Marisa E. Exter

mexter@purdue.edu
3128 Beering Hall
100 N. University St, West Lafayette, IN
Assistant Professor, Curriculum & Instruction

1. **Academic Record**
   - *PhD in Instructional Systems Technology, Computer Science Minor,* Indiana University, December 2011
   - *Masters in Computer Science,* Illinois Institute of Technology, December 2003
   - *Bachelors in Computer Science,* Elmhurst College, May 1999

2. **Academic appointments**
   - *Assistant Professor of Learning Design and Technology*, Department of Curriculum & Instruction, Purdue University, 2013-present
   - *Adjunct*, Indiana University, EDUC-R505: Portfolio Workshop in IST, Summer & Fall 2012, Spring 2013
   - *Director of Design, Development and Testing & Member of Research Team,* Critical Web Reader Project, Indiana University, 2010-2012
   - *Lead Developer (Graduate Research Assistant),* Critical Web Reader Project, Indiana University, 2005-2010
   - *Adjunct*, Ivy Tech Community College, CIS-157: Web Site Development, Fall, 2006.

3. **Industry, business, and government positions**
   - *Director of Design & Development and Lead Curriculum Designer & Instructional Specialist, STEM Education*, DELVE learning, May 2012-August 2013.
   - *Instructional Designer (Intern, Full Time),* DyKnow, May-August 2005
   - *Software Engineer,* Lucent Technologies, 1999-2004
   - *Website developer,* Arthur Anderson, May-December, 1999
   - *Software Developer (Intern),* Lucent Technologies, 1997-1999

4. **Awards and honors**
   - *The Engineering Ethics Best Diversity paper & Best Diversity Paper Nominee,* American Society for Engineering Education, 2016
   - *Outstanding Research Presentation Award***,** Design and Technology Special Interest Group, Association for Educational Communications and Technologies 2016
   - *Outstanding Concurrent Session Award,* Division of Organizational Training and Performance of the Association for Educational Communications and Technologies, 2015.
   - *IST department dissertation award,* Indiana University, 2012. Awarded best dissertation for department; nominated for School of Education award.
   - *AECT/NSF Early Career Symposium Participant,* 2012. Participated in 2-day symposium including graduate students, early career faculty, and experienced mentors. Awarded approximately $800 for conference registration fee, travel, and hotel costs.
   - *Chancellor's Fellowship***,** Indiana University, 2004-2008. Awarded to two PhD. students in 2004. $17,000 stipend & fee remission.
   - *Dean's Scholarship*, Elmhurst College, 1995-1999. Merit-based scholarship, 50% tuition.

5. **Membership in academic, professional, and scholarly societies**
   - **American Educational Research Association (AERA)**
   - **Association for Educational Communications and Technology (AECT)**
   - **Association for Computing Machinery (ACM) & Computer Science Education SIG**
   - **American Society for Engineering Education (ASEE)**

EXECUTIVE SUMMARY

Dr. Marisa Exter is an Assistant Professor of Curriculum and Instruction. Dr. Exter's research focuses on the experiences of professionals and students in fields such as Instructional Design, Engineering, Computing, and other technical design fields through three main strands. The first involves a series of studies she has conducted to gain an understanding of design professionals' work and educational experiences. This line of research has pointed out the importance of incorporating interdisciplinary skill development, including professional skills, critical thinking, life-long learning, and the integration of significant, complex real-world team projects. Since coming to Purdue, Dr. Exter has focused on two groups for this line of research: computing professionals and faculty; and instructional design and educational technology professionals across corporate, higher education, and k-12 settings settings. Her second line of research involves alternative approaches to design education, including inter- and transdisciplinary education, adaptation of the design studio model to STEM settings, and competency-based education. In this area, Dr. Exter has taken advantage of exciting possibilities to partner with projects at Purdue including the Purdue Polytechnic Institute's Transdisciplinary Studies in Technology (TST) program and Engineering Projects in Community Service (EPICS). Dr. Exter's research team collects and publishes data related to the TST program on an ongoing basis. Dr. Exter has also written about her own exploration in piloting similar approaches at a course level, including a book chapter and a design case manuscript currently under review related to her newly designed Educational Software Design course. In her third line of research, Dr. Exter has been involved in a number of studies relating to the needs of students and faculty in online graduate Instructional Design programs. Within this strand, she is particularly interested in program-level issues, such as sense of community, advising, and faculty support and training.

Her research experiences directly inform her teaching philosophy, and her teaching and program development efforts in turn provide access to environments rich with opportunities for research. Dr. Exter takes a mentorship approach in her teaching. Her course and program designs engage students in authentic, meaningful projects. Her interests in interdisciplinarity and studio model have informed both course design and her teaching style. Her research and professional background have inspired her to create a course on Educational Software Design (offered as EDCI 627 in fall 2015, 2016, 2017, and 2018), which includes students from across disciplines that engage in multi-disciplinary design experiences, engaging with ill-structured team projects for real clients. Her redesign of EDCI 528, Human Performance Technology (HPT), integrates case studies, the use of discussion topics and blog posts to connect the subject material to their current and future professional roles, and projects that allow students to investigate an HPT gap in an organization they are personally familiar with or currently work in. In her role as lead instructor for the online EDCI 528, she strives to foster a sense of collegiality between adjunct (LTL) instructors teaching different sections of the course. She has also been involved in program design, curricular design, and competency model design efforts within the Purdue Polytechnic Institute's Transdisciplinary Studies in Technology program. This transdisciplinary, student-centered, competency-based program incorporates design studio and traditional humanities pedagogies, and aligns well with her own views of how design education should be offered. This program's place as part of the Polytech's "Educational Research & Development" effort has been an ideal opportunity to design, implement and study alternative learning experiences.

