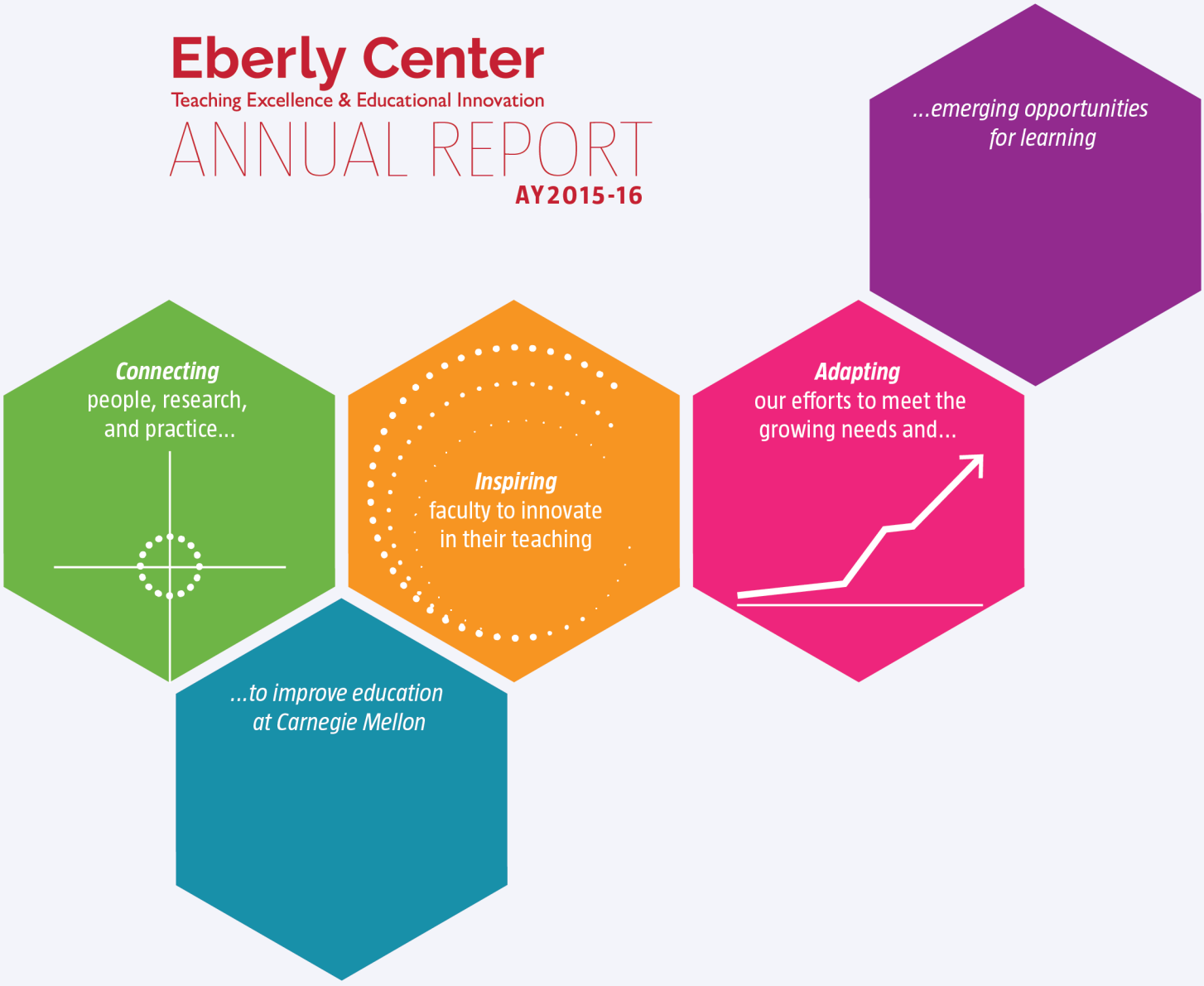
Eberly Center

Teaching Excellence & Educational Innovation

ANNUAL REPORT

AY2015-16



Carnegie Mellon University

Eberly Center for Teaching Excellence & Educational Innovation

Annual Report AY 2015-2016

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Executive Summary

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

To address 173 distinct teaching and learning challenges, we helped 128 faculty members in their selection and use of technology.

Connecting. Inspiring. Adapting.
Those three words aptly describe the Eberly Center in 2015-2016. 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 AY2015-16, we have...***

Supported 350 unique faculty members (1 in 3 instructors teaching a CMU course) through our events and services, including 435 consultations on teaching and learning to 273 faculty members.

Served more than 455 unique graduate students and postdocs from all seven schools and colleges and 42 academic programs through our seminars, workshops, one-on-one consultations, and TA orientations.

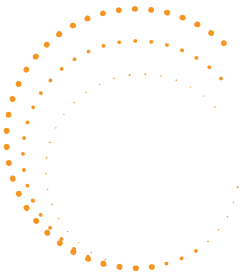
Provided 31 customized workshops and seminars, further tailoring our support for faculty as well as for graduate students.

Offered a 2-day Incoming Faculty Orientation to 39 new faculty hires.

Advised 30 programs and units (88 faculty members participating) on effective strategies for curriculum design and assessment, technology-enhanced learning, learning space design, and TA training.

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.



Inspiring faculty and graduate students to innovate in their teaching.

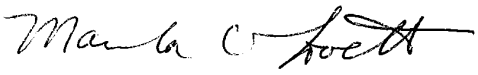
Leveraging expertise in both pedagogy and technology, the Eberly Center is an internationally recognized leader among university teaching centers. The book, *How Learning Works: 7 Research-Based Principles for Smart Teaching*, co-authored by current and former Eberly members, continues to receive acclaim. It was highlighted as #3 on The Chronicle's "Top 10 Books on Teaching" and has a world-wide audience, with translations into Korean, Chinese, and Japanese. Our award-winning website received more than 3 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 collect and use data to improve their students' learning and by working with programs to support their curricular transitions and innovations.

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

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

We helped 77 faculty members teaching 97 courses to leverage learning outcomes data for improving the design, teaching, and learning in CMU courses and academic programs.

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.

The Eberly Center Works With...

All faculty members, postdocs, and graduate students who want to reflect on and improve their teaching, including 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 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.

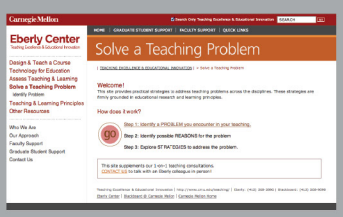
Constructive | We focus on providing constructive and practical feedback to help our colleagues succeed as educators. Our role is to support teaching, not to judge performance.

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

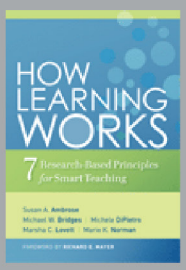
Significant milestones in Eberly Center's recent history

Solve a Teaching Problem
Award-winning site
launched



2008

How Learning Works
published



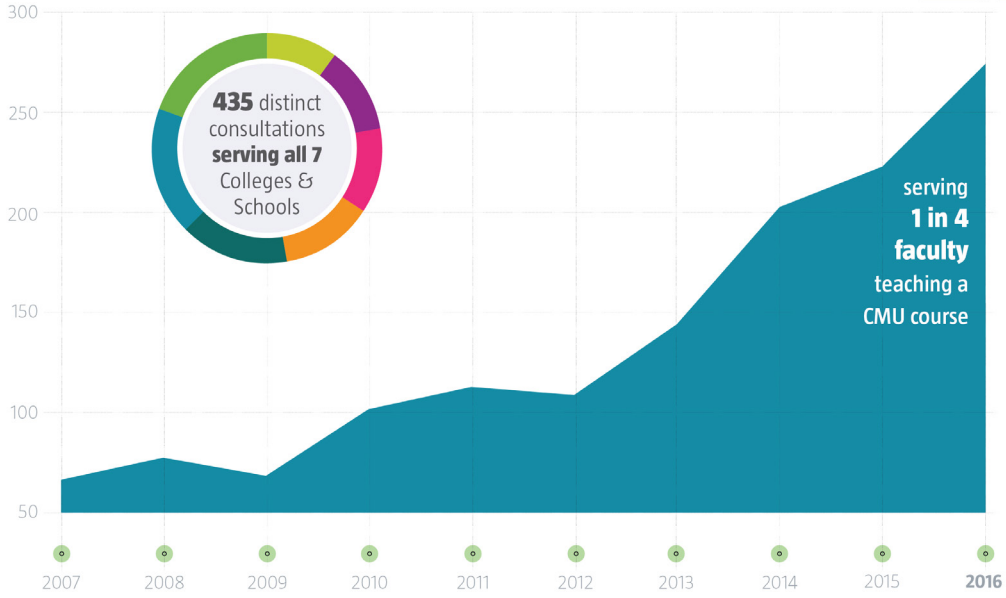
2010

Learning Principles
pedagogical framework
for Open Learning Initiative

2010

Faculty members served by 1:1 consultations

273



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 for teaching consultations, but we are happy to meet with anyone who contacts us.

