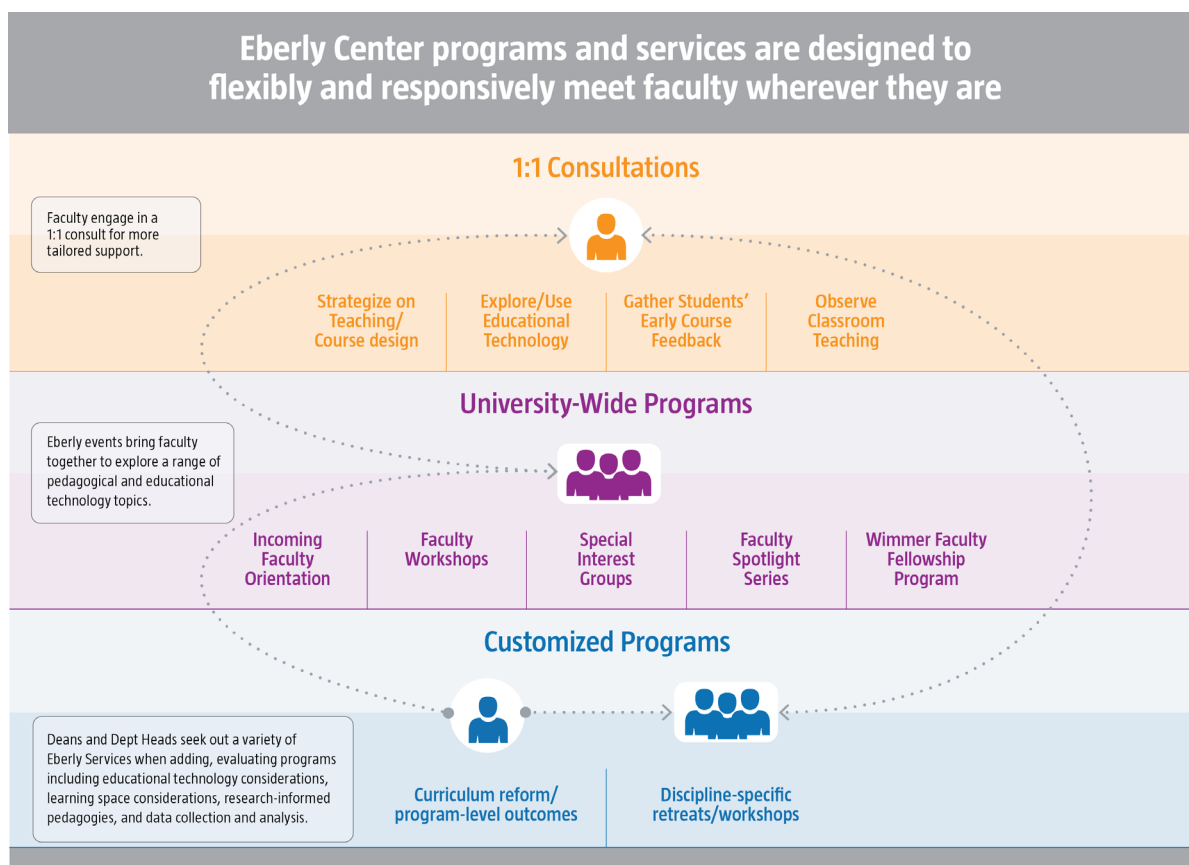The Eberly Center offers an array of evidence-based programs and consultation services to support the diverse teaching needs of all CMU faculty.

Designed to flexibly and responsively "meet faculty wherever they are", our menu of services offers various pathways for timely and ongoing support. For example, faculty may attend an Eberly workshop or event to learn about an instructional strategy or tool and then request a one-on-one consultation to implement changes in their teaching practice. At the same time, consultations reveal emerging patterns in faculty needs and interests, informing our design of targeted programs that disseminate relevant research findings and bring together faculty to share their experiences and exchange ideas.

We are actively innovating both the content and formats of our programming. This year, we offered two new program series: *Spotlight on Innovative CMU Faculty Teaching* and *Faculty Special Interest Groups.* The latter was a finalist for the annual Innovation Award from the Professional and Organizational Developers Network.

Eberly Center programs and services are designed to flexibly and responsively meet faculty wherever they are

1:1 Consultations

Faculty engage in a 1:1 consult for more tailored support.

| Strategize on Teaching/ Course design | Explore/Use Educational Technology | Gather Students' Early Course Feedback | Observe Classroom Teaching |

University-Wide Programs

Eberly events bring faculty together to explore a range of pedagogical and educational technology topics.

| Incoming Faculty Orientation | Faculty Workshops | Special Interest Groups | Faculty Spotlight Series | Wimmer Faculty Fellowship Program |

Customized Programs

Deans and Dept Heads seek out a variety of Eberly Services when adding, evaluating programs including educational technology considerations, learning space considerations, research-informed pedagogies, and data collection and analysis.

| Curriculum reform/ program-level outcomes | Discipline-specific retreats/workshops |

Spring 2014 Faculty Series

Spotlight
Innovative Teaching

Jelena Kovacevic
Chair, Electrical &
Computer Engineering
Professor, Biomedical Engineering

Ravi Ramamoorthi
Professor
Tepper School
of Business

Thursday, March 6, 2014
Noon-1:00pm (lunch provided)
Cyert Hall A70

CMU faculty present
Innovative approaches to
Online Courses

Sign up online www.cmu.edu/teaching/facultyseries/

Eberly Center
Teaching Excellence & Educational Innovation

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203 faculty were served in AY2013-14 by Eberly Center teaching consultations, reaching a new high.

Highlights of AY 2013-14

Faculty demand for Eberly Center programs and services reached an all-time high.

We provided 339 distinct consultation services to 203 faculty members, representing all CMU schools and colleges and impacting more than 11,729 student enrollments in courses.
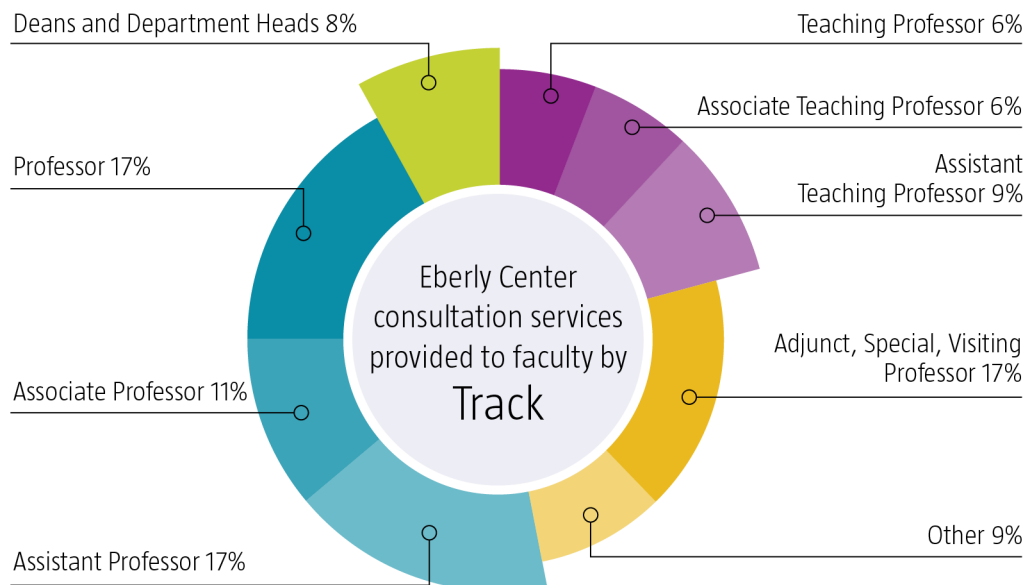
Over 200 faculty attended our campus-wide and customized, unit-level programs.

Four new Faculty Special Interest Groups supported early adopters in implementing evidence-based approaches to flipped classrooms and emerging online collaboration tools.

Our new series, Spotlight on Innovative CMU Faculty Teaching, disseminated local teaching innovations across campus and fostered cross-disciplinary dialogues on pedagogical lessons learned.

Forty-four faculty (62% of new hires) attended Incoming Faculty Orientation, fostering an interdisciplinary community and culture around evidence-based teaching and learning.

The Wimmer Faculty Fellows Program supported six junior faculty members to enhance their teaching through concentrated work designing or re-designing a course, innovating new materials, or exploring a new pedagogical approach.