The figure on the next page summarizes Dr. Exter's professional work related to preparing design professionals, and provides exemplars of how her areas of focus are demonstrated across discovery, learning and engagement.

Preparing Design Professionals

Learning from In-Practice Professionals:
Implications for Higher Ed

Creating Real Change in Design Education:
Piloting alternative approaches at the course and program level

Beyond Courses in Graduate Programs:
Meeting student & faculty needs at the program level

Discovery

Software Design & Development
- Skills and knowledge needed on the job & coverage in higher education
- Life-long learning & use of precedent

[PR article] 5,11,12 [PR proceedings] 1,9 [PR presentation] 12,14,15,16,17,18,19,20,28,31 [Invited presentation] 2,3

Instructional Design & Ed Tech
- ID & ET professionals' beliefs on knowledge, skills, and attitudes needed on-the-job
- ID & ET professionals' life-long learning practices
- ID professionals' design character

[Invited presentation] 21,35,45,48, *Several MS's in progress*

Inter-/Transdisciplinary
- Inter-/trans-disciplinary program & course designs
- Integrating liberal arts & technology
- Interdisciplinary faculty collaborations

[PR article] 10, 14,17 [PR proceedings] 11 [Book chapter] 6,7,8 [PR presentation] 23, 38, 42, 43, 41, 45

Studio Model Instruction
- Descriptive studies & design cases on use of design studio pedagogies

[PR article] 13,17,16 [PR proceedings] 6,7,10 [Book chapter] 3,4 [PR presentation] 6,7,13,26,27 [Invited presentation] 5

Competency-Based Education
- CBE model design, Purdue exemplars
- Faculty & student responses to CBE

[PR article] 9,17 [PR proceedings] 5,8 [Book chapter] 5,8 [PR presentation] 23, 30, 38, 42, 43, 41, 45 [Invited presentation] 4

Sense of Community
- Pilot program-level SOC instrument for online graduate students
- Increasing online students' SOC with inclusive events & volunteering

[PR article] 1,3 [Book chapter] 2 [PR presentation] 8, 10, 17

Advising Support
- Online Student support & advising
- Cognitive apprenticeship

[PR article] 6,15 [PR proceedings] 22 [Invited presentation] 1

Instructor Support
- Evaluation of online adjunct instructor training & support

[PR article] 8 [PR presentation] 25

Learning

- Inspires the development of a course in educational software design
- Informs teaching and course design in LDT
- Informs input into LDT online Master's program competency model

- Informs the (re)design of the interdisciplinary studio course in educational software design
- TST program design (transdisciplinary, CBE, studio + seminar approach)
- LDT competency model

- Informs redesign of LDT PhD experience
- Informs role as course lead (supervising LTLs, mentees & TAs)
- Mentorship approach to graduate advising & teaching

Engagement

- Computing Curricula 2020 Task Force & Competency Subcommittee
- EngageCSEdu educational material reviews

- TST: chair of Research & Evaluation Committee
- TST: Curriculum & Competency Committees

- Facilitated LDT PhD program experience redesign effort
- Informs contributions to LDT online program and C&I graduate committee

[PR article] Peer-reviewed (PR) article [PR proceedings] PR proceedings [Book chapter] Book chapter [PR presentation] PR presentation [Invited presentation] Invited presentation [In submission] In submission/review
Numbers align with numbering in Discovery section

SECTION A: DISCOVERY

Marisa Exter's research interests relate to the preparation of design professionals in fields such as instructional design, computing, and other technology-related disciplines. Her aim is to improve higher education programs in design disciplines through work in three main strands: *learning from in-practice professionals'* experiences and beliefs about their own educational experiences, and exploring implications for higher education; engagement in research related to efforts to *create real change in design education* through assessing the impact of alternative learning environments that aim to foster the competencies that professionals indicate are necessary to succeed on the job; and exploring supports that go *beyond the course level within graduate programs* to support student and faculty success in design education.

Dr. Exter's efforts to **learn from in-practice professionals** have thus far focused on the fields of computing and instructional design. A series of studies on computing professionals' experiences and views on education include an exploratory study in which she and a colleague interviewed experienced computing professionals; a PRF-funded follow-up study that surveyed a larger number of computing professionals and faculty; a study of computing professionals' use of precedent (exemplar) materials; and her dissertation study related to educational software designers' perceptions and experiences. Among the most interesting findings are the importance of professional skills development, critical thinking, and life-long learning strategies. Professionals also frequently stressed the importance of real-world, team-based projects of significant scope within university programs. A related thread of research explores learning design and technology professionals' experiences and views on education. As part of a PRF-funded study, Dr. Exter and her team interviewed 30 instructional designers and educational technologists across corporate, higher education, and k-12 settings to explore roles played and competencies required on-the job. She has also been involved in a project that explores instructional designers' development of design character. Understanding how professionals think about design character and how they believe it was developed will inform how this important but often overlooked aspect of the development of designers can be tackled in higher education. A long-term goal is to compare the findings across fields.