www.cmu.edu/teaching

Welcome
Marsha Lovett, PhD
New Director

2012

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

Eberly Center
Teaching Excellence & Educational Innovation
2013

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

The Simon Initiative
2013

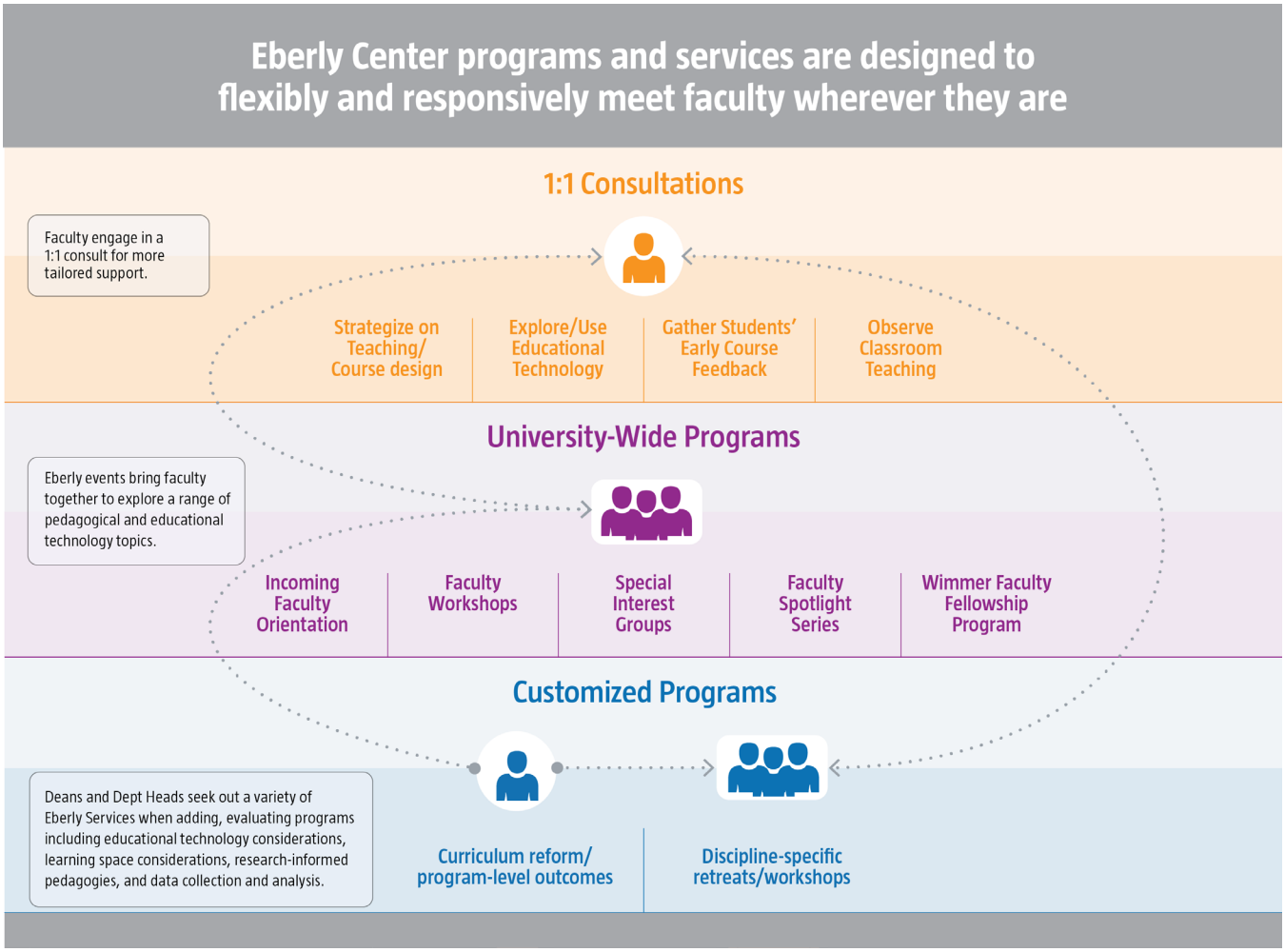
Eberly Center instituted the Teaching Innovation Award to recognize faculty for innovative teaching strategies that enhance student outcomes in individual courses.

Teaching Innovation Award
2016

Faculty Support

Faculty demand for Eberly Center services reached an all-time high in AY 2015-16.

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. For example, this year, we expanded our programs to include the new Teaching Innovation Award, recognizing CMU faculty members' individual, course-level teaching innovations that have been shown to impact student learning and engagement.



CELEBRATION of EDUCATION

teaching innovation award

originality of the teaching strategy | **impact** on student learning | **potential** for widespread adoption

Highlights of AY 2015-16

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

Overall, 350 CMU faculty members took advantage of Eberly Center programs and services, representing **1 in 3 faculty instructors** who taught CMU courses in AY 2015-16.

Delivering tailored responsive support to CMU courses

We provided **435 distinct consultation services to 273 faculty members** (totalling more than 773 client meetings), representing all CMU schools and colleges.

We helped 77 faculty members teaching 97 courses to leverage learning data to improve the design, teaching, and learning in CMU courses and academic programs.

Forty-six faculty received **Early Course Feedback** services to gather anonymous, consensus-checked, formative feedback from students in 53 courses.

We supported 128 faculty members in their selection and **use of Technology-Enhanced Learning to address 173 distinct teaching and learning challenges**.

The **Wimmer Faculty Fellows Program** supported five 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.

Disseminating evidence-based teaching practices

133 faculty members filled 281 seats at our university-wide and customized, unit-level programs.

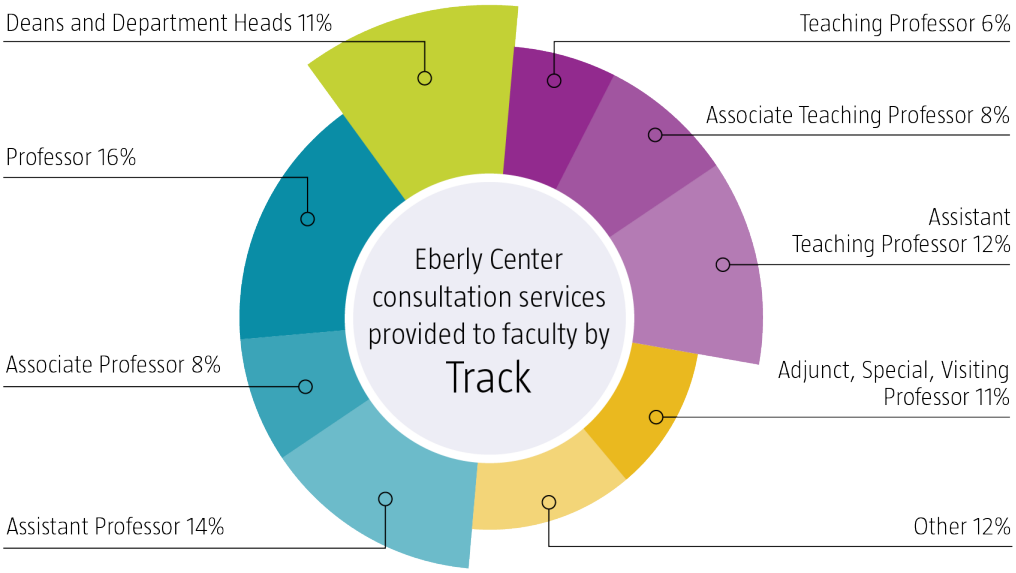
39 faculty (approximately 58% of new hires) attended **Incoming Faculty Orientation**, fostering an interdisciplinary community and culture around evidence-based teaching and learning.

We instituted the **inaugural CMU Teaching Innovation Award**, recognizing five faculty for specific, innovative teaching strategies that enhanced student outcomes in individual courses.

Responding to emerging needs and interests

Three new **Faculty Special Interest Groups** met 13 times to support faculty in implementing evidence-based approaches for creating instructional videos, collecting data to improve learning outcomes, and teaching interdisciplinary team-taught courses.

Our series, **Spotlight on Innovative CMU Faculty Teaching**, featured seven faculty, disseminating local teaching innovations across campus and fostering cross-disciplinary dialogues on pedagogical lessons learned.



"I benefited substantially from the contributions and insight of [Eberly teaching consultants. They] provided excellent feedback on course design, offered helpful encouragement to a first-time teacher, and pointed me in the direction of countless teaching resources. Particularly helpful were handouts for course evaluation strategies and literature on engaging students in interactive classroom learning. I look forward to leveraging Eberly Center resources as I continue to refine this course, as well as other courses going forward."
– Associate Professor

Faculty Consultations

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 to improve students' learning in a course.

Common consultation examples include incorporating a new pedagogical technique, teaching effectively with educational technology, collecting data on student learning outcomes, 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.

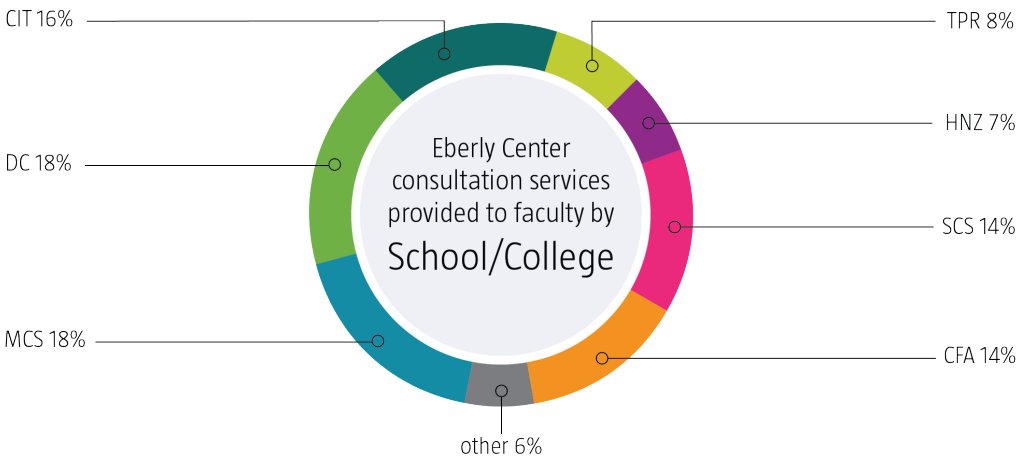
We provided 435 distinct consultation services to 273 faculty members (totalling more than 773 client meetings), representing all CMU schools and colleges. Overall, requests for Eberly Center consultations increased approximately 25% compared to the previous year.

This year's consultations included helping 77 faculty members collect and interpret learning data to inform revisions to 97 CMU courses and academic programs (40% increase from last year). Similarly, we supported 172 faculty members in their selection and pedagogical use of Technology-Enhanced Learning. Additionally, 46 faculty requested an Early Course Feedback service in 53 courses to gather anonymous, consensus-checked, formative feedback to inform their current and future teaching practices (33% increase from last year).