Deans and Department Heads 8%

Teaching Professor 6%

Associate Teaching Professor 6%

Assistant Teaching Professor 9%

Professor 17%

Eberly Center consultation services provided to faculty by **Track**

Adjunct, Special, Visiting Professor 17%

Associate Professor 11%

Other 9%

Assistant Professor 17%

Faculty Consultations

"The Eberly Center and its programs for faculty are one of the jewels in CMU's crown."
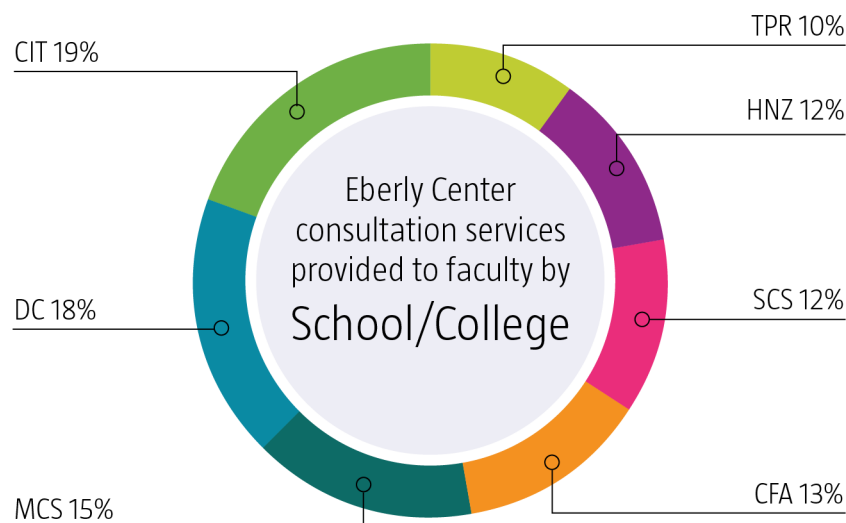*— Department Head*

Eberly consultants work with individual faculty members of all ranks and disciplines on any teaching or learning issue.

Consultations are tailored to the particular teaching context, draw on relevant educational research, and support implementation of evidence-based enhancements of teaching and learning. Common examples include improving students' learning in a

course, incorporating a new pedagogical technique, teaching effectively with educational technology, designing or redesigning a course, and solving a teaching problem. To support teaching improvement, at the faculty member's request, Eberly colleagues also conduct classroom observations of teaching and/or gather confidential and anonymous Early Course Feedback from students via surveys and focus groups.

We served faculty in all seven CMU schools and colleges

CIT 19%

TPR 10%

HNZ 12%

Eberly Center consultation services provided to faculty by **School/College**

SCS 12%

DC 18%

CFA 13%

MCS 15%

University-Wide Programs

To support the teaching endeavors of CMU faculty, the Eberly Center offers a diverse set of programs each year. Each event is open to faculty of all disciplines and ranks. All events are highly interactive and seek to build a community and culture around teaching at CMU by:

- synthesizing and distilling relevant research findings on teaching and learning;
- disseminating teaching innovations;
- modeling and sharing practical, evidence-based teaching strategies and uses of educational technology;
- exploring ways of translating evidence-based practices to one's own teaching practice; and
- providing lively venues for faculty to discuss teaching and learning with colleagues across disciplines.

A grand total of 93 faculty registered for these events. Most faculty registered for more than one event.

Workshops

Workshops are stand-alone, 90-minute interactive sessions, designed and facilitated by Eberly Center staff. We presented four workshops in Fall 2013:

- *Supporting the Academic Integrity of your Students*
- *Writing Effective Tests*
- *Engaging Students Actively During Lectures*
- *Leveraging Online Discussion Boards for Teaching and Learning*

NEW! Special Interest Groups (SIGs)

Offered for the first time in Fall 2013, SIGs bring together small, multidisciplinary groups of faculty to build community and sustain dialogues around teaching by exploring topics in depth, beyond what is possible in a single, stand-alone workshop.

Eberly colleagues design and facilitate SIGs, tailoring programs to meet the emerging needs of participants via seminar or round table formats. *In seminar-style SIGs*, faculty experience novel pedagogical strategies "hands-on" and then reflect upon and discuss their experiences from the perspectives of both students and instructors. Seminar-style SIGs conclude via small group consultations in which 3-4 faculty members discuss with an Eberly colleague how the focal strategies might be effectively transferred to their future teaching. *In roundtable-style SIGs*, faculty currently implementing particular teaching strategies meet periodically to discuss their experiences, share effective strategies, discuss feedback gathered from students via Early Course Feedback surveys or focus groups, and engage in collaborative problem-solving to address ongoing challenges.

We facilitated four SIGs in AY 2013-14, each serving a different cohort of faculty:

- F13: *Flipped Classroom*
  [round table-style for faculty implementing]
- F13: *Flipped Classroom*
  [seminar-style for faculty considering]
- S14: *Flipped Classroom*
  [extension of above for those implementing]
- S14: *Leveraging Online Collaboration Tools to Enhance Student Engagement*

"The Wimmer fellowship
was an incredible
learning experience.
This was the first distance
teaching course I taught
and the first time that
I flipped the classroom.
The Wimmer Faculty
Fellowship motivated me
to seek expert guidance
and mentorship from the
Eberly Center to further
expand my teaching skills."

– Assistant Professor

**NEW! Spotlight on Innovative
CMU Faculty Teaching**

In Spring 2014, the Eberly Center intro-
duced a new series, *Spotlight on Innovative
CMU Faculty Teaching*. This series high-
lighted an array of innovative, transferrable
teaching methods and novel uses of edu-
cational technology that CMU faculty are
currently using to enhance student learn-
ing. Each of three, 60-minute, monthly ses-
sions featured brief presentations by CMU
faculty, followed by informal roundtable
discussions among faculty across disci-
plines. Eberly Center staff organized and
facilitated each of the following sessions.

*Strategies and Lessons Learned From
"Flipping My Classroom"*
- Jim Antaki, Professor, Biomedical
  Engineering
- Mara Harrell, Associate Teaching
  Professor, Philosophy
- Charlie Garrod, Assistant Teaching Pro-
  fessor, Institute for Software Research

Innovative Approaches to Online Courses
- Jelena Kovacevic, Professor and
  Department Head, Electrical and
  Computer Engineering
- R. Ravi, Professor, Tepper School
  of Business

*Teaching Outside of the Box: Providing
Effective Feedback and Motivation*
- Stacie Rohrback, Associate Professor,
  School of Design
- Larry Cartwright, Teaching Professor
  Emeritus, Civil and Environmental
  Engineering

Wimmer Faculty Fellows Program

The Wimmer Faculty Fellows program is
designed for junior faculty members inter-
ested in enhancing their teaching through
concentrated work designing or re-design-
ing a course, innovating new materials, or
exploring a new pedagogical approach.

Eberly Center colleagues work individually
with each Wimmer Faculty Fellow according
to his/her particular needs. Each fellow
receives a stipend, funded by a gift from
the Wimmer Family Foundation, to
acknowledge the work it takes to improve
one's effectiveness as an educator.

The 2013-14 Wimmer Faculty Fellows are:
- Steven Chase, Assistant Professor,
  Biomedical Engineering, Carnegie
  Institute of Technology
- Charlie Garrod, Assistant Teaching
  Professor, Institute for Software Re-
  search, School of Computer Science
- Wolfgang Gatterbauer, Assistant
  Professor, Business Technologies,
  Tepper School of Business
- Zico Kolter, Assistant Professor, Comput-
  er Science, School of Computer Science
- Brian Kovak, Assistant Professor, Eco-
  nomics and Public Policy, Heinz College
- Meagan S. Mauter, Assistant Professor,
  Chemical Engineering and Engineering
  & Public Policy, Carnegie Institute of
  Technology
- Peter Scupelli, Assistant Professor,
  Interaction Design, School of Design,
  College of Fine Arts

"Thank you all so much for this wonderful start to the school year and very, very useful [Incoming Faculty] Orientation to improve my teaching. It was very useful to me, even as a teacher with 2-3 years of experience."

– Junior Faculty

Incoming Faculty Orientation

For over 30 years, the Eberly Center has offered programming to support newly hired faculty. We invite all faculty members who are new to CMU-Pittsburgh (e.g., tenure-track, teaching-track, visiting, adjunct) to participate. Year after year, the majority of incoming faculty members attend this optional orientation program, even though most are in the midst of transitioning to Pittsburgh and CMU.