Based on what she has learned from her work with design professionals, Dr. Exter has been inspired to seek out opportunities to become involved with efforts to **create real change in design education** that aim to help graduates build the competencies (skills, knowledge, and attitudes) identified as important by professionals, through interdisciplinary and studio-based approaches. Although she is intrigued by efforts to use non-traditional approaches within individual courses, she is particularly interested in how programs can be designed or adapted to better prepare students. The adaptation of the design studio model for use in technology education and the development of program-level competency based education are two approaches she has particularly focused on since coming to Purdue. Her position as Faculty Fellow and co-Chair of the Research & Evaluation Committee for the Polytech's Transdisciplinary Studies in Technology program allows her to engage with the development of the Transdisciplinary Studies in Technology degree, which uses a transdisciplinary, seminar + studio approach to provide a competency-based, learning-by-doing environment that promotes integration of technical and liberal arts topics. This has resulted in four journal articles, 10 multi-stage peer-reviewed proceedings papers, two book chapters, and 16 peer-reviewed and two invited conference presentations. She has also co-authored pieces on adaptations of signature pedagogies used within traditional design fields including development of a studio environment for a computer graphics technology course and use of critique in instructional design. She has written about the design of and student response to her own studio-based, interdisciplinary course in Educational Software Design. She has received PRF funding for 2019-2020 to study the types of interdisciplinary programs as well as benefits and challenges to running such programs across Big 10 Universities, and is awaiting a decision on a Spencer Small Grant proposal on a related study.

Her interest in improving higher education at the program level has motivated her to explore **beyond courses in graduate programs**. Her early work in this area related to sense of community and distance students' involvement in a departmental graduate student conference to promote sense of community. This involved the adaptation of a commonly used scale aimed at course-level Sense of Community in online learning for use at the program level and is her most heavily cited article (86 as of May, 2019). Another project she led focused on students' and faculty's expectations for advising in a new online EdD program at Indiana University. At Purdue, she has worked with Dr. Victoria Lowell on an assessment of adjunct faculty support and training within the online LDT. She has also co-authored an article with one of her doctoral students on the use of cognitive apprenticeship for induction of doctoral students into qualitative research methods, and plans to continue exploring and examining ways to improve mentorship of students during their graduate studies. Co-authoring about this process with a student has been a powerful way to understand and improve the process, and Dr. Exter plans to continue with this approach.

An active segment of the Instructional Design community is particularly interested in how our field can learn from other design fields. Taking inspiration from the use of published design artifacts as a source of precedent in fields such as architecture and graphic design, this group is promoting a new form of scholarly writing in our field: the ***design case***. Design cases are rigorously written descriptions of the successes and failures within the design and design process of educational resources and experiences. The purpose of a design case is to describe a unique design, allowing the reader to draw their own meaning and determine which aspects of an existing design may inform their own work. A multidisciplinary journal published by the Association for Educational Technology and Communications, *International Journal of Designs for Learning,* has published educational design cases from a variety of disciplines. This format is ideal to share lessons learned from novel program and curricular design, and how these designs perform in real life. Dr. Exter co-authored three design case articles in *International Journal of Designs for Learning* and *TechTrends,* and two book chapters and multiple presentations in this format.

Dr. Exter considers mentorship one of the most important and engaging aspects of her job. She regularly publishes and presents with students both on studies she designed and led, and student-directed projects. Dr. Exter serves as an advisor for four doctoral students/candidates, was co-chair of one completed PhD, and has been committee member for seven doctoral graduates, including students from Purdue Polytechnic' and Communications, and has been a member on two thesis-based Master's committees in addition to two non-thesis based residential and up to 62 online Master's students concurrently. In accordance with her multi-disciplinary interests, Dr. Exter has co-authored with 15 students in Learning Design and Technology (C&I), Purdue Polytech's CIT, CGT, and TST programs, Engineering Education, and Communications (CLA). As one doctoral student (Elizabeth Beese) wrote in an unsolicited letter:

> *"Dr. Exter excels as a mentor to graduate students. She is particularly known for giving smart, thorough, and incisive feedback on drafts of student writing. Dr. Exter always aims to promote the student's understanding with her critiques — by clearly framing the salient issues in the student's work, and working with them towards solutions. She is also quick to find and share targeted resources to help students in their growth as researchers.*
>
> *I would also like to bring attention to the exceptionally collegial atmosphere she fosters among the graduate students around her. Dr. Exter is always eager to engage students and groups of students in rigorous discussions about issues and topics related to our shared scholarly work… Dr. Exter is also a notably engaged advocate for graduate students…She's also always interested in hearing what graduate students feel they need to learn, and in continuously improving the graduate student curriculum to meet their needs in our ever-evolving field."*

1. **Publications**

Asterisks indicate primary authors. When authorship is shared, asterisks are used to indicate relatively greater effort or ownership, typically 50% or more. If many are starred, all authors contributed equally. See section A.1.c for descriptions of journals and conferences with official proceedings.

   a. **Publications**

      i. **Peer-Reviewed Journal Articles** 📄

      A table including descriptions of each journal is included in section A.1.c

17. **Exter, M.*,** Ashby, I.+*, Caskurlu, S.+ (2019). Elusive expectations for a novel program design: Contrast between program intentions and student recruitment and retention. *The Journal of Competency-Based Education. 4(*3). DOI: 10.1002/cbe2.1192

16. **Exter, M.*,** Gray, C.*, Fernandez, T.+. (2019). Conceptions of design by transdisciplinary educators: disciplinary background and pedagogical engagement. *International Journal of Design and Technology Education.* DOI: 10.1007/s10798-019-09520-w

15. **Exter, M. E.*,** & Ashby, I.*+ (2019). Using cognitive apprenticeship to enculturate new students into qualitative research. *The Qualitative Report*, *24*(4), 873-886. Retrieved from https://nsuworks.nova.edu/tqr/vol24/iss4/16