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.



We provided 435 distinct consultation services to 273 faculty members (totalling more than 773 client meetings), representing all CMU schools and colleges.

A grand total of 133 faculty filled 281 seats at our university-wide programs:

Seminars

Faculty seminars are stand-alone, 90-minute interactive sessions, designed and facilitated by Eberly Center staff. We presented six seminars in AY 2015-2016:

- Teaching Students to Innovate
- "Just-in-Time Teaching": Targeting Instruction Where Students Are Struggling
- Teaching Teamwork: Effective Strategies for Designing Project-Based Learning
- Measuring the Impact of Your Educational Intervention (...and How to Craft a Compelling ProSEED/Simon Initiative Grant Proposal)
- Reaching Underprepared Students
- Handling Problematic Student Behavior

Special Interest Groups (SIGs)

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 roundtable 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 or 1-on-1 consultations in which 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 three SIGs in AY 2015-16, each serving a different cohort of faculty:

- *F15: Creating Instructional Videos that Actually Work for Learning* [seminar style for faculty considering implementation]
- *F15 and S16: Collecting Data To Improve Learning Outcomes* [roundtable style for faculty currently implementing]
- *F15 and S16: Strategies for Teaching Interdisciplinary Team-Taught Courses* [roundtable style for faculty currently implementing]

"In the 15 years I've taught at CMU, your [Eberly Center] 3-part course was the first time I'd been formally taught how to do the job I was hired to do. So, thanks! [What I learned] will be very useful in the fall when I teach the class again." – *Professor*

"The seminars and special interest groups are a great way to meet other educators on campus, exchange ideas and share experiences and best practices. Presenting my course in last year's seminar was a great opportunity to reflect on my teaching practice too!"
– Special Faculty

Spotlight on Innovative Teaching

Spotlight on Innovative CMU Faculty Teaching is a series highlighting an array of innovative, transferrable teaching methods and novel uses of educational technology that CMU faculty are currently using to enhance student learning. Three 60-minute sessions featured brief presentations by spotlighted CMU faculty, followed by informal roundtable discussions among faculty across disciplines. AY 2015-16 sessions included:

Creative Uses of Multimedia for Learning
- Jon Minden, Biological Sciences;
- Andy Norman, Philosophy, Humanism Initiative and Ralph Vituccio, Entertainment Technology Center

Novel Approaches to Service Learning
- Anne Mundell, Drama
- Nico Slate, History

Classroom Research: Data-Driven College Teaching and Course Design
- Chris Neuwirth, English
- DJ Brasier, Biological Sciences

Wimmer Faculty Fellows Program

The Wimmer Faculty Fellows program is designed for junior faculty members interested in enhancing their teaching through concentrated work designing or re-designing 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 2015-16 Wimmer Faculty Fellows are:

- Daragh Byrne, Intel Special Faculty, IDeATe and School of Architecture, College of Fine Arts
- Ricky Law, Assistant Professor, Department of History, Dietrich College of Humanities and Social Sciences
- Molly McCarter, Assistant Teaching Professor, School of Drama, College of Fine Arts
- Constantine (Costa) Samaras, Assistant Professor, Civil & Environmental Engineering, Carnegie Institute of Technology
- Bryan Webler, Assistant Professor, Materials Science & Engineering, Carnegie Institute of Technology

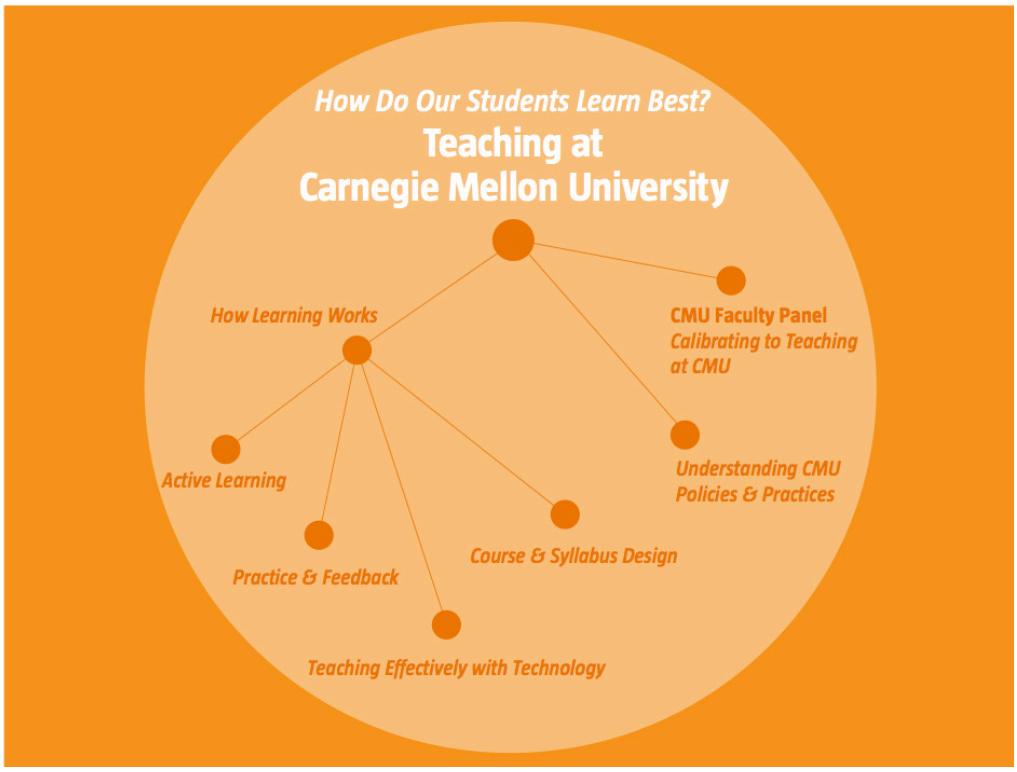
Incoming Faculty Orientation

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 2015, 39 new faculty attended, representing 58% of new CMU-Pittsburgh faculty hires. Participants rated the program as having high value: on average, rating it a 4.5 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 two-day program of interactive, research-based workshops on topics related to teaching and learning. The



Incoming Faculty Orientation: In 2015, 39 new faculty attended, representing 58% of new CMU-Pittsburgh faculty hires. Participants rated the program as having high value: on average, rating it a 4.5 out of 5.

program also included a panel discussion with experienced faculty as well as case study discussions with Eberly colleagues and the Vice Provost for Education on CMU academic policies 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.

- Mellon College of Science, EUREKA! First Year Seminar, Invited Session
  - How learning works: What does research suggest about how to maximize your learning in MCS courses?
  - Office of Student Affairs
  - Designing effective instruction deliberately
  - Dietrich College of Humanities & Social Sciences
  - Technology-Enhanced Learning Bootcamp
  - Biological Sciences, 4th Annual Biological Sciences Undergraduate Teaching Symposium
    - Engaging student effectively (and actively during lectures)
    - Getting the most from peer-to-peer learning in class and outside class
    - Teaching novice students to develop expertise via problem solving
  - Center for the Arts & Society
  - Special Interest Group on Interdisciplinary Team Teaching

"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.

This year, we supported **77 faculty members in using learning outcome data to inform their instructional design and use of technology in 97 CMU courses** (a 40% increase compared to last year). These faculty members are taking a data-driven 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 & Learning

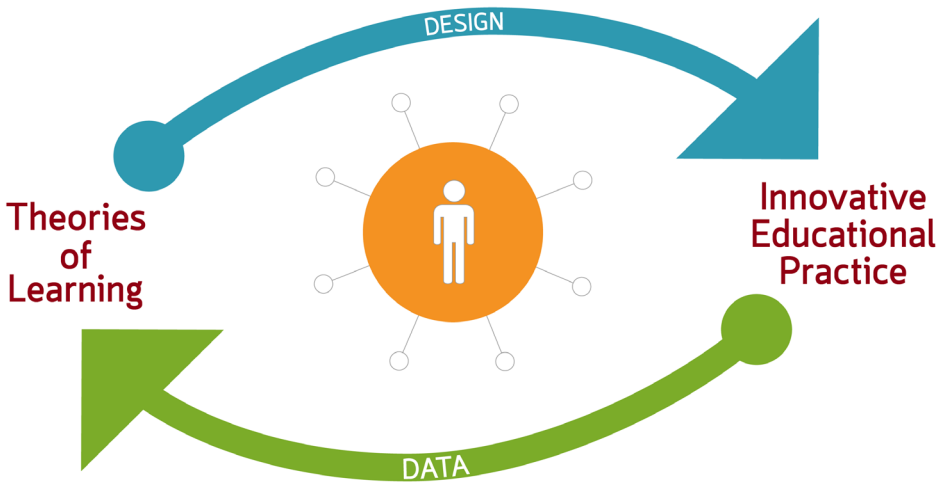
We work with faculty colleagues on disciplinary-based educational research – from designing a study and planning instructional interventions, to creating valid and reliable measures of learning, to identifying relevant journals and conferences for disseminating the work. Often these consultations stem from a faculty member's initial interest in trying out a new pedagogy or educational technology, and that grows into a quest to study and improve the intervention's effectiveness. Examples include:

- Developing and studying Prose Style online instructional modules with Chris Neuwirth, Professor of English.
- Collecting and analyzing quantitative and qualitative data from students and peer mentors in Modern Chemistry with Dave Yaron, Professor of Chemistry.
- Harvesting and analyzing online learning data from the OLI-French courses with Bonnie Youngs, Teaching Professor of French.
- Investigating the effects of formative assessment and simulations in the OLI module on DNA replication with D.J. Brasier, Assistant Teaching Professor of Biological Sciences and Gordon Rule, Professor of Biological Sciences.

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 continues to support 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.
- Providing design and build support for the development of educational technologies.