In 2013, 44 new faculty attended.
Participants rated the program as having *high value*: on average, rating it a 4.4 out of 5 (5 being *very helpful*). Additionally, most participants self-reported numerous ways in which they would incorporate research-based strategies from the program into their future teaching. Incoming Faculty Orientation is designed to:

- help faculty calibrate their teaching to CMU students and standards
- uncover and challenge assumptions about teaching and learning
- disseminate practical, research-based strategies for teaching
- promote effective uses of technology
- facilitate dialogue across disciplines
- communicate Eberly Center's approach, programs, and services

To accomplish these objectives, we presented a multi-day program of interactive, research-based workshops on topics related to teaching and learning. The program also included a **panel discussion with award-winning faculty** as well as a Q&A session with Eberly colleagues and the Vice Provost for Education to give participants ample time to ask questions about their new academic community.

Customized Unit-Level Programs

The Eberly Center responds to requests from individual academic units based on their particular needs for faculty professional development on evidence-based teaching strategies. Eberly colleagues collaborate with CMU Deans and Department Heads to design and facilitate workshops, faculty meetings, and faculty retreats tailored to address discipline-specific needs. Last year, the Eberly Center provided the following customized programs, **attended by 113 faculty members**.

- *Teaching Innovation Skills*
  Biomedical Engineering,
  Carnegie Institute of Technology
- *Best Practices for Course and Syllabus Design*
  SYSU-CMU Joint Institute of Engineering,
  Carnegie Institute of Technology
- *Talking About Teaching: Grading and Assessment*
  School of Art, College of Fine Arts
- *Incorporating Videos into Your Teaching*
  Heinz College
- *Promoting Metacognition and Reflection*
  Modern Languages, Dietrich College of Humanities and Social Sciences
- *Translating Your Course Online*
  Tepper School of Business

"Improvement in post secondary education will require converting teaching from a solo sport to a community based research activity."

– Herb Simon

Promoting Research on Teaching & Learning

Not only do CMU faculty seek Eberly Center support to engage in evidence-based teaching, we are seeing more faculty interested in conducting educational research themselves – in the context of their teaching. Just as Carl Weiman, Nobel Laureate in Physics, urged us in the Inaugural Simon Initiative Distinguished Lecture, these faculty members are taking a scientific approach to improving education. We promote our colleagues' work in this area through one-on-one consultations, supporting the ProSEED Simon Initiative Seed Grant program, and contributing to education-related grant work.

Consultations on the Scholarship of Teaching and Learning

Among our one-on-one consultants, we have worked with more than a dozen faculty colleagues on disciplinary-based educational research. We provide support throughout the process – from designing a study and planning instructional interventions, to creating valid and reliable measures of learning, to identifying relevant journals and conferences for disseminating the work. Often these consultations stem from a faculty member's initial interest in trying out a new pedagogy or educational technology, and that interest grows into a quest to study and improve the intervention's effectiveness.

ProSEED Simon Initiative Seed Grants

The ProSEED program was launched in 2014 to "play a catalytic role in supporting promising, creative ideas in education and research." The Eberly Center supports the Simon Initiative Seed Grants within the ProSEED program by:

- Answering questions about effective learning outcomes assessment when faculty are writing their proposals
- Serving on the proposal review panel
- Providing support and consultation to awardees on instruction, assessment, and educational technology design – at no cost to their seed grant budget
- Managing some administrative tasks associated with the grants

Looking to the future, the Eberly Center is poised to further leverage the ProSEED Simon Initiative program. First, we can offer group programs to help faculty prepare proposals with strong learning outcomes assessment. Moreover, our Spotlight on Innovative Faculty Teaching series is a great venue for awardees to disseminate their work to a broad CMU audience and thereby inspire their colleagues.

Nobel Laureate Carl Wieman Presented the Inaugural Simon Initiative Lecture

Education-Related Grant Proposals and Grant-Funded Work

Eberly Center personnel are regularly invited by faculty colleagues to contribute to their education-related grants. Depending on the project's needs, we contribute expertise in course and curriculum design, assessment planning, and/or educational technology development to support the principal investigator's work. This year we are participating in the following funded projects.

Grants — Current

Improving Communication Skills Through an Integrated Mastery Model. (04/01/2012- 03/31/2014). Qatar National Research Fund, $444, 237.

Building a Learning Analytics System to Improve Student Learning and Promote Teaching Across Multiple Disciplines. (09/01/2012 - 08/31/2015). National Science Foundation, $496,315.

An Integrated Leadership and Innovation Curriculum for Undergraduate Mechanical Engineering. (10/01/2013 - 09/30/2015). National Science Foundation, $199,975.

I-Corps Site at Carnegie Mellon University: A Model Promoting University Innovation, Entrepreneurship, and Regional Growth. (05/01/2014 - 04/30/2017). National Science Foundation, $299,110.
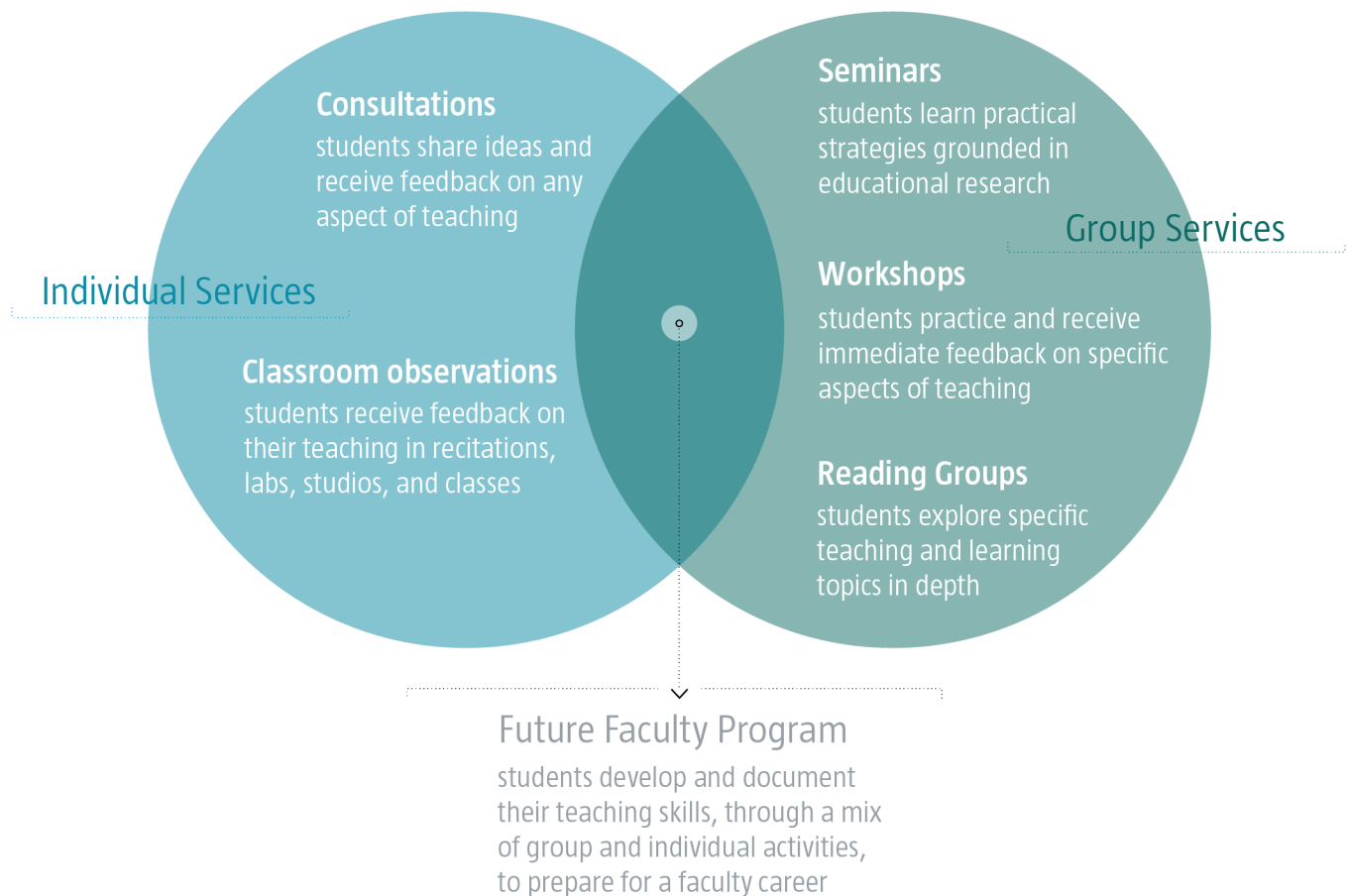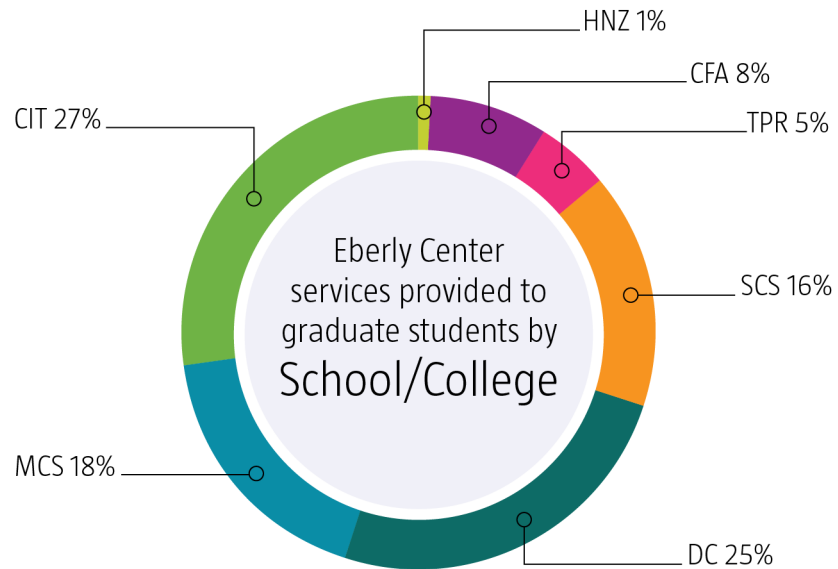
Graduate Student Support Programs