14. Ashby, I +*, **Exter, M.** (2019). Designing for interdisciplinarity in higher education: Considerations for instructional designers. *Techtrends.* DOI: 10.1007/s11528-018-0352-z

13. el Debs, L.+*, Miller, K.+, Ashby, I.+, & **Exter, M.,** (2018). Students' perspectives on different teaching methods: comparing innovative and traditional courses in a technology program. *Research in Science and Technological Education.* DOI: 10.1080/02635143.2018.1551199

12. **Exter, M.*,** & Ashby, I+. (2018). Preparing today's educational software developers. *Journal of Computing in Higher Education.* DOI: 10.1007/s12528-018-9198-9

11. **Exter, M.*,** Caskurlu, S.+ *, & Fernandez, T+ (2018). Comparing computing professionals' perceptions of importance of skills and knowledge on-the-job and coverage in undergraduate experiences. *Transactions on Computer Education*, *18*(4). 1-29. DOI: 10.1145/3218430

10. **Exter, M.*** (2018). Developing multi-disciplinary skills through a course in educational software design. *International Journal of Designs for Learning 9*(1), 49-79. DOI: 10.14434/ijdl.v9i1.23413.

9. Ashby, I.+*, Caskurlu, C.+*, & **Exter, M.** (2018). Evolving roles of faculty at a new hybrid competency-based transdisciplinary program. *Journal of Competency Based Education, 3*(1). DOI: 10.1002/cbe2.1059.

8. Lowell, V.*, & **Exter, M.*** (2017). Leading a collaborative effort: Providing effective training and support for online adjunct instructors. *International Journal of Designs for Learning 8*(2). Retrieved from https://doi.org/10.14434/ijdl.v8i2.21160.

7. **Exter, M.*,** & Lehman, J. (2016). An academic program profile: Purdue University. *Performance Improvement*, *55*(5), 14-33.

6. **Exter, M. E.*,** Korkmaz, N., Boling, E.* (2014). Student support and advising in a new online EdD of Instructional Systems Technology program: A design case. *Techtrends*, *58* (4).

5. **Exter, M. E.*** & Turnage, N. M.+* (2012). Exploring experienced professionals' reflections on computing education. *Transactions on Computing Education, 12* (3).

4. Damico, J.S.*, Baildon, M.*, **Exter, M.+*,** & Guo, S.+* (December 2009/January 2010). Where we read from matters: Disciplinary literacy in a 9th grade social studies classroom. *Journal of Adolescent & Adult Literacy*, *53* (4).

3. **Exter, M.E.+*,** Korkmaz, N.+, Harlin, N.M.+, & Bichelmeyer, B.A. (2009). Distance education students' responses to sense of community within a fully online graduate program. *Quarterly Review of Distance Education, 10* (2), 177-194.

2. **Exter, M. E.+*,** Wang, Y.+, Exter, M. F. & Damico, J. S. (2009). Designing a tool to support critical web reading. *Techtrends, 53*(1), 23-28.

1. **Exter, M.E.+*,** Harlin, N.M.+*, & Bichelmeyer, B.A. (2008). Story of a conference: Distance education students' experiences in a departmental conference. *Internet and Higher Education, 11* (1), 42-52.

ii.   Published Peer-Reviewed Conference Proceedings 🗎

A table including descriptions of each conference is included in section 1.c

11. **Exter, M.*,** Ashby, I.+, Gray, C. & Krause, T.+. (June, 2017). Systematically integrating liberal education in a transdisciplinary design studio environment. *Proceedings of the American Society for Engineering Education.* Columbus, OH. Retrieved from https://peer.asee.org/28901 .

    ASEE papers undergo a three-stage double-blind peer review process.

10. Gray, C.*, **Exter, M.*,** & Krause, T+. (June, 2017). Moving towards individual competence from group work in transdisciplinary education. *Proceedings of the American Society for Engineering Education.* Columbus, OH. ASEE. Retrieved from https://peer.asee.org/28691 .

    ASEE papers undergo a three-stage double-blind peer review process.

9. Caskurlu, S.+*, Ashby, I. +, & **Exter, M.** (June, 2017). Faculty views on the alignment between formal education and software design professionals' needs in industry. *Proceedings of the American Society for Engineering Education..* Columbus, OH. ASEE. Retrieved from https://peer.asee.org/28941.

    ASEE papers undergo a three-stage double-blind peer review process.

8. Van Epps, A.*, Ashby, I.+*, Gray, C. M., & **Exter, M.** (June, 2016). Supporting student attainment and management of competencies in a transdisciplinary degree program. *Proceedings of the American Society for Engineering Education*, Multidisciplinary Engineering Division. New Orleans, LA. DOI: 10.18260/p.25977.

    ASEE papers undergo a three-stage double-blind peer review process.

7. Gray, C. M.*, El Debs, L. D.+, **Exter, M.,** & Krause, T. S.+ (June, 2016). Instructional strategies for incorporating empathy in transdisciplinary technology education. *Proceedings of the American Society for Engineering Education*, Engineering Ethics Division. New Orleans, LA. DOI: 10.18260/p.25746.

    The Engineering Ethics Best Diversity paper & Best Diversity Paper Nominee, ASEE 2016

6. **Exter, M. E.*,** Ashby, I.+, Shaurette, M. (2015). Entering the first year of a multi-disciplinary, hands-on, competency-based learning experience: Hopes and concerns of students, parents, and faculty. *Proceedings of the American Society for Engineering Education.* Seattle, WA. DOI: 10.18260/p.24014.