Education-Related Grant Proposals and Grant-Funded Work

Eberly Center personnel are regularly invited by faculty colleagues to contribute to education-related grants. Depending on the project's needs, we contribute expertise in course and curriculum design, assessment planning, and/or educational technology development. This year we consulted or collaborated on 10 new grant proposals with an educational innovation or learning research component. These included NSF CAREER proposals and research proposals to various government agencies and philanthropic foundations. We continued our participation in the following funded projects:

- Building a Learning Analytics System to Improve Student Learning and Promote Teaching Across Multiple Disciplines. (09/01/2012 - 08/31/2016). 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.
- Lowering Barriers to the Use of Evidence-Based Educational Innovations. (07/31/14-01/31/16). Carnegie Corporation, $225,000.
- Understanding and Overcoming Institutional Roadblocks to the Adoption and Use of Technology-Enhanced Learning Resources in Higher Education (05/01/15-04/30/16). Carnegie Corporation, $1 million.
- Cultivating Digital Scholarship and Technology-Enhanced Learning in the Humanities. (09/01/14-08/31/19). Andrew W. Mellon Foundation, $2 million.
- Evidence-Based Technology Enhanced Learning Innovations. Carnegie Corporation, $225,000. (07/31/2014-01/31/2016).
- Alternate Instructional Model for Introductory Computer Science Classes. Google, $100,000. (03/01/2015-02/28/2016).

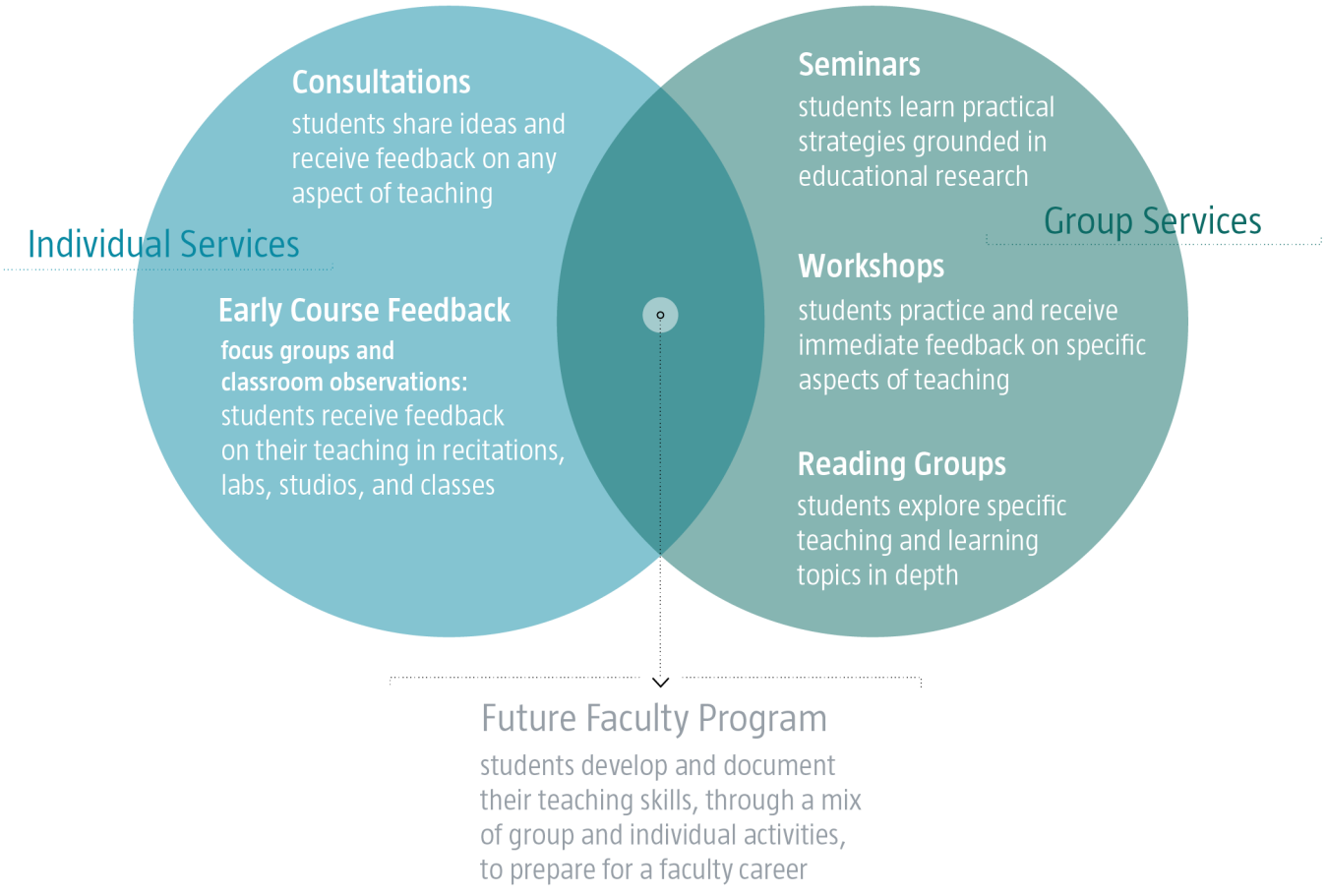
Graduate Student & Postdoc Support

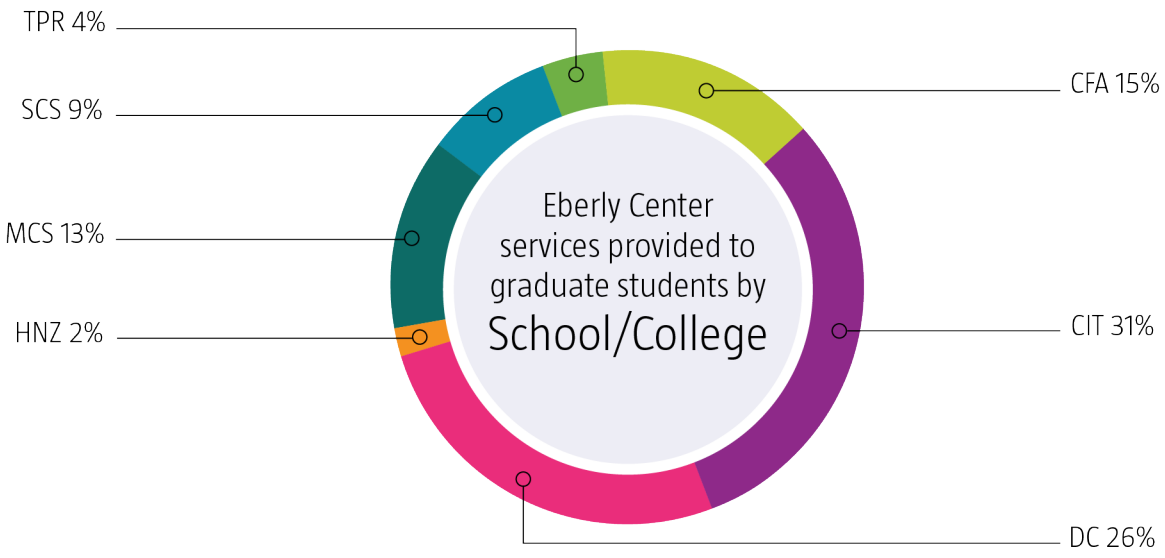
We offer a wide range of services to graduate students and postdocs, to support them as teaching assistants or instructors during their time at Carnegie Mellon and as future faculty members at other institutions. From a first-time TA to an experienced instructor of record, our services accommodate graduate students' and postdocs' 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 and postdocs, 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 and postdocs to be teaching assistants or instructors of record.

Highlights of AY 2015-16

Serving the diverse CMU community: Across all of our programs and services, we served more than **455 unique graduate students and postdocs** from all seven schools and colleges and 42 academic programs.

Graduate Student Programs





Disseminating evidence-based teaching practices: 429 graduate students and postdocs filled 1266 seats at our university-wide and customized, unit-level events.

Supporting individual CMU Graduate Students and Postdocs: We provided 274 individual consultations to 140 unique graduate students and postdocs, an increase of 25% and 22%, respectively, compared to last year.

Preparing graduate students and postdocs to teach as faculty: The number of graduate students and postdocs participating in our Future Faculty Program continued to grow this year. Seventy new participants enrolled in the program and a grand total of 160 individuals participated (an increase of over 50%). This year, 26 participants finished the program requirements (double the number from the previous two years combined).

Responding to emerging needs and interests: We developed 23 new programs to respond to new CMU policies and initiatives, new trends in TA responsibilities, and emerging needs of graduate students, postdocs, and academic units at CMU.

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 and focus groups. 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 multiyear programs, we often have the opportunity to work with graduate students over several semesters and play a significant role in their development as educators.

We provided 274 consultations to 140 unique graduate students and postdocs, an increase of 25% and 22%, respectively, compared to last year. Of these graduate students, 81% were enrolled in doctoral programs and 19% were enrolled in master's programs.

We provided **274 consultations to 140 unique graduate students** and postdocs. an increase of 25% and 22% respectively..

Graduate Teaching Fellows

Graduate Teaching Fellows (GTFs) are a select group of experienced CMU graduate student instructors from a variety of disciplines, who are recognized for their teaching effectiveness and commitment to student learning. Full-time Eberly Center staff provide GTFs with advanced training in evidence-based teaching strategies and teaching consultation techniques through regular "teaching circle" meetings. In AY 2015-16, the Eberly Center worked with eight GTFs:

- Shanna Bowersox Bowman, Biological Sciences (not pictured)
- Nathan DeCarolis, Tepper School of Business
- Kate Hamilton, English
- Jessica Harrell, English
- Darya Kurilova, Software Engineering
- Clive Newstead, Mathematical Sciences
- Niranjini Rajagopal, Electrical & Computer Engineering
- Garrett Stack, English

Besides receiving the most in-depth professional development we provide to CMU graduate students, GTFs in turn contribute to the Eberly Center's activities to support graduate students. Last year, GTFs provided 40 of the one-on-one, confidential consultation services (i.e., classroom observations, early course feedback, or teaching philosophy consultations) to 33 unique fellow graduate students. They also facilitated microteaching workshops, and the associated follow-up video consultations, for 30 graduate students, providing valuable, low stakes opportunities for practice and feedback on their teaching strategies.