We offer a wide range of services to graduate students to support them both as teaching assistants or instructors during their time at Carnegie Mellon and as future faculty members at other institutions. From a first-time TA to an experienced instructor, our services accommodate graduate students' diverse needs, goals, and available time. And regardless of current teaching duties, the common goal across all of our graduate student services is to disseminate evidence-based teaching strategies in ways that are accessible and actionable.

In addition to providing these services directly to graduate students, we participate in university- and unit-level orientations and professional development series, and we support graduate program coordinators and individual faculty members as they train and support their graduate students to be teaching assistants and instructors.

Graduate Student Programs

Consultations
students share ideas and receive feedback on any aspect of teaching

Individual Services

Classroom observations
students receive feedback on their teaching in recitations, labs, studios, and classes

Seminars
students learn practical strategies grounded in educational research

Group Services

Workshops
students practice and receive immediate feedback on specific aspects of teaching

Reading Groups
students explore specific teaching and learning topics in depth

Future Faculty Program
students develop and document their teaching skills, through a mix of group and individual activities, to prepare for a faculty career

15

CIT 27%

HNZ 1%

CFA 8%

TPR 5%

Eberly Center
services provided to
graduate students by
School/College

SCS 16%

MCS 18%

DC 25%

This year, we provided 203 consultations to 113 unique graduate students.

Of these students, 80% were enrolled in doctoral programs and 20% were enrolled in master's programs.

Highlights of AY 2013-14

Serving the diverse CMU community: Across all of our programs and services, we served more than 400 unique graduate students from all seven schools and colleges and from more than 40 programs.

Disseminating evidence-based teaching practices: We filled more than 570 seats at our university-wide seminars and workshops alone.

Preparing graduate students to teach as faculty: The number of graduate students participating in our Future Faculty Program continued to grow this year.

Keeping pace with master's students: With the increase in master's students serving as TAs, the number of master's students seeking our one-on-one consultations has doubled.

Responding to emerging needs and interests: We developed nine new seminars, workshops, and other group sessions to respond to new CMU policies and initiatives, new trends in TA responsibilities, and the increasing need to document teaching effectiveness for the academic job market.

Graduate Student Consultations

Graduate students can work one-on-one with an Eberly consultant to ask questions, discuss ideas, and get feedback on teaching strategies, activities, and materials. Many of these consultations involve multiple interactions as well as multiple methods of collecting data on student learning, such as classroom observations of teaching and student feedback surveys. For example, a graduate student may meet one-on-one with an Eberly consultant prior to beginning a TA-ship to discuss strategies for facilitating student participation; then, during the semester of the TA-ship, the graduate student may request a classroom observation from an Eberly consultant to gain additional feedback. Because so many graduate students are enrolled in multi-year programs, we often have the opportunity to work with graduate students over several semesters and play a significant role in their development as educators.

University-Wide Programs

We offer three types of university-wide programs in a group setting: **seminars, workshops, and reading groups**.

Each type of program integrates educational research and theory with practical pedagogical strategies and gives graduate students from all schools and colleges the opportunity to interact with and learn from each other. The popularity of our seminars makes them a highly effective "gateway" service in that many students participate in several seminars and then pursue our small group activities and one-on-one services to go into greater depth with some aspect of teaching and learning.

Seminars

Our two-hour seminars cover a wide variety of topics related to teaching, learning, and professional development as an educator *This year, 195 unique graduate students from more than 40 departments attended our seminars.*

We presented 20 seminars on 18 topics, including four new topics to respond to new university policies and the expanding teaching responsibilities and practices of graduate student TAs and instructors.

To help graduate students learn the fundamentals of teaching and learning, we offer nine core seminars at least once each year. Note that our Future Faculty Program includes a minimum number of these core seminars as one of its requirements.

Fall 2013
- *New!* Supporting Your Students' Academic Integrity
- *New!* Leveraging Slides to Support Learning
- Course and Syllabus Design
- Monitoring Your Teaching Effectiveness
- Planning and Delivering Effective Lectures
- Providing Helpful Feedback
- Supporting Student Learning through Good Assessment Practices
- Working Well One-on-One

Spring 2014
- *New!* Designing and Implementing Group Projects
- *New!* Making the Most of the Last Day of Class
- Conducting Productive and Engaging Discussions
- Encouraging Intellectual Development and Critical Thinking
- Guiding Attention and Memory to Build Knowledge
- Motivating and Engaging Students
- Teaching Problem Solving

Summer 2014
- Building a Teaching Portfolio
- Course and Syllabus Design
- Crafting a Teaching Statement
- Leveraging Slides to Support Learning
- Teaching First-Year Undergraduates

We served more than 400 unique graduate students from all seven schools and colleges and from more than 40 programs through consultations and university-wide and unit-level programs.

Workshops

Our workshops, usually 2.5 hours long, give participants the opportunity to practice and receive immediate feedback on specific aspects of teaching. This year, 32 unique graduate students from more than 20 departments participated in our workshops. We facilitated three types of workshops:

- *Microteaching Workshop*
  Students teach a five-minute lesson and receive immediate feedback.
  Fall 2013 (three sessions)
  Spring 2014 (two sessions)
  Summer 2014
- *Syllabus Workshop*
  Students share and give immediate feedback on course syllabi.
  Summer 2014
- *New! Teaching Statement Workshop*
  Students share and give immediate feedback on teaching statements.
  Summer 2014

Reading Groups

Our reading groups meet every 2-3 weeks and allow graduate students to go into greater depth with a teaching and learning topic and gain greater familiarity with the related educational research. This year, we facilitated a reading group on academic integrity (via James Lang's *Cheating Lessons*) and on effective teaching strategies (via Ken Bain's *What the Best College Teachers Do*).

Fifteen unique doctoral students, representing five schools and colleges (CIT, DC, MCS, SCS, TPR), participated in this year's reading groups. More than a third of these students chose to participate in more than one reading group (across multiple semesters). One of the benefits commonly noted by reading group participants was discussing teaching across a range of disciplines.

Customized Unit-Level Programs

As a complement to our university-wide programs, we develop and deliver seminars and other sessions that address specific unit-level needs. These requests come from a variety of sources: graduate program coordinators, faculty members and post-docs in a supervisory role, and graduate students who coordinate professional development activities or teaching training for fellow students in their departments.

Approximately 185 unique graduate students participated in these customized sessions. This year we presented 17 unit-level sessions, four of which were new.