ASEE papers undergo a three-stage double-blind peer review process.

5. el Debs, L.+*, Shaurette, M., **Exter, M.** (2015). Problem-solving in a multidisciplinary environment: observations from a newly developed program. *Proceedings of the American Society for Engineering Education.* Seattle, WA. DOI: 10.18260/p.24591.

ASEE papers undergo a three-stage double-blind peer review process.

4. Ashby, I.+*, **Exter, M.*** (2015). "What's in it for me?" A look into first-year students' perceptions of a digital badge system. *Proceedings of the American Society for Engineering Education.* Seattle, WA. DOI: 10.18260/p.23350.

ASEE papers undergo a three-stage double-blind peer review process.

3. **Exter, M.*,** Yu, J. H.+, Shuba, T. P.+, Zoltowski, C. B., Cardella, M. E., Oakes, W. C., Hart, M., Trusedell, J. (2014). Investigation of pre-university pathways into engineering. *Proceedings of the Frontiers in Education Conference.* Madrid, Spain. DOI: 10.1109/FIE.2014.7044405.

FIE papers undergo a two-stage double-blind peer review process.

2. Zoltowski, C.*, **Exter, M.*,** Cardella, M., Shuba, T., Yu, J. H., Hart, M., Oakes, W. C. (2014, June). Investigation of high school pathways into engineering (work in progress). *Proceedings of the American Society for Engineering Education.* Indianapolis, IN. Retrieved from https://peer.asee.org/20718 .

ASEE papers undergo a three-stage double-blind peer review process.

1. **Exter, M. E.*** (2014). Comparing educational experiences and on-the-job needs of educational software designers. *Proceedings of the 45rd ACM technical symposium on Computer Science Education (SIGCSE).* Atlanta, GA. DOI:10.1145/2538862.2538970

ACM papers undergo a two-stage double-blind peer review process.

iii.   Book chapters 📖

8. Ashby, A.*+, **Exter, M.*,** Varner, D. (in press). Developing cross-cutting competencies for a transdisciplinary world: An extension of Bloom's Taxonomy. In Hokanson, B., Clinton, G., Schmidt, M., Grincewicz, A. & Tawfik, A. (Eds.) *A new Focus for Learning: Educational Technology Beyond Content.* New York: Springer-Verlag. ***[public release anticipated November 2019].***

7. Varner, D.*, Gray, C.*, & **Exter, M.** (in press). Transdisciplinary Studies in Technology: Towards a content agnostic praxis for solving problems. In Hokanson, B., Clinton, G., Schmidt, M., Grincewicz, A. & Tawfik, A. (Eds.) *A new Focus for Learning: Educational Technology Beyond Content.* New York: Springer-Verlag. ***[public release anticipated November 2019].***

6. **Exter, M.*,** Alshammari, A.+*, Fernandez, T.+*, Randolph, A., Chartier, K., Kuo, Y., Lancette, S., & Nemelka, B. (2018). Empowered guinea pigs: Stories of cross-disciplinary projects in an experimental educational software design course. In Hokanson, B., Clinton, C. & Kaminski, K. (Eds.), *Educational Technology and Narrative* (165-176). Cham, Switzerland: Springer.

This book chapter went through a multiple round peer-review processes as part of the AECT Summer Symposium (Abstracts are selected based on peer review. First draft review by symposium attendees during the event, review of second draft by 2 peer symposium attendees, final draft review by editors).

5. Ashby, I.+*, **Exter, M.,** Matei, S., & Evans, J. (2016). Lifelong learning starts at school. Competencies and badge system case study at the Purdue Polytechnic Institute. In L. Muilenburg & Z. Berge (Eds). *Digital Badges in Education: Trends, Issues, and Cases.* New York, NY: Routledge

4. Garcia, E.*, Ashby, I.+, **Exter, M.*** (2016). Flipped design: Studio model approach for a digital art course. In R. Perkins, L. Santos Green, J. Banas (Eds). *The Flipped College Classroom: Conceptualized and Re-Conceptualized.* Cham, Switzerland: Springer International.

3. **Exter, M.*,** Dionne, R*. & Lukasik, C. (2015). Design of a learner-centered seminar-/studio-based Polytechnic Institute. In Hokanson, B., Clinton, G., & Tracey, M., (Eds.), *The Design of Learning Experience: the future of educational technology.* New York: Springer-Verlag.

   This book chapter went through a multiple round peer-review processes as part of the AECT Summer Symposium (Abstracts are selected based on peer review. First draft review by symposium attendees during the event, review of second draft by 2 peer symposium attendees, final draft review by editors).

2. **Exter, M. E.+*,** & Flick, J.* (2010). Engaging online graduate students through volunteering: Pitfalls and possibilities. In J. A. Jaworski (Ed.), *Advances in Sociology Research* (Vol. 9). Hauppauge Nova Science.

1. **Exter, M. E.+*,** & Ochoa, T. A. (2006). Interactive assistive technology: a preliminary analysis of the use of DyKnow Vision and Wacom Graphire 3 4X5 USB tablets in a special education teacher preparation course. In D. A. Berque, J. C. Prey & R. H. Reed (Eds.), *The impact of tablet PCs and pen-based technology on education* (pp. 57-65). West Lafayette, Indiana: Purdue University Press.