University-Wide Programs

This year, **219 unique graduates students and postdocs**, representing all 7 CMU schools/colleges, attended our university-wide seminars and workshops, filling a grand total of 934 seats.

Our university-wide graduate student programs integrate educational research and theory with practical pedagogical strategies and give graduate students from all schools and colleges the opportunity to interact with and learn from each other. The popularity of our seminars and workshops 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

We presented 19 seminars on 18 topics, including three new topics to respond to 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 these core seminars as one of its requirements.

Fall 2015

- New! Teaching Effectively with Technology
- Leveraging Diversity and Promoting Equity in Your Classroom
- Handling Problematic Student Behavior
- Ethical Issues in Teaching and Learning

- Course and Syllabus Design
- Monitoring Your Teaching Effectiveness
- Engaging Students in Active Learning
- Providing Helpful Feedback

Spring 2016
- New! Exploring Educational Technologies and their Pedagogical Applications
- Conducting Productive and Engaging Discussions
- Guiding Attention and Memory to Build Knowledge
- Motivating and Engaging Students
- Planning and Delivering Effective Lectures
- Leveraging Slides to Support Student Learning
- Supporting Student Learning Through Good Assessment Practices

Summer 2016
- New! Helping Students Develop Mastery and Critical Thinking
- Encouraging Intellectual Development and Lifelong Learning
- Course and Syllabus Design
- Crafting a Teaching Statement

Workshops

Our microteaching workshops, usually 2.5 hours long, give participants the opportunity to practice and receive immediate feedback on specific aspects of teaching. This year, **42 unique graduate students participated in nine microteaching workshops**. During these workshops, students teach a five-minute lesson and receive immediate feedback from colleagues and an Eberly Center teaching consultant or Graduate Teaching Fellow.

Graduate Student Reading Group *NEW!*

In Summer 2016, we re-launched our graduate student reading group program. This seminar-style special interest group for graduate students and postdocs was designed to allow participants the opportunity to read primary research articles from the learning sciences and to consider how they might apply that research to their teaching practices. The Summer 2016 group met 3 times, every other week, for 1.5 hours, to discuss active learning in the classroom, providing an opportunity for a "deep dive" into the evidence-based literature on topic.

Customized Unit-Level Programs

To complement 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 **231 unique graduate students participated in 24 customized unit-level sessions,** 18 of which were new. This number of requests doubled compared to the previous year. All but one of these sessions contributed to the Graduate Student Instructor and TA training provided by CMU academic units.

Art
- Working Well 1-on-1 in the Studio
- Diversity, Equity, and Identity Issues in Teaching Art

Chemical Engineering
- Getting Started: How To Be An Effective TA Fall 2015 (part of department orientation for new graduate students)

Chemistry
- Working Well with Small Groups, Fall 2015

Civil and Environmental Engineering
- Assessing Student Learning and Providing Helpful Feedback, Fall 2015
- Working Well One-on-One, Fall 2015
- Teaching Problem Solving, Fall 2015

Computer Science
- Working Well 1-on-1 and with Groups, Fall 2015
- Manipulating Your Students' Brains for Good (not evil), Spring 2016

"Being a Wimmer Faculty Fellow has been a highlight to my teaching career so far.

The guidance from my Eberly Center colleagues has been so enriching to my experience as a teacher and community member here at CMU. I am so thankful for this opportunity and will definitely look to the Eberly Center for future guidance and mentorship.

As a younger professor, I would recommend this to anyone as something that they should experience at CMU.

Everyone at the Eberly Center was fabulous, generous, and extremely knowledgeable in helping me become a better educator."

– Visiting Assistant Professor

Dietrich College of Humanities & Social Sciences
- Technology-Enhanced Learning Bootcamp, Summer 2016
- Designing for online/blended learning
- Active Learning
- Teaching and Learning with Multimedia
- Using TEL to Extend the Classroom

English
- Facilitating Effective Discussions, Fall 2015 (part of department orientation for new graduate students)

History
- Ethical Issues and Professionalism in Teaching and Learning, Spring 2016

Mellon College of Science
- Implementing Active Learning in Recitations, Fall 2015

Modern Foreign Languages/Second Language Acquisition Program
- Data & Design for Learning, Spring 2016

Music
- Grading and Feedback

Philosophy
- How To Be An Effective TA, Fall 2015 (part of department orientation for new graduate students)

Psychology
- How To Be An Effective TA, Fall 2015 (part of department orientation for new graduate students)

Social and Decision Sciences
- Grading, Feedback, and Office Hours

Statistics
- Teaching Effectively 1-on-1
- Grading and Feedback

PIER
- Professional development series, Fall 2015

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 Graduate Student Instructors.

Future Faculty Program

Our Future Faculty Program helps graduate students and postdocs develop and document their teaching skills in preparation for a faculty career. Participants who complete the program praise it as giving them a competitive advantage in securing faculty positions. The program's requirements are:
- attending at least eight seminars, at least four of which must be designated as core topics
- participating in two teaching feedback consultations (e.g., classroom observation, early course feedback focus group) to receive formative feedback on teaching
- designing a course and syllabus that align with the participant's discipline and teaching goals
- creating a teaching philosophy statement

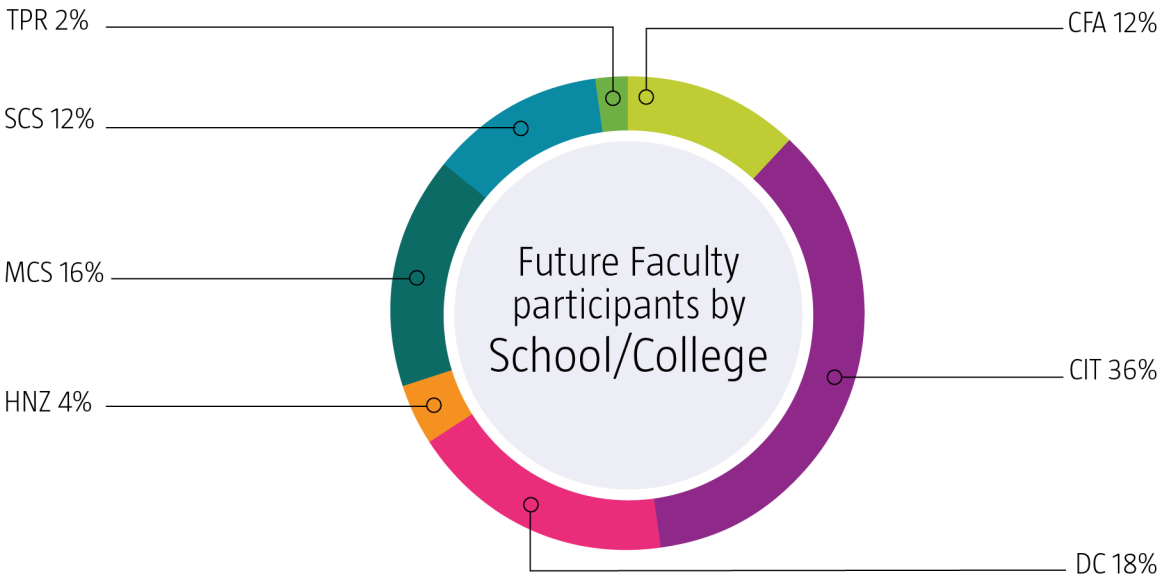
Upon completing these four requirements, participants receive a transcript that lists all of their Eberly activities.

Of the 160 graduate students enrolled in the Future Faculty Program during AY 2015-2016, 26 students completed the program, which is more students than in the previous two years combined. This year the program attracted its highest number of new enrollees since the program's inception in 2012, **70 new graduate students and post-docs.**

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 "PhD Students and Teaching" that was attended by 117 master's and doctoral students. This 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 during the university-wide orientation for new graduate students that typically draws several hundred graduate students.

We also presented an overview of our graduate student services to 10 departments with more than 364 new graduate students:

- Architecture
- Biomedical Engineering
- Chemistry
- Civil and Environmental Engineering
- Design
- Mechanical Engineering
- Modern Languages
- Psychology
- Robotics
- School of Computer Science

Support for Post-Docs

This year, 10 postdoctoral fellows from academic units participated in Eberly Center programs and services. Three of these postdocs enrolled in the Future Faculty Program. Because postdocs 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 typically met through the services we offer to graduate students.

Support for Undergraduate Teaching Assistants

Some departments rely heavily on undergraduate TAs as well. This year we presented 3 customized unit-level sessions, all in the Computer Science Department. Approximately **65 unique undergraduate TAs participated in these sessions.**

Providing coordinated, thorough, and effective training programs for undergraduate TAs presents significant logistical challenges, both at CMU and other institutions. The Eberly Center is addressing this challenge in part by developing interactive high-quality online TA training. This year, we created three online modules to train TAs in evidence-based practices for grading and giving feedback on student work (tailored to undergraduate TAs working in the Computer Science Department). To evaluate the effectiveness of these modules (to be pilot tested in Fall 2016), we created direct assessments of conceptual- and skills-based learning. We will leverage the pilot test data to refine the modules for broader adoption and use in both quantitative and qualitative fields.