Biological Sciences
- Overview of Student Cognition
  Fall 2013: part of department orientation for new graduate students

Chemical Engineering
- Getting Started: Grading and Review Sessions
  Fall 2013: part of department orientation for new graduate students

Chemistry
- Giving Helpful Feedback
  Fall 2013: part of department orientation for new graduate students

Civil and Environmental Engineering
- Assessing Student Learning and Providing Helpful Feedback
  Fall 2013
- Working Well One-on-One
  Fall 2013
- Teaching Problem Solving
  Fall 2013

Computer Science
- *New!* Educational Technology:
Managing a Class with Blackboard
Fall 2013, Spring 2014
- *New!* Reflecting on Your Teaching
Spring 2014

Economics
- First-Day Strategies
Fall 2013
- Avoiding Your Expert Blind Spot
Fall 2013
- Making Recitations Interactive
Fall 2013
- Electrical and Computer Engineering
- *New!* From Course to College:
How to Teach in Alignment
Fall 2013

English
- Facilitating Effective Discussions
Fall 2013: part of department orienta-
tion for new graduate students

Human-Computer Interaction
- *New!* From Course to College:
How to Teach in Alignment
Fall 2013

Modern Languages
- *New!* Documenting Evidence of
Teaching Effectiveness
Fall 2013
- Writing a Teaching Statement
Fall 2013

Philosophy
- Overview of Student Cognition
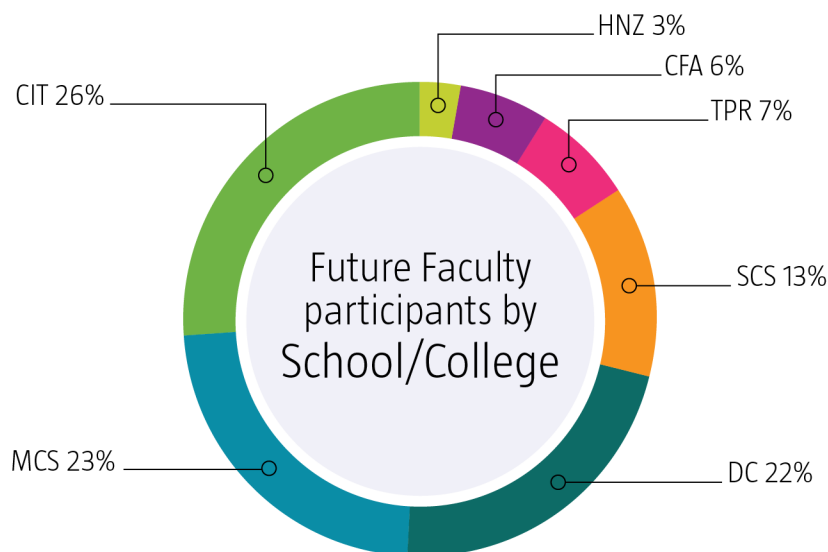Fall 2013: part of department orienta-
tion for new graduate students

We also consult one-on-one with graduate
program coordinators and other faculty
members to help them develop training
sessions, TA feedback forms, and other
materials for their TAs and instructors.

Future Faculty Program

Our Future Faculty Program helps gradu-
ate students develop and document their
teaching skills in preparation for a faculty
career. The program's requirements are:
- attending at least ten seminars, at least
six of which must be designated as core
topics
- participating in two teaching observa-
tions to receive formative feedback on
one's teaching
- designing a course and syllabus that
align with their discipline and teaching
goals
- designing teaching materials that align
with their discipline and teaching goals

Upon completing these four requirements,
graduate students receive a letter of com-
pletion and a transcript that lists all of their
Eberly activities. Graduate students who
complete the program praise it as giving
them a competitive advantage in securing
faculty positions. *This year, 12 graduate stu-
dents completed the program requirements.
Of the 115 graduate students enrolled in the
program, 94% are doctoral students and
6% are master's students.*

Future Faculty participants by School/College

CIT 26%
HNZ 3%
CFA 6%
TPR 7%
SCS 13%
DC 22%
MCS 23%

Invited Orientations

Each August, we participate in both university- and department-level orientations for new graduate students. These orientations are a highly effective means of outreach and generate significant follow-up requests for one-on-one consultations as well as registrations for our seminars and workshops.

At the university level, we presented a 50-minute session called "Resources for Teaching Assistants" that was attended by approximately 125 master's and doctoral students. This session provided both an overview of our services and evidence-based strategies appropriate for first-time TAs and instructors. We also participated in the Graduate Student Resource Fair that takes place during the university-wide orientation for new graduate students and typically draws several hundred graduate students.

At the department level, we presented an overview of our graduate student services for 11 departments to more than 340 new graduate students. For five of these departments, we also presented sessions tailored both to the discipline and to new graduate students' common teaching responsibilities in their program; these sessions are listed

in the "Customized Unit-Level Programs" section. The list below summarizes our department-level orientation sessions:

- Biological Sciences
- Biomedical Engineering
- Chemical Engineering
- Chemistry
- Civil and Environmental Engineering
- Design
- English
- Mechanical Engineering
- Modern Languages
- Philosophy
- Robotics

Related Support for Post-Docs

This year, nine individuals in post-doctoral positions have worked with the Eberly Center. Because post-docs at Carnegie Mellon typically hold limited or no teaching responsibilities and are at an early stage of their academic careers, their needs tend to be most similar to graduate students' and are met through the services we offer to graduate students.
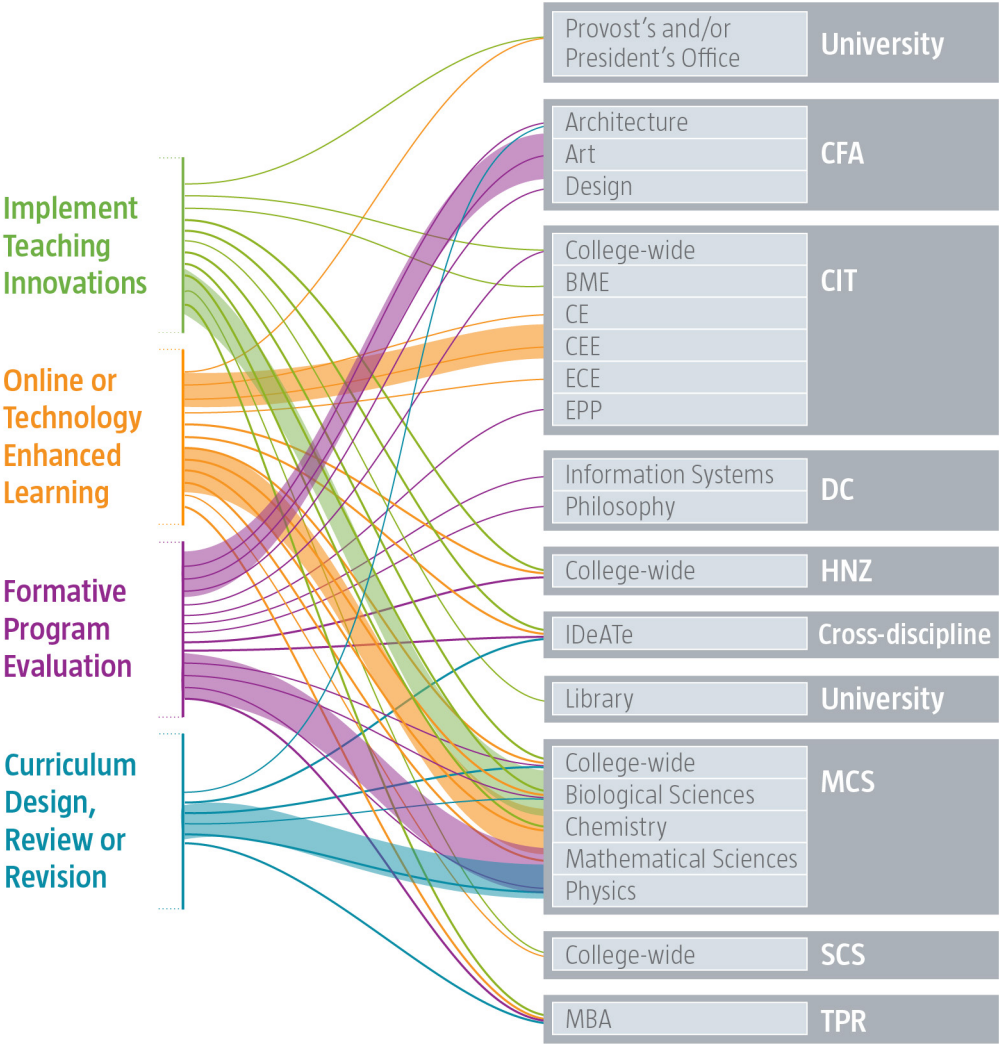
Department-level Services

The Eberly Center provides customized, consultation services to departments, schools, colleges and administrative units to support academic degree programs. For instance, Eberly colleagues help Deans, Department Heads, and groups of faculty to plan and implement program-wide pedagogical innovations, including:

- deliberate integration of emerging educational technologies
- iterative review and revision of programs and curricula
- design and preparation for teaching in online or blended modes

- leveraging existing data sources and identifying opportunities to measure student learning to inform formative program evaluation.