   This book chapter was selected by the editors from among refereed papers accepted to the WIPTE conference in 2006.

b. Table of publication information

i. Journals

Title/ Organization	Impact Factor/ Acceptance	Description
Internet and Higher Education	IF 4.238 (2016) SJR 3.347** (2017)	A peer-reviewed international, interdisciplinary quarterly journal that addresses contemporary issues and future developments related to post-secondary online learning, teaching, and administration.
International Journal of Design and Technology Education	IF 1.339 (2017)	The International Journal of Technology and Design Education seeks to encourage research and scholarly writing about any aspect of technology and design education.
International Journal of Designs for Learning	54% acceptance *(developmental review process****)*	This multidisciplinary, peer-reviewed, fully online journal accepts design cases, a form of scholarship common in arts and design fields but new to the field of education. It has an acceptance rate of 54%, with an emphasis on reviewing to develop authors and their works, rather than reject submissions. ***This is the first journal of its kind in the field of education or instructional design.***

Journal of Adolescent & Adult Literacy	IF 0.728 (2017), 16-20% acceptance (2010)	Peer reviewed journal featuring research-based articles related to improving engagement and achievement in literacy for students aged 12 and older. This is the only journal that covers literacy for this age range and has a circulation of 15,000.
Journal of Competency Based Education		Peer reviewed journal focused on the study, documentation, and practice of competency-based education. The target audience of JCBE includes educators, scholars, administrators, policymakers, and others in the higher education community. ***This is the first journal focused on competency-based education.***
Journal of Computing in Higher Education	IF 1.517 (2017)	This journal contributes to the understanding of the design, development, and implementation of instructional processes and technologies in higher education. Priority is given to well-documented original papers that demonstrate a strong grounding in learning theory and/or rigorous educational research design.
Performance Improvement	Google h-5* 12	A practitioner-oriented journal that and strives to provide specific guidelines on applications of performance technology to help readers expand and understand their scope of HPT. Performance Improvement deals with all types of interventions and all phases of the HPT process. The common theme is performance improvement practice or technique that is supported by research or germane theory.
Quarterly Review of Distance Education	Google h-5* 14 40-50% (2009)	A refereed journal publishing articles, reviews, and editorials dealing with theories, research, and practices in institutionally-based, formal distance education.
The Qualitative Report	Google h-5* 36 SJR 0.33 (2019)** Q1 Cultural Studies *** *(developmental review process****)*	This journal has sought to give writers and researchers an outlet for expressing themselves in and about qualitative research since the 1990s, when there were few outlets for doing so. The journal does not seek to reject papers; rather, it uses a collaborative effort between reviewers and editors to partner with authors to improve manuscripts.
Research in Science and Technological Education	IF 0.513 (2017) Q1 Multidisciplinary, Q2 Education***	An original research journal publishing international perspectives on science and/or technological education. Scholarly research that investigates and interrogates the psychological, sociological, economic and organizational aspects of science and technological education, as well as developments within the global curriculum is encouraged.
TechTrends (Association for Educational Communications & Technology)	SNIP 1.064, google h-5 33*	A leading journal for professionals in the field of educational communication and technology that aims to contribute to the advancement of knowledge in management of media and programs, application of educational technology principles and techniques to instructional programs, and corporate and military training.
Transactions on Computing Education (Association for Computing Machinery)	SJR 0.69** Q1 CS & Education*** 17% acceptance	***The Association for Computing Machinery (ACM) is the major international association for Computer Science and related fields.*** TOCE is ACM's peer-reviewed journal on Computing Education, aimed at instructors, researchers, curriculum designers, and administrators, and is one of a small number of journals in the Computing Education arena.

* Google h-5: h-index (the largest number h such that at least h articles in that publication were cited at least h times) for past 5 years. Indexed by Google Scholar. (https://scholar.google.com/intl/en/scholar/metrics.html#metrics)
** SJR: Size-independent indicator of scientific journal prestige (https://www.scimagojr.com/files/SJR2.pdf)
*** SJR Quartile: Quartile of SJR within a domain (Q1 = 1st Quartile CS is in top 25% of journals within the Computer Science domain)
**** Developmental review process: These journals accept articles at a higher than typical rate, working closely with authors to improve their articles through multi-stage review process, using several types of reviewers (such as a combination of both peer review and editor review).

ii. Conferences with Proceedings

Title/ Organization	Acceptance Rate	Description
ASEE	Acceptance rates for this conference vary by division.	The American Society for Engineering Education Annual Conference and Exposition is the only conference dedicated to all disciplines of engineering education. It is aimed at deans, faculty members, and industry and government representatives, and focuses on enhancing teaching methods and curricula. Papers undergo ***three rounds of peer review*** and authors are expected to provide significant re-writes based on reviewer and chair comments.
FIE	55%	A highly-respected major international conference focusing on educational innovations and research in engineering and computing. Authors must ***submit multiple drafts for peer review*** and are expected to provide significant re-writes based on reviewer and chair comments.
ACM SIGCSE	39%	The Association for Computing Machinery is the world's largest educational and scientific computing society. SIGCSE is ACM's Computer Science Education Special Interest Group. Each accepted paper is ***reviewed by several peer reviewers, a meta-reviewer, and the program committee*** and required changes must be made at each level of review before the paper is accepted into the published proceedings.

2. Presentations at regional, national, or international professional conferences and/or other educational institutions

a. Peer-Reviewed Conference Presentations 🗨

Note: This list does not include conferences with published proceedings, which are listed in A.1.a.ii

49. **Exter, M.*,** Ashby, I.+*, Yang, M.+*, Farmer, T.+, McCord, B.+*, Sarwar, U.+ (May/June, 2019). *Developing process models for an interdisciplinary project-based class.* Poster presented at the Clive L. Dym Mudd Design Workshop XI, Claremont, California.