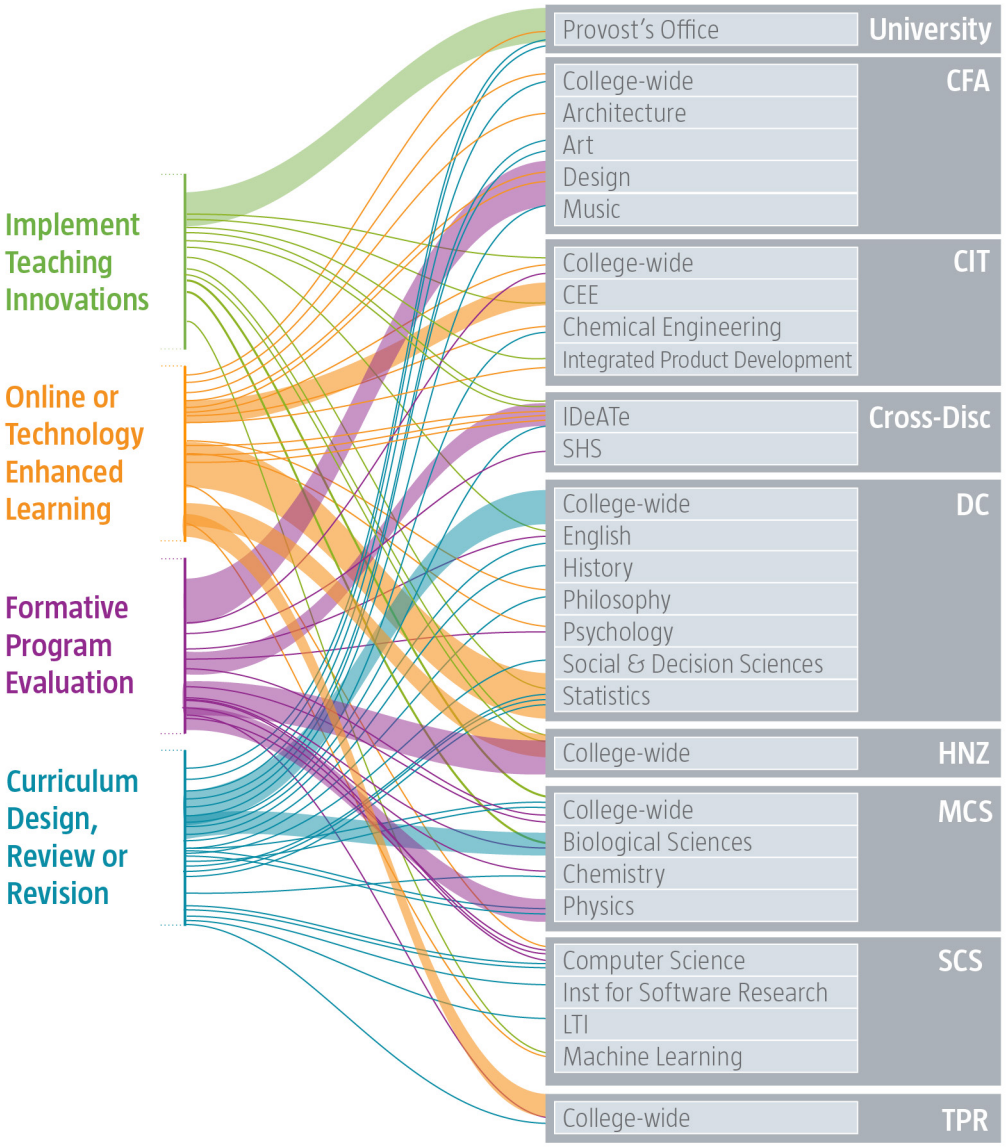
Program-Level Support

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 2015-16, we provided discipline-specific, program-level consultation services to 30 departments and units from across all corners of campus. 88 faculty participated in these program-level consultations, experiencing a rich series of interactions and multiple Eberly services.

We provided discipline-specific, program-level services to 30 unique departments and units, representing all seven schools and colleges.



Examples of Our Work at the Program Level

Mellon College of Science

The Mellon College of Science (MCS) is developing and implementing a new Core Education curriculum which takes an innovative, holistic approach towards fostering the growth of students in four dimensions: scholar, professional, citizen, and person. In AY 2015-16, the Eberly Center played an integral role in this initiative by providing consultations, committee service, and customized staff support for:

- redesigning new curriculum to align with program-level learning outcomes
- developing and implementing the new first-year seminar course (38-101 EUREKA!: Discovery and Its Impact) for all 200 first-year MCS students
- evaluating, selecting, and adopting educational technologies
- designing and implementing a curriculum-level assessment plan, including metrics of student learning and collection of baseline data, to iteratively inform course- and program-level improvements.

Tepper Hybrid MBA Program

When the Tepper School began exploring ideas for a new hybrid online plus on-site MBA program, faculty leaders turned to the Eberly Center for both pedagogical and technological support. For example, Eberly colleagues raised specific pedagogical and technological questions to guide evaluations of different online platforms, tools, and instructional formats. We offered a workshop series tailored to support the faculty members who would be "translating" their courses to the online format. We provided 1:1 consultations as faculty members re-designed their courses, and we helped individual faculty members and program heads collect and analyze student learning data.

As the Hybrid MBA faculty expand their teaching in this program, the Eberly Center has expanded our support to include data collection, educational research, and program assessment.

In addition, 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.

"The team at the Eberly Center has been a key partner in developing [our new online] program. The Eberly Center teaching consultants and instructional technology experts have helped us throughout the entire process — from program design and conception to technology selection and application, all the way to coaching individual faculty members developing courses for the online hybrid format. They have been a great partner to work with throughout the process, and their guidance and expertise has had a significant positive impact on our program."
– Program Director

Technology for Teaching, Learning, and Educational Innovation

The Eberly Center *brings 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 is key to serving the immediate needs and growing aspirations of our teaching community. We continue to fine-tune and grow our portfolio of technology-enhanced learning services and tools.

Highlights of AY 2015-16

47% 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).*

For faculty looking to incorporate technology-enhanced learning (TEL)

Our 1:1 faculty and program-level consultations in 2015-16 included…

- Pilot testing a new Learning Management System, Canvas
- Development of models for online courses, modules
- Best practices for creating and using instructional videos
- Support for full course set-up in Blackboard and Canvas
- 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, blogs, and tools for reflective practice

For programs incorporating technology:

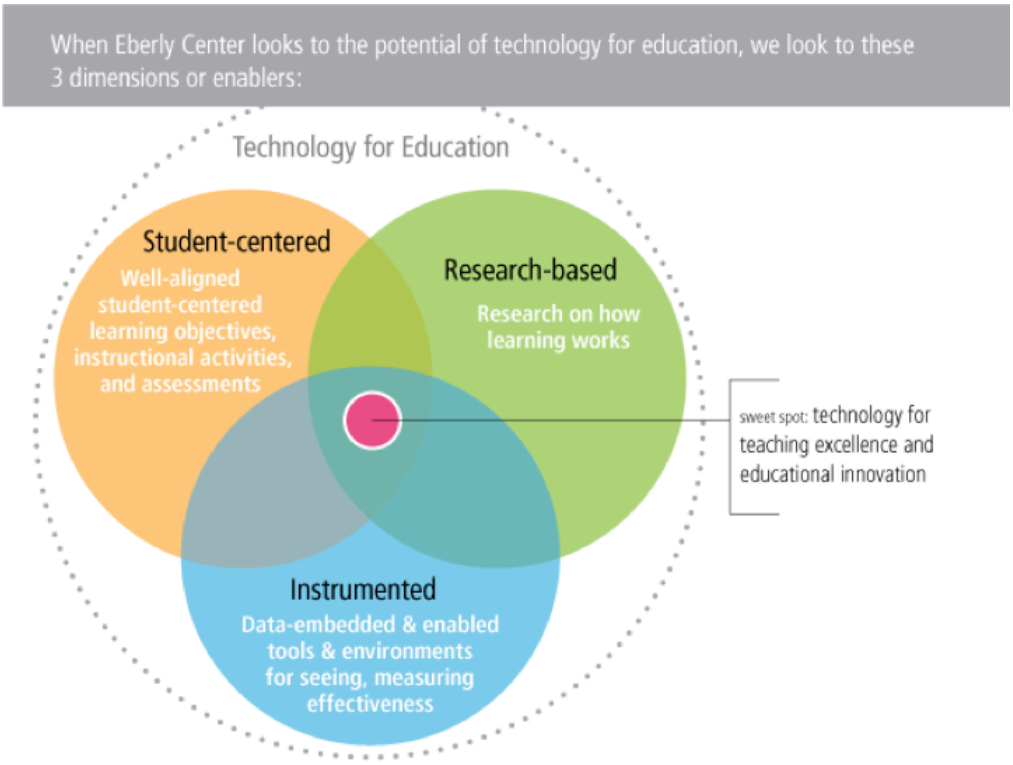
We developed design frameworks and models that facilitate the process for translating traditionally taught courses to online, leveraging the research on learning and student-centered design principles. We have applied these to support: Tepper's Hybrid MBA, IdeATe courses, ProSEED recipients, and others.

- *Dietrich College*, TEL Bootcamp: We designed and delivered a series of technology-enhanced learning workshops to 30 Ph.D. students and a few faculty members in May 2016.

Collaborating with academic and administrative units:

We provide support to several broad impact 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:* install and pilot test classroom wireless presenting.
- *Tepper School of Business:* development of online courses in Canvas, support for instructor-made videos, consultation regarding the use of synchronous online meeting tools for student group work.
- *School of Computer Science:* work with faculty to develop online modules for 15110 Computing for Non-majors.
- Pilot test a new service to centrally-support *Autolab* for use by the CMU teaching/learning community.
- *Mellon College of Science:* investigate and integrate technologies to support its revised curriculum.