In academic year 2013-14, we provided 49 discipline-specific, program-level consultation services, serving greater than 50% of all CMU departments, including academic programs in all seven CMU Schools and Colleges, as well as the Library and the Provost's and President's Offices. Program-level consultations often involve a rich series of interactions and multiple Eberly services.

We provided 49 discipline-specific, program-level services to 50% of all departments, representing all seven schools and colleges.

Examples of our work at the department/program-level

IDeATe

In Fall 2014, the Integrative Design, Arts and Technology Network (IDeATe), an inter-disciplinary collaboration among faculty and staff from 25 units in four CMU colleges, launches eight campus-wide, interdisciplin-ary concentrations and minors, providing integrative design experiences and connec-tions to diverse networks of students.

The Eberly Center played an integral role supporting the development and implement-ation of courses in this program, especially the four portal courses. Eberly Center colleagues have consulted repeatedly with program directors and faculty on the:

- development and articulation of course- and program-level learning objectives
- design and implementation of courses using evidence-based teaching strategies
- effective selection and use of educational technology to support online learning associated with "flipped classroom" pedagogies
- design of new studio learning spaces to support pedagogical goals
- strategic plans to collect learning analyt-ics and other sources of data on student learning to formatively assess and inform iterative course- and program-level improvements.

Tepper FlexMBA Program

This year, the first cohort of students en-rolled in the Tepper School's FlexMBA pro-gram, a combination of highly interactive, online, distance learning and intensive, on-site weekends for working professionals living outside Pittsburgh.

When the Tepper School began explor-ing ideas for implementing this program, faculty leaders turned to the Eberly Center for both pedagogical and technological sup-port. For example, Eberly colleagues raised specific pedagogical and technological questions to guide evaluations of different online platforms, tools, and instructional formats. Based on faculty needs, we then offered a workshop series tailored to sup-port the faculty members who would be "translating" their courses to the online for-mat. Several faculty members also sought 1:1 consultations as they re-designed their courses, and we continued this support once the teaching began, by helping indi-vidual faculty members and program heads gather data on what was/wasn't working to support student learning.

The FlexMBA faculty are now preparing for their second year, and the Eberly Center will offer similar support mechanisms for onboarding additional Tepper faculty as they prepare to teach in this new format. Moreover, this work resulted in the creation and collection of valuable resources that the Eberly Center continues to leverage to support other CMU faculty transitioning to online/blended instructional format.

"Your workshops were invaluable in getting [faculty] prepared for the first year of the [FlexMBA] program and we would love if they could continue..."
– Professor

Technology for Teaching, Learning, and Educational Innovation

When the Office of Technology for Education merged with the Eberly Center for Teaching Excellence in 2013, the two groups did so with a deliberate goal of *bringing together key strengths in pedagogy and technology* to fortify and invigorate teaching excellence and educational innovation at CMU. With the ever-changing landscape of educational technology, this union was key to better serving not only immediate needs, but the growing aspirations felt and expressed by our teaching community.

Now, as the Eberly Center for Teaching Excellence & Educational Innovation, our portfolio of services has grown to extend our support and is tuned to enable broader and deeper impact at CMU.

Highlights of AY 2013-14

For individual faculty looking to incorporate educational technology into their teaching

Our 1:1 faculty and program-level consultations in 2013-14 included...

- Development of models for online courses, modules
- Best practices for creating, curating, using instructional videos
- Support for full course set up in LMS
- Online self and peer assessments
- Plagiarism detection tools
- Distance teaching using synchronous communication tools and course capture
- Annotation tools for in-class and online lectures
- Clickers for use in lectures to spur discussion and comprehension checks
- E-portfolio tools, blogs, etc for reflective practice

For programs moving from traditional to online courses/programs:

We developed several frameworks and models that facilitate the design process for translating traditionally taught courses to online delivery, leveraging the research on learning and student-centered design principles. We have applied these models to support the FlexMBA online/hybrid program, IdeATe curriculum/courses, Proseed recipients, and others.
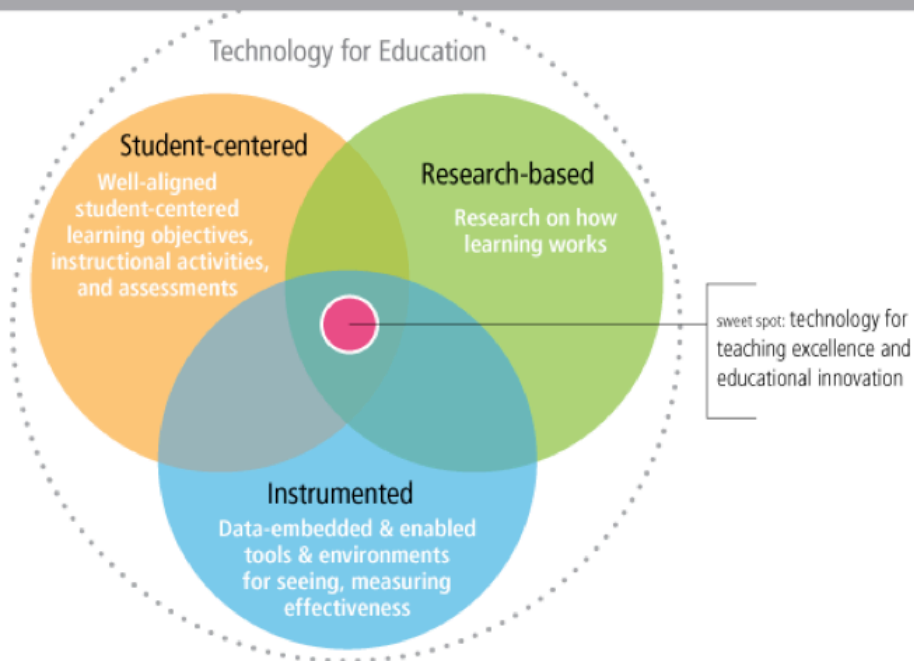
Collaborating with academic and administrative units:

We have brought our expertise to support the work of several broad impact and significant educational technology projects including investigation, design, effective use, and/or evaluation of online and hybrid teaching platforms, course capture, learning spaces, and digital accessibility.

- *Computing Services* on three discovery projects: course capture, software- or web-based conferencing, and mobile clickers (response system).
- *Tepper School of Business* to investigate online course platforms including Canvas and Acatar, instructor-made video tools including Camtasia and Panopto, synchronous conferencing tools, and other educational technology "plugins."
- *School of Computer Science* to provide expertise towards the pedagogical design of the Citadel teaching clusters.
- *Mellon College of Science* on educational technologies to support the revised curriculum, in particular investigation of e-portfolio technologies.
- *College of Engineering, Heinz, and Dietrich College* looking to evaluate online platforms, videos, and digital assets.

45% of our consultations* helped faculty teach more effectively with educational technology.

*Does not include our dedicated help desk support for faculty and students using Blackboard (course management system).

| Modeling success | Exposure to material | Learning by example | Practice & Application | Feedback & Help | Where am I? | Interpersonal |

When Eberly Center looks to the potential of technology for education, we look to these 3 dimensions or enablers:

Technology for Education

Student-centered
Well-aligned student-centered learning objectives, instructional activities, and assessments

Research-based
Research on how learning works

sweet spot: technology for teaching excellence and educational innovation

Instrumented
Data-embedded & enabled tools & environments for seeing, measuring effectiveness

Our Approach to Educational Technology

At Eberly, we work to make sure that technology is used deliberately for helping teachers teach and students learn; for the delivery of educational excellence and the invention and iterative improvement of educational innovations.