48. **Exter, M.*,** & Ashby, I.+* (2019, April). *Lifelong learning by design for learning design and technology professionals.* Round table presentation at the annual conference of the American Educational Research Association, Toronto, Canada.

47. Kuo, S-P.*, **Exter, M.E.*,** Brophy, S. (2019, April). *Graphic designers' ideation strategies examined through a lens of adaptive expertise.* Round table presentation at the annual conference of the American Educational Research Association, Toronto, Canada.

46. Ashby, I. +*, & **Exter, M.*** (2018, October). *Keeping up-to-date: Lifelong learning practices of instructional designers and educational technologists.* Paper presented at the annual conference of the Association for Educational Communications & Technologies, Kansas City, MO.

45. Ashby, I. +*, & **Exter, M.*** (2018, October). *Introducing interdisciplinarity into higher education curriculum with two examples.* Paper presented at the annual conference of the Association for Educational Communications & Technologies, Kansas City, MO.

44. Bonnett, E+*, Alshammari, A.+*, Allison, H.+*, Odefunso, E.+, Zhang, L.+, **Exter, M.** (2018, October). *Differences in students' perceptions of learning computer programing in rural settings.* Roundtable presentation at the annual conference of the Association for Educational Communications & Technologies, Kansas City, MO.

43. **Exter, M.*,** & Ashby, I+*. (2018, October). Developing individual design skills within a multi-disciplinary group project: use of a flipped model. Paper presented at the annual conference of the Association for Educational Communications & Technologies, Kansas City, MO.

42. Gray, C. M.*, **Exter, M.,** Ashby, I+., Varner, D. (2018, April). *Breaking the model, breaking the "rules": Instructional design in a transdisciplinary learning environment.* Paper presented at the annual conference of the American Educational Research Association, New York, NY.

41. **Exter, M.*,** & Ashby, I.*+ (2017, November). *Designing educational software: Pilot of an interdisciplinary graduate course.* Paper presented at the annual conference of the Association for Education Communications & Technologies, Jacksonville, FL.

40. Ashby, I.*+, Caskurlu, C.*+, **Exter, M.** (2017, November). *Competency-based transdisciplinary program: Evolving roles of faculty.* Paper presented at the annual conference of the Association for Education Communications & Technologies, Jacksonville, FL.

39. Caskurlu, S.+*, Ashby, I.+*, **Exter, M.** (August, 2017). *Faculty in competency-based transdisciplinary environment: First year experiences.* Paper presented at the meeting of the JURE 2017 (Junior Researchers of the European Association for Research on Learning and Instruction), Tampere, Finland.

38. **Exter, M.*,** Gray, C., & Fernandez, T.+ (June, 2017). *Transdisciplinary design education: Do differing disciplinary backgrounds divide or unify?* Poster presented at the Clive L. Dym Mudd Design Workshop X: Design and the Future of the Engineer 2020. Claremont, California.

37. **Exter, M.*,** Smith, M., Gray, C. (2017, June). *Integrating liberal education perspectives in a transdisciplinary design studio.* Paper presented at the Polytechnic Summit 2017, West Lafayette, IN.

36. **Exter, M.*,** Caskurlu, S.+*, Ashby, I.+*, & Dionne, R. (2016, October). *Designing & assessing competencies in a new Transdisciplinary Studies in Technology program.* Paper presented at the annual conference of the Association for Education Communications & Technologies, Las Vegas, Nevada.

35. **Exter, M.*,** Krause, T.+, Randolph, R.+, & Ashby, I.+* (2016, October). *What's the gap? Exploring professionals' beliefs on KSAs needed on-the-job & coverage in ID programs.* Paper presented at the annual meeting of the Association for Education Communications & Technologies, Las Vegas, Nevada.

34. Alshammari, A.+* & **Exter, M.** (2016, October). *D&D: Is game design and development education at risk? Perceptions among gaming professionals, students and educators on game education.* Round table presentation at the annual conference of the Association for Education Communications & Technologies, Las Vegas, Nevada.

33. Ashby, I.+*, Caskurlu, S., & **Exter, M.** (2016, October). *Emergence of self-regulation skills in a competency-based education environment – students' perception*. Paper presented at the annual meeting of the Association for Education Communications & Technologies*,* Las Vegas, Nevada.

32. Gray, C. M.*, Krause, T.+*, & **Exter, M.** (2016, October). *Barriers to developing empathic Ability: gender inclusivity in technology education.* Paper presented at the annual conference of the Association for Educational Communications and Technology*,* Las Vegas, Nevada.

31. Caskurlu S.+*, **Exter*, M.,** Ashby, I+. (2016, April). *Importance of lifelong learning skills and degree covered in undergraduate programs: faculty and practitioners' perspective*. Paper presented at the annual conference of the American Educational Research Association Annual Meeting, Washington, DC.

   Outstanding Research Presentation Award, *Design and Technology SIG, AERA 2016*

30. **Exter, M.*,** Ashby, I.+*, & Caskurlu, S.+* (2015, November). *Why students choose to join and leave a new transdisciplinary, competency-based degree program.* Presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.

29. **Exter, M.*,** Shaurette, M.*, Dionne, R.*, & Evans, J.* (2015, November). *Program evaluation challenges for a new trans-disciplinary degree program with an exploratory curricular plan.* Panel discussion presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.

28. **Exter, M.*,** & Caskurlu, S.+* (2015, November). *Professional skills for computing professionals: Are universities meeting industry need?* Presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.