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

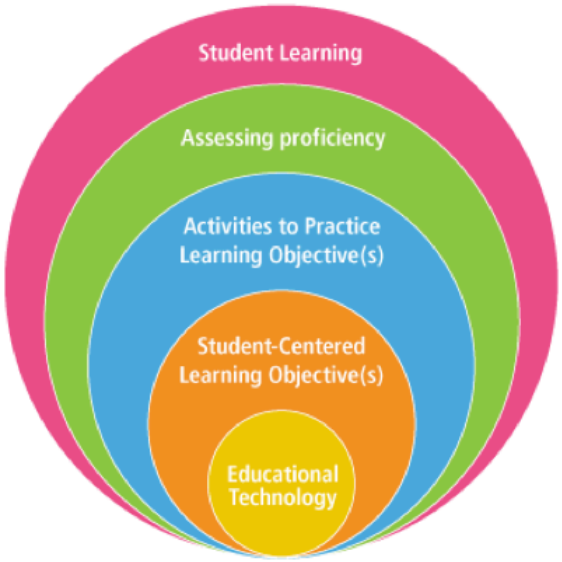
Through Eberly's and others' work on how learning works, we are able to leverage the research on learning and apply it to individualized contexts of our faculty.

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 elicit 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 can help our faculty colleagues avoid.

In AY2015-16, our ed tech team managed and provided help desk support to: 4336 Blackboard (Bb) courses

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



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

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
- keeping students' cognitive focus on the learning task vs on 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

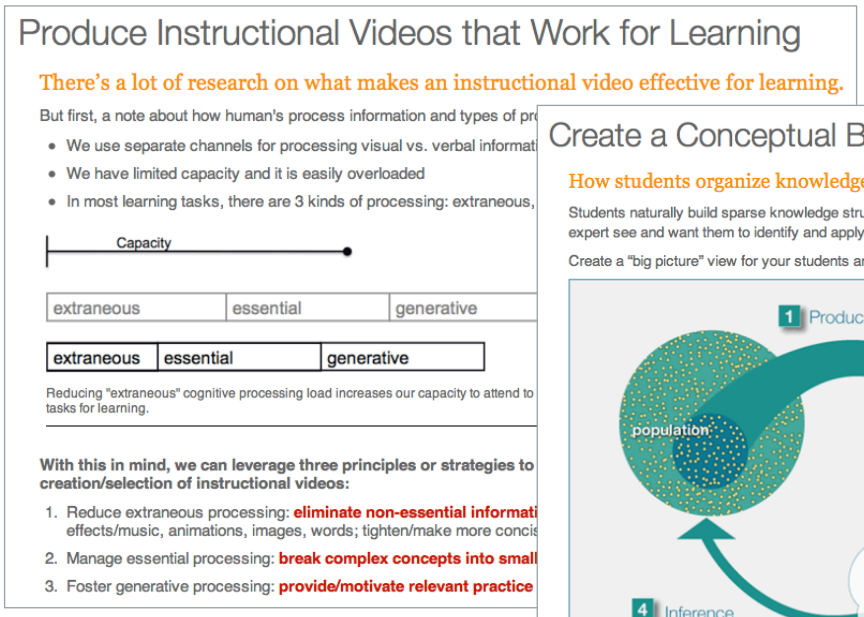
We spend time seeking out tools that will fill gaps and reduce common teaching and learning pain points, including:

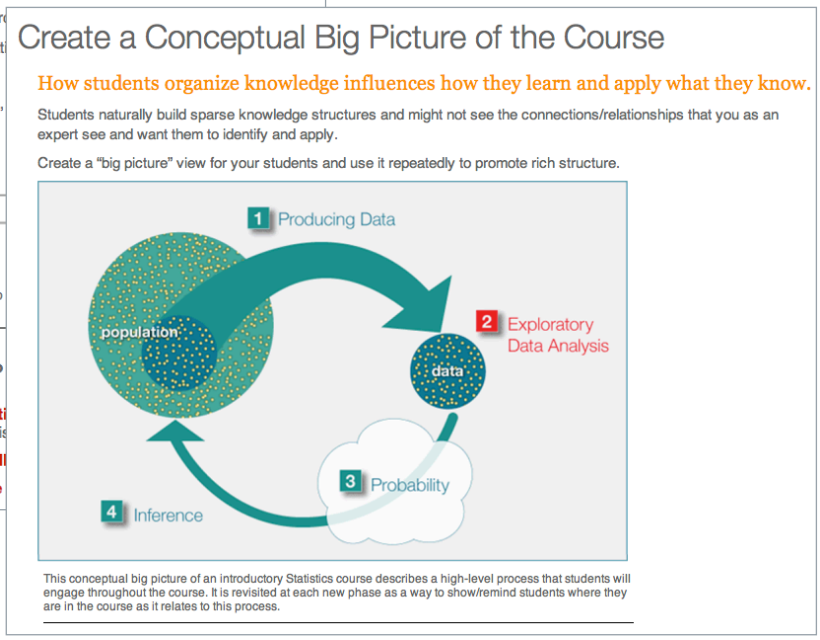
Providing students with sufficient targeted practice:

- Tools that provide students with opportunities for practice (e.g. Webassign problems, other currated content for providing supplemental practice)
- Technology environments that signal to students what they are doing right/wrong have potential to guide students' practice efforts. (e.g., feedback on 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 classes 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.





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.

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. With the affordances of this technology and pedagogical guidance from Eberly 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 via automated grading, use of rubrics, and peer review tools in *Blackboard*.
- Providing automated intermediate feedback to student on Computer Science programming assignments via *Autolab*.

Core Applications We Provide

The Eberly Center licenses and/or centrally supports several core educational technologies including:

- *Blackboard*, the university's learning management system, supporting 4336 courses.
- *Open Learning Initiative,* the university's online course platform, supporting 99 instructors in development and use of OLI tools and courses.
- *Clickers*, the university's classroom response system.
- *Turnitin*, a plagiarism and peer evaluation tool.
- *LTI connectors* to a variety of educational technology tools including: CMU's *Open Learning Initiative* courses, *Piazza*, *WebAssign*, *Panopto*, and more.
- *Autolab*, new pilot central service to support faculty use of the tool at CMU.
- *Canvas Pilot*, supported 26 faculty pilot testing Canvas in Spring 2016.

In AY2015-16, we provided design and development cycles to advance the Open Learning Initiative (OLI) environment.

We supported: 99 CMU instructors developing and using OLI courses.

Technology and the Pedagogical Design of Learning Spaces

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."

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.

In AY2015-16, Eberly engaged in several key projects involving the design and evaluation of learning spaces including:

- IDeATe (maker space)
- New Tepper Quad: several teaching and learning spaces including an instrumented *Teaching Lab Classroom* and an *Innovation Studio*
- Initial assessment of Registrar-controlled classrooms

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.

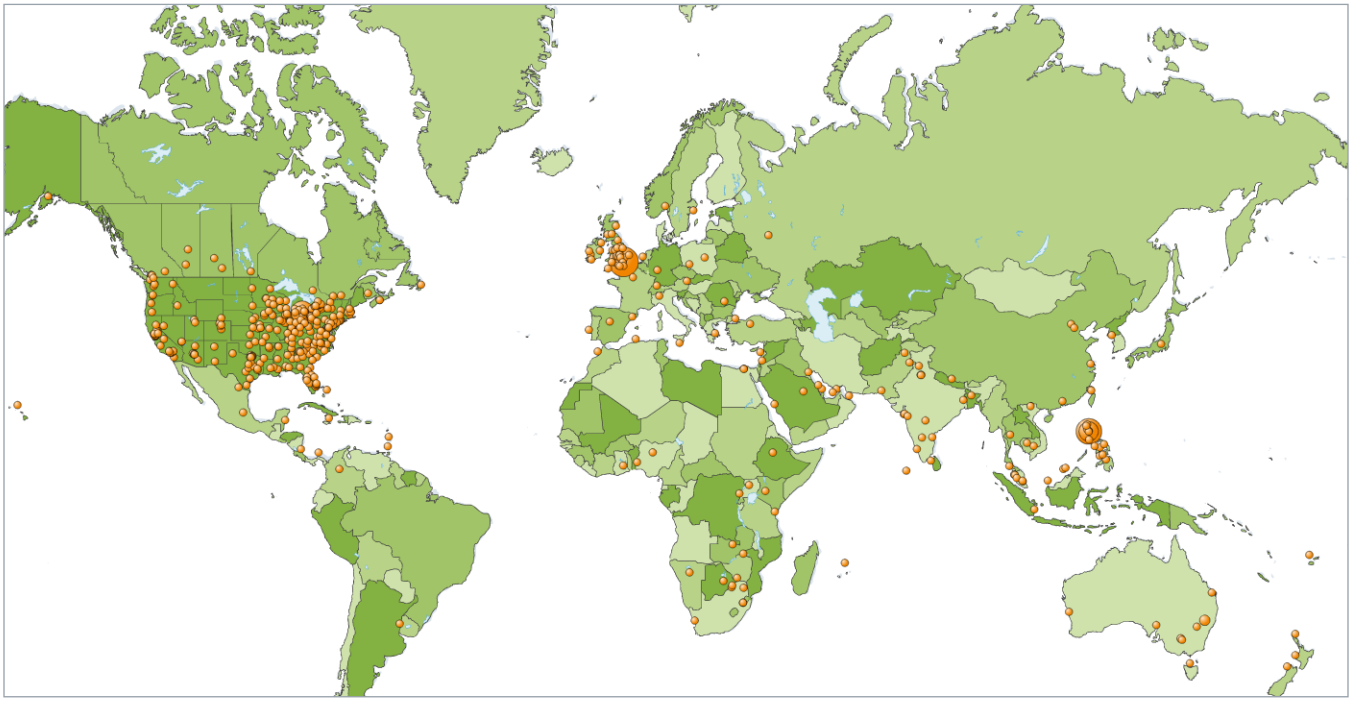
Immersive, authentic experiences promote transfer of learning. Working on real problems (or high-fidelity simulations) promotes students' motivation, and it gives them practice integrating and applying skills in complex situations. Building design should move beyond the notion of "classrooms" as the 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.

Eberly Center Teaching Website Usage



	AY12-13	AY13-14	AY14-15	AY15-16
Pageviews	1,428,607	2,682,022	3,135,435	3,433,032
Visitors	608,841	1,386,828	1,696,208	1,816,940
Visits/Day	1,981	4,541	5,564	5,967

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

42% Assessment
35% Design & Teach a Course
12% Solve a Teaching Problem
6% Learning & Teaching Principles
2% 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 large volume of faculty inquiries regarding flipped classroom pedagogies, as part of our response, we created a web resource on the topic [www.cmu.edu/teaching/technology/flippingtheclass], featuring practices and lessons learned by CMU faculty.