Goal identification and alignment

The (re)alignment/focus on goals is critical to the effective use of technology for education. When a faculty member comes to us asking about a technology and how to use it in their classroom, we begin by asking about their goals for their students' learning and how they envision using the technology. This simple interaction provides us with key insights: has s/he identified a gap or problem the technology can uniquely address and/or an opportunity afforded by a new technology?
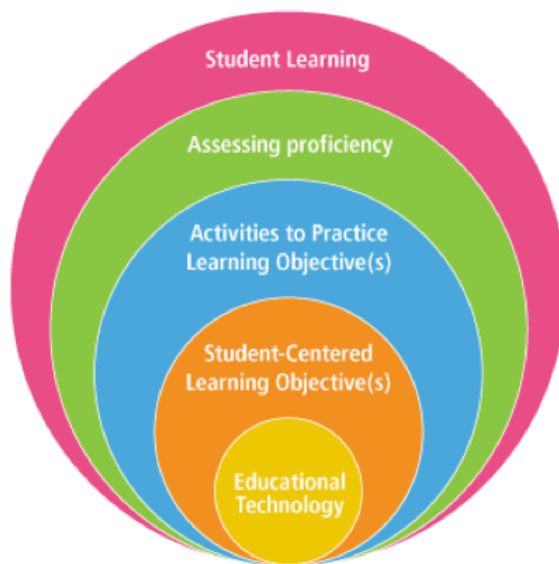
Bringing the research on learning to bear

Through Eberly's and other's work on how learning works, we are able to leverage the research on learning and apply it to individualized contexts of our faculty.

Using a modular approach to design and data-informed iterative refinement

When we support the faculty with using educational technology for their teaching and students' learning, combined with the socratic method to ellicit goals, vision, etc., we use a modular approach to design. For example, a faculty member comes in and wants to create instructional videos so that s/he can flip the classroom. We oftentimes suggest that they initially flip a class or a segment, and evaluate how it worked. We have worked with enough of these cases to identify affordances that faculty can leverage and a few common pitfalls that we'd like to help our faculty avoid/learn from.

We look to technology through the lens of student-centered learning objectives.
When technology operates as an enabler of this goal, it empowers teachers and learners.

Simplifying and leveraging the technology ecosystem

Focusing students' efforts and attention on the learning goals, rather then the technology, is key. We know that when technology is used effectively it can improve learning, but when there's a mismatch it can divert students' cognitive resources and the faculty's time. For reasons like these, we want faculty to consider several things, including:

- effectiveness and match of a particular technology for teaching and learning goals
- students' cognitive focus is on the learning task vs learning how to use a technology
- responsibilities around technology use (e.g. student privacy, digital accessibility)
- training and amount of time needed (for both students and instructors) to ramp up to use a particular educational technology
- levels and types of support they have available to them when using centrally supported technologies versus off-the-shelf/commercial tools

Targeting uses of technology to solve problems and extend opportunities

We spend time seeking out tools that will fill gaps and reduce common teaching and learning pain points, including:

Providing students with sufficient targeted practice:
- Tools that provide students with opportunities for practice (e.g. Webassign problems, other curated content for providing supplemental practice)
- Technology environments that are set up to signal to students what they are doing right/wrong have potential to help to guide their practice efforts. (e.g., instructor implemented feedback to quiz questions in Bb, inline assessments in OLI).

Providing timely feedback to students:
- Providing timely feedback is important for student learning and is sometimes difficult to do, especially in large class sizes and for written assignments. Instructors can use tools like Clickers, Turnitin or Blackboard's self and peer assessment tools to support this need.
- Crowdsourcing and responding to questions outside of class through Piazza.

25

Create a Conceptual Big Picture of the Course

How students organize knowledge influences how they learn and apply what they know.

Students naturally build sparse knowledge structures and might not see the connections/relationships that you as an expert see and want them to identify and apply.
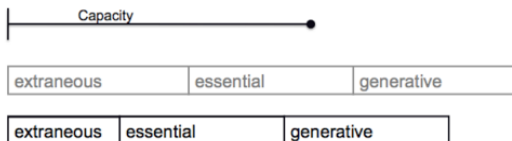
Create a "big picture" view for your students and use it repeatedly to promote rich structure.

Produce Instructional Videos that Work for Learning

There's a lot of research on what makes an instructional video effective for learning.

But first, a note about how human's process information and types of processing required for learning...

- We use separate channels for processing visual vs. verbal information
- We have limited capacity and it is easily overloaded
- In most learning tasks, there are 3 kinds of processing: extraneous, essential, generative.

Capacity

| extraneous | essential | generative |

| extraneous | essential | generative |

Reducing "extraneous" cognitive processing load increases our capacity to attend to essential and generative tasks for learning.

With this in mind, we can leverage three principles or strategies to guide our design decisions as they relate to creation/selection of instructional videos:

1. Reduce extraneous processing: **eliminate non-essential information** (e.g., non-essential visual effects, sound effects/music, animations, images, words; tighten/make more concise the essential content)
2. Manage essential processing: **break complex concepts into smaller chunks**; use advance organizers
3. Foster generative processing: **provide/motivate relevant practice** and interaction with the learning material

ing Data

2 Exploratory Data Analysis

3 Probability

data

cs course describes a high-level process that students will
new phase as a way to show/remind students where they

Examples of how Eberly Center pulls from the research on learning and effective uses of technology and brings that to our faculty for application in designing and delivering their courses.

Our goal is to use technology deliberately to make learning more efficient and effective and ultimately to be a transformative power.

Compensating for expert blind spot:
- This well-documented teaching problem can be addressed by using technologies to unpack complex skills/tasks and make the component parts available to novices for practice and feedback. For example, OLI integrates the practice of defining learning objectives (LO) directly into the online course design process. The LOs are then mapped to related course activities. As students interact wth the course activities, data are collected and feedback is provided to both instructors and students about their learning. The affordances of the technology itself combined with pedagogical guidance from Eberly teaching consultants, faculty are in good hands for making their expertise accessible to novices.

Making grading of large class sizes more efficient:
- Managing grading of large classes through automated grading and use of evaluation criteria and peer review tools in Blackboard.

Core applications we provide

The Eberly Center licenses and/or centrally supports several core educational technologies including:
- *Blackboard*, the university's learning management system.
- *Clickers*, the university's classroom response system.
- Tools that are extensions or plugins to Blackboard, including:
- *Turnitin*, a plagiarism and peer evaluation tool.
- *LTI connectors* to a variety of educational technology tool including: CMU's *Open Learning Initiative* courses, *Piazza, Web-Assign, Panopto,* and more.

Technology and the Pedagogical Design of Learning Spaces

Today, we know a lot more about how learning works and how teaching can be most effective. This has changed the paradigm to a much more active model: *learning is doing, thinking, constructing*.

New learning spaces should incorporate this new paradigm and leverage key themes coming out of the research on teaching and learning.

Herb Simon's quote sums it up well… "Learning results from what the student does and thinks and only from what the student does and thinks. The teacher can advance learning only by influencing what the student does to learn."

In AY2013-14, Eberly engaged in several key projects with respect to the design and evaluation of learning spaces including:
- Gates Citadel Clusters
- Tepper new building complex
- IdeATe (maker space)
- Evaluation of the Collaborative Teaching Cluster

Integrating technology in ways that increase usability and decrease cognitive load promotes learning. The value delivered by technology in learning spaces must outweigh the cognitive cost of becoming proficient with that technology so that valuable time is not taken away from learning.

Immersive, authentic experiences promote transfer of learning. Working on real problems (or high-fidelity simulations) promotes students' motivation, and it gives them practice integrating and applying skills in complex situations. Building design should move beyond the notion of "classrooms" as the only sites for learning and make it easy and intuitive for students to access and share information, ideas, and tools with each other and with external partners, regardless of where they are.

Instrumenting the learning process enables data-based improvement. When data are collected and analyzed in an automated manner, we gain efficiencies (e.g., teachers can target their time redesigning a course, students at risk can be identified before problems get serious, and administrators can learn about actual patterns of use of various instructional resources to make better allocations). Physical spaces facilitate this when they are instrumented so data are collected and aggregated.

Collaborative Teaching Cluster:
Eberly Center consultants observed classes being taught in the Collaborative Teaching Cluster and evaluated its effectiveness for teaching and learning.

A few insights: the configuration performs as designed in supporting both individualized and group work, as well as provides clear and sufficient pathways for the instructor to move freely throughout the space to observe up-close and respond to students' work during classtime. While the monitors situated on the desks might obstruct line-of-sight for some students, instructors can avoid this by presenting their instructional material on the wall monitors located near each table/grouping. The lectern control panel user interface offers a lot of control and as a result is a bit complex for some to operate at the same time they are focused on teaching; therefore, some instructors make sure to have a TA on hand to manage setup and swtiching between the various technology presentation options.