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.

"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

Service to the Carnegie Mellon Community

To contribute to the CMU community and educational mission, Eberly Center staff serve on university committees, mentor CMU students, and teach CMU graduate and undergraduate courses. Our service during AY 2015-2016 is listed below.

University Committee Service

Lovett

- Simon Initiative, Co-Coordinator
- ProSEED/Simon Initiative Grant Review Panel, Member
- PIER Steering Committee, Member
- University Education Council, Member
- University Promotion & Tenure Committee, Member
- Ryan Award Committee, Chair
- Doherty Award Committee, Co-Chair
- Computing @ Carnegie Mellon Advisory Committee, Member
- Digital Accessibility Working Group, Member
- Mellon College of Science Core Education Committee (and Steering sub-committee), Member
- Mellon College of Science LEAD committee, Co-Chair
- Global Communication Center Advisory Board, Member
- Academic Review Board, Committee Member
- TEL Writing group, Member & active member of assessment sub-committee
- Dietrich College General Education Committee, Member (& Assessment sub-committee, Co-Chair)
- Teaching & Learning Spaces Committee, Co-Chair
- Task Force on CMU Experience, Member & Campus Infrastructure group, Co-Chair; Academic Policies group, Member
- Middle States Accreditation, Standard 5, Educational Effectiveness Assessment Committee, Consultant

Hershock

- Teaching Innovation Award Committee, Chair
- Academic Advising Award Committee, Co-Chair
- Graduate Student Concerns Committee, Member
- Computer Science Department TA Committee, Member
- Middle States Accreditation, Standard 3, Design and Delivery of the Student Learning Experience Committee, Consultant

Brooks

- Digital Accessibility Working Group, Member
- MCS Non-Technical Core Education Committee, Member
- Dietrich College General Education Committee, Member & e-portfolio sub-committee, Co-Chair

Dwyer
- Mellon College of Science, First-Year Undergraduate Seminar (EUREKA) Course Design Committee, member & Lesson Planning sub-committee, Co-Chair
- Graduate Student Teaching Award, Chair

Weiss
- Mellon College of Science, First-Year Undergraduate Seminar (EUREKA) Course Design Committee, member & Lesson Planning sub-committee, Co-Chair

Thesis Committees and Advising

Lovett
- Iris Howley, Language Technologies, Ph.D. Committee Member (completed August '15)

Hershock
- Jessica Harrell, English, Ph.D., Mellon Technology-Enhanced Learning Fellowship, Advisor (completed August '16)

CMU Courses and Classes Taught

Hershock
- Spring 2016, Mellon College of Science, 38-801 Evidence-Based Teaching in STEM, graduate-level course on research-based teaching strategies and the science of learning applied to college-level STEM instruction

Brooks
- Fall 2015, School of Design, Dexign Futures course. Guest Instructor

Dwyer
- Fall 2015, Mellon College of Science, EUREKA first year seminar recitation co-instructor

Richards
- Fall 2015, Human Computer Interaction Institute, 05-835, Applied Fabrication Techniques for HCI. Instructor: Scott Hudson. Students build 3D printers and use rapid prototyping techniques to make improvements in the field of assistive technology. Teaching Assistant.
- Spring 2016, Human Computer Interaction Institute, 05-833, Gadgets, Sensors, and Activity Recognition. Instructor: Scott Hudson. Students learn basic electronics through a series of guided and self-directed projects. Teaching Assistant.

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.

In the news

How to move from first-person to learner-centered teaching. EdSurge (Feb 24, 2016)
https://www.edsurge.com/news/2016-02-24-how-to-move-from-first-person-to-learner-centered-teaching

Small changes in teaching: The first 5 minutes of class. Jim Lang, The Chronicle of Higher Education. (Jan 11, 2016)
http://chronicle.com/article/Small-Changes-in-Teaching-The/234869/

Eureka! New seminar preps first-year scientists for success. The Piper: CMU's News Source for Faculty & Staff p. 11 (Oct 15, 2015)
http://www.cmu.edu/piper/archives/ThePiper/thepiperoct15.pdf

What I'm Reading: 'How Learning Works' by Keysha Whitaker. Chronicle of Higher Education (Oct 11, 2015)
http://chronicle.com/article/What-Im-Reading-How/233711?elq=fdb654e2a1764e958c73821383d79891&elqCampaignId=1613&elqaid=6572&elqat=1&elqTrackId=60bf2bda5e2e42f888c0e494af43c2f0

"Designing the Future" by Danielle Commisso. Carnegie Mellon Today (Oct 5, 2015)
http://cmtoday.cmu.edu/engineering_technology/sustainable-urban-industrial-design/

"5 tips from professors for decoding your syllabus" by Ryan Lasker. (Sept 1, 2015)
http://college.usatoday.com/2015/09/01/tips-to-decode-syllabus/

"Researchers find that frequent tests can boost learning" by Annie Murphy Paul. (July 14, 2015)
http://www.scientificamerican.com/article/researchers-find-that-frequent-tests-can-boost-learning/

What Works Clearinghouse (WWC) released a single study review of Lovett et al. (2010).
https://ies.ed.gov/ncee/wwc/Study/81702. (March 29, 2016)

Publications

Scupelli, P., Wasserman, A., ***Brooks, J.*** (2016). Dexign Futures: A Pedagogy for Long-Horizon Design Scenarios. Paper accepted for presentation conference and publication in the proceedings, Design Research Society (DRS).

Walsh, M. M., & ***Lovett, M. C.*** (2016). The cognitive science approach to learning and memory. In S. Chipman (Ed.) Oxford Handbook of Cognitive Science. New York: Oxford University Press.

Karatsolis, A., Ishizaki, S., ***Lovett, M.,*** Rohrbach, S., & Kaufer, M. (2016). Supporting technical professionals' metacognitive development in technical communication through contrasting rhetorical problem solving. Technical Communication Quarterly, 25(3).

Awards

Kate Hamilton: 2016 Graduate and Professional Student Development (GPSD) Career Development Award, Professional and Organizational Development (POD) Network

Clive Newstead (current Eberly Center graduate teaching fellow): Graduate Student Teaching Award

Meg Richards. A. Nico Haberman Award for Educational Service, outstanding contributions to the educational experience within School of Computer Science and throughout CMU

MCS Special Award (recognizing staff members outside MCS who make exceptional contributions to MCS): ***Eberly Center team nominated*** by Maggie Braun (Assoc Dean, MCS); Nomination supported by Karen Stump, John Hannon [nomination announced 4/28/16]

External Presentations, Seminars and Workshops

Lovett, M. C. Translating cognitive science to teaching. Symposium: Communicating Cognitive Science. 37th Annual Meeting of the Cognitive Science Society. Pasadena, CA. (July 2015)

Lovett, M. C. [panelist] Adopting evidence-based practices: Challenges and opportunities. Science 2015! University of Pittsburgh. (October 2015)

Brooks, J., & Hershock, C. Helping faculty create instructional videos that actually work for learning. Interactive session presented at the annual meeting of the Professional and Organizational Developers Network, San Francisco, CA. (November 2015)

Dwyer, H. and Weiss, E. "Confidence classrooms": Improving student expectations for success. Interactive session presented at the annual meeting of the Professional & Organizational Development Network, San Francisco, CA. (November 2015)

Hershock, C., Lovett, M., & Niemer, R. Which CTL events impact faculty learning and teaching practices most? Interactive session presented at the annual meeting of the Professional and Organizational Developers Network, San Francisco, CA. (November 2015)

Lovett, M., Kaplan, M., Bederson, B., Dunbar, R, & Levesque-Bristol, C. Envisioning Models for Teaching Center and Ed-Tech Center Collaborations. Interactive session presented at the annual meeting of the Professional and Organizational Developers Network, San Francisco, CA. (November 2015)

Lovett, M. C. & Koedinger, K. Best practices and data sharing in higher education. Second meeting of the Global Learning Council, Singapore. (April 2016)

Lovett, M. C. Competencies, Assessment, and Learning Analytics, Northeastern University, [interview via webconference]. (February 2016)

Lovett, M. C. Designing online instruction that leverages principles of learning. PCHE Summer School, Point Park University, Pittsburgh, PA. (June 2016)

Brooks, J. Technology-Enhanced Learning week-long workshops for instructional teams participating in PCHE (Pittsburgh Council on Higher Education) Summer School, Point Park University, Pittsburgh, PA. (June 2016)

External Committees, Boards and Journal/Proposal Reviews

Lovett

- National Science Foundation, Review Panelist
- Learning@Scale Conference, Program Committee Member
- MIT's Online Education Policy Initiative, External Member
- Singapore Ministry of Education, Tertiary Education Research Fund, Grant Reviewer

External Colleges and Universities Hosted to Learn About Eberly Center's Work/Approach

- Association of College and University Educators (ACUE) (Sept, 2015)
- Carthage College (July, 2015)
- UNH Center Director, Victor Benassi (Sept, 2015)
- NYU Center Director, Elizabeth McAlpin (July, 2015)
- Tokyo Tech University (Sept, 2015)

AY2015-16 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
Chris Blakesley, PhD, Learning Engineer
Judy Brooks, MDes, Director of Educational Technology & Design
Heather Dwyer, PhD, Teaching Consultant
Raphael Gachuhi, Software Engineer
Chad Hershock, PhD, Director of Faculty & Graduate Student Programs
Lorelei Hoover, Educational Technology Support Specialist
Lynn Kojtek, Learning Engineer
Kim Law, Learning Engineer
Michelle Pierson, Business Administrator
Meg Richards, Senior Systems Software Engineer
Katie Walsh, PhD, Teaching Consultant
Emily Weiss, PhD, Postdoctoral Teaching Consultant

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