"Thank you for making your Eberly website available to the public — so often these pedagogical goldmines are password-protected. Your material represents a resource we could never compile in a small school like ours."

– sent to us from an international educator

Teaching Website Usage

	AY11-12	AY12-13	AY13-14
Pageviews	892,474	1,428,607	2,682,022
Visitors	341,820	608,841	1,386,828
Visits/Day	1,102	1,981	4,541

Eberly Center's teaching website located at www.cmu.edu/teaching is designed to guide faculty through the processes of creating and implementing courses, solving teaching problems, and assessing student learning. Indeed, our website allows us to support a far broader group of faculty, postdocs, and graduate students than we could through direct interaction, including CMU faculty at overseas campuses and programs.

Top 5 Most Viewed Areas of the Site

45% Assessment
30% Design & Teach a Course
11% Solve a Teaching Problem
8% Learning & Teaching Principles
3% Technology for Education
Percentages are proportion of all page views.

We leverage the teaching website to rapidly respond to emerging faculty and graduate student needs by providing targeted, practical web resources and support.

For example, when we received a conspicuously large volume of faculty inquiries regarding flipped classroom pedagogies, as part of our response, we created a new web resource on the topic [www.cmu.edu/teaching/technology/flippingtheclass], featuring practices and lessons learned by CMU faculty who are "early adopters" of flipped classroom pedagogies.

We believe that maintaining a well designed, informative, user-friendly website is critical to our mission to support faculty colleagues and promote high quality teaching.

Service to the Carnegie Mellon Community

To contribute to the CMU community and educational mission, Eberly Center staff served on a large number of university committees, mentored CMU students, and taught CMU graduate and undergraduate courses.

University Committees

Lovett
- Simon Initiative, Co-Coordinator
- ProSEED/Simon Initiative Grant Review Panel, Member
- Pittsburgh Science of Learning Center, Executive Committee, Member
- PIER Steering Committee, Member
- University Education Council, Member
- University Promotion & Tenure Committee, Member
- Ryan Award Committee, Co-Chair
- Doherty Award Committee, Co-Chair
- Academic Advising Award Committee, Co-Chair
- Executive Steering Committee for Computing, Member
- Computing at Carnegie Mellon Advisory Committee, Member
- Digital Accessibility Working Group, Member
- MCS Core Education Committee (and Steering sub-committee), Member
- GCC Advisory Board, Member
- Academic Review Board, Committee Member

Hershock
- Information Literacy Competency Standards

Poproski
- Freedom of Expression working group
- Graduate Student Teaching Award, Co-Chair

Schuldt
- TA Issues working group
- Graduate Student Concerns Committee
- Graduate Student Teaching Award, Co-Chair
- Computer Science Department TA Committee
- Computer Science Department TA Awards Committee

Brooks
- Digital Accessibility Working Group, Member
- MCS Non-Technical Core Education Committee, E-Portfolio Working Group, Member

Ph.D. and Master's Thesis Committees (Member)

Lovett
- Iris Howley, Language Technologies, Ph.D. Committee Member (in progress)
- Adam Black, Computer Science Department, Masters Thesis Committee Member

CMU Courses and Classes Taught

Lovett
- Fall 2013, Psychology, 85-392 *Human Expertise*, upper-level undergraduate seminar course
- Spring 2014, Human Computer Interaction, 05-748 *Research Methods for the Learning Sciences*, 3-week module for graduate students in Program in Interdisciplinary Educational Research (PIER) and Masters in Educational Technology and Applied Learning Science (METALS)

Schuldt
- Fall 2013, English, 76-870 *Professional and Technical Writing*, required introductory course for professional writing master's students

Poproski
- Spring 2014, Philosophy, 80-254 *Analytic Philosophy*, undergraduate course in early 20th-century philosophy and foundations of logic

Brooks
- Fall 2013, 05-633 *User Interface Lab*, lab course for Masters in Educational Technology and Applied Learning Science (METALS). Guest lecture on: *Designing Videos that Work for Learning* and *A Modular Approach to Online Course Design using Canvas and Blackboard*

External Visibility/Professional Work

For over 30 years, the Eberly Center has been one of the premier teaching and learning centers in US higher education. To maintain the visibility of the Eberly Center and contribute to the national and international dialogue in educational development and the learning sciences, we engage in a variety of professional activities outside the University. In addition to publications, awards, and invited presentations, this work includes serving on external committees, boards, and peer-review panels. We also frequently host visiting faculty and administrators from other institutions seeking to establish effective teaching centers at their own institutions.

Publications

Ambrose, S. A., & *Lovett*, M. C. (2014). Prior knowledge is more than content: Skills and beliefs also impact learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.) Applying science of learning in education: Infusing psychological science into the curriculum. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/asle2014/index.php

Wright, M. C., McKay, T. *Hershock*, C., Miller, K., & Tritz, J. (2014). Better than expected: using learning analytics to promote student success in gateway science. Change: The Magazine of Higher Learning, 46(1), 28-34.

Lovett, M. C. (2013). Make exams worth more than the grade: Using exam wrappers to promote metacognition. In M. Kaplan, D. LaVaque-Manty, D. Meizlish, & N. Silver (Eds.) Reflection and Metacognition in College Teaching. New York: Stylus Publishing.

Awards

Hershock
• Finalist, 2013 Innovation Award, Professional and Organizational Developers Network

External Presentations, Seminars and Workshops

Hershock, C., Bakewell, M., & DeMonner, M. (2014, February). Rapid evaluations of emerging instructional technologies: Practical Strategies to inform university IT governance and faculty development. Interactive session presented at the 2014 Educause Learning Initiative Annual Meeting, New Orleans, LA.

Hershock, C., & Niemer, R. (2013, November). "Flipping" communities of practice: Impact more faculty faster. Poster session presented at the annual meeting of the Professional and Organizational Developers Network, Pittsburgh, PA.

Lovett, M. C. (2014). Applying Principles of Learning to Teaching — With and Without Technology. NYU Academy of Distinguished Educators, New York City, March 27 2014.

Lovett, M. C. (2014). How Learning Works: Knowledge Acquisition and Application. The 10th Annual Learning Conference, University of British Columbia, Kelowna, BC, Canada, May 2014. [Invited Keynote]

Lovett, M. C. (2014). How Learning Works: Knowledge and Application. 12th Annual Faculty Conference on Teaching Excellence, Temple University, Jan 17, 2014, Philadelphia, PA. [Invited Keynote]

Lovett, M. C. (2013). Combining Pedagogy, Cognitive Science, and Technology to Create Learner-Centered Classrooms, Learning and the Brain Conference, Boston, November, 2013 [Invited Keynote]

Lovett, M. C. (2013). How Learning Works: Book discussion, Utah State University. Nov 6, 2013. [Invited webinar]

Lovett, M. C. (2013). Cognitively Informed Analytics to Improve Teaching and Learning. EDUCAUSE LA Sprint, July, 2013 [Invited Webinar]

External Committees, Boards and Journal/Proposal Reviews

Lovett
- National Science Foundation, Review Panelist
- Review of Educational Research, Editorial Board Member & Reviewer
- Journal of Experimental Psychology: Learning, Memory & Cognition, Reviewer

Poproski
- Games, Interaction, Reasoning, Learning & Semantics, Reviewer

Schuldt
- National Science Foundation, Review Panelist
- Professional and Organizational Developers Network, Conference Reviewer

External Colleges and Universities Visited to Learn About Our Work/Approach
- Asistente Universidad de Concepción, Chile
- Don Bosco Institute of Technology, Mumbai, India
- Flinders University, Australia
- Fudan University, China
- National University of Singapore
- Singapore Institute of Technology

AY2013-14 EBERLY CENTER STAFF MEMBERS

Marsha Lovett, PhD
Director, Eberly Center for Teaching Excellence & Educational Innovation
Co-Coordinator, The Simon Initiative
Teaching Professor, Psychology

Diana Bajzek, Senior Technology Solutions Specialist

Judy Brooks, MDes, Director, Educational Technology & Design

Raphael Gachuhi, Software Engineer

Chad Hershock, PhD, Associate Director & Coordinator of Faculty Programs

Heather Marin, Blackboard Help Desk Support

Michelle Pierson, Business Administrator

Ruth Poproski, PhD, Teaching Consultant & Research Associate

Meg Richards, Senior Systems Software Engineer

Hilary Schuldt, PhD, Associate Director & Coordinator of Graduate Programs

www.cmu.edu/teaching

Eberly Center

Teaching Excellence & Educational Innovation

Carnegie Mellon University