   *Won **Outstanding Concurrent Session Award** for the Division of Organizational Training and Performance of the Association for Educational Communications and Technologies.*

27. Ashby, I.+*, Caskurlu, S.+, **Exter, M.** (2015, November). *Millennials in the driver's seat: Preparedness for and progress in a discovery learning environment.* Poster presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.

26. el Debs, L.+*, Miller+, K., **Exter, M.** (2015, November). *Students' perspectives on different teaching methods.* Roundtable presented at the annual meeting of the Association for Educational Communications and Technology, Indianapolis, IN.

25. Walker, V.*, & **Exter, M.*** (2014, November). *Creating effective training support system for online faculty.* Round table presented at the annual meeting of the Association for Educational Communications and Technology, Jacksonville, FL.

24. **Exter, M.*,** Dionne, R.*, Lukasik, C. (2014, July). *Design of a learner-centered seminar-/studio-based polytechnic institute.* Presented at the Association for Educational Communications and Technology Summer Research Symposia, Jacksonville, FL.

23. Evans, J.*, **Exter, M.,** & Lukasik, C. (2014, June*). Transdisciplinary collaboration: Perspectives of faculty stakeholders.* Paper presented at the Polytech Summit 2014, West Lafayette, IN.

22. Korkmaz, N.* & **Exter, M. E.*** (2013, October). *Advising within an online EdD program*. Presented at the annual meeting of the Association for Educational Communications and Technology, Anaheim, CA.

21. Korkmaz, N.* & **Exter, M. E.*,** Boling, E. (2013, April). *The Development of design character: An exploratory study of the experiences of instructional design professionals.* Round table presentation at the annual meeting of the American Educational Research Association, San Francisco, CA. *(Discussion of preliminary data analysis.)*

20. **Exter, M. E.+*** (2011, October). *The educational experiences of software designers working in Education Related Fields.* Round table presentation at the annual meeting of the Association for Educational Communications and Technology, Jacksonville, FL. *(Presentation of full dissertation data, with round-table discussion about next steps on research agenda)*

19. **Exter, M. E.+*** (2011, April). *The educational experiences of software designers working in education related fields.* Round table presentation at the annual meeting of the American Educational Research Association, New Orleans, LA. *(Discussion of preliminary analysis of survey data - second phase of dissertation study).*

18. **Exter, M. E.+*** (2010, October). *The educational experiences of software designers working in higher education.* Paper presentation at the annual meeting of the Association for Educational Communications and Technology, Anaheim, CA. *(Discussion of preliminary analysis of subset of interview data (first phase of dissertation study)*

17. **Exter, M. E.+*,** Flick, J.* (2010, October). *Engaging online graduate students through volunteering: Pitfalls and possibilities.* Paper presentation at the annual meeting of the Association for Educational Communications and Technology, Anaheim, CA.

16. **Exter, M.E.+*,** & Harlin, N.M.+* (2010, April). *The formal and non-formal educational experiences of software designers.* Poster session presented at the American Educational Research Association. Denver, CA.

15. **Exter, M.E.+*,** & Harlin, N.M.+* (2009, October). *The formal and non-formal educational experiences of software designers.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Louisville, KY. *(Discussion of preliminary data analysis.)*

14. Harlin, N.M.+*, **Exter, M.E.+*,** & Boling, E. (2009, October). *Software designers' use of precedent.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Louisville, KY.

13. **Exter, M. E.+*,** Korkmaz, N.+* & Boling, E. (2009, October). *Use of critique in an instructional design course: Perceived value and impact on students' design thinking.* Paper presented at the annual meeting of the Association for Educational Communications and Technology, Louisville, KY.

12. Harlin, N.M.+*, **Exter, M.E.+*,** & Boling, E. (2009, February). *Software designers' use of precedent.* Poster session at the annual meeting of the American Educational Research Association. San Diego, CA. *(Discussion of preliminary findings from a targeted subset of data.)*

11. Damico, J. S.*, Baildon, M. C.*, Yazzie-Mintz, T.*, Riddle, R. L.*, **Exter, M. E.+** (2009, February). *DiverseITy (Diverse IT): Using a technology tool for curriculum innovation in TE.* Interactive symposium session at the annual meeting of the American Educational Research Association. San Diego, CA.

10. **Exter, M. E.+*,** Korkmaz, N.+*, Harlin, N. M.+, Bichelmeyer, B. A. (2008). *Distance education students' responses to sense of community within a fully online graduate program.* Paper discussion at the annual meeting of the American Educational Research Association. New York, NY.

9. **Exter, M. E.+*,** Wang, Y.+, Exter. M. F., Damico, J. S. (2008). *Designing a tool to support critical web reading.* Paper discussion at the annual meeting of the American Educational Research Association, New York, NY.

8. Harlin, N. M.+*, **Exter, M. E.+*** & Bichelmeyer, B. A. (2008). *Story of a conference: Distance education students' experiences in a departmental conference.* Poster presented at the annual meeting of the American Educational Research Association, New York, NY.

7. Korkmaz, N.+*, **Exter, M. E.+*** & Bichelmeyer, B. A. (2008). *Students' thoughts about their interactions with peers and peer feedback in a blended course: A case study.* Paper presented at the annual meeting of the American Educational Research Association, New York, NY: 2008.

6. Korkmaz, N.+*, **Exter, M. E.+*** & Boling, E. (2008). *Students' perceptions of peer critique in a blended instructional design course.* Paper discussion at the annual meeting of the American Educational Research Association, New York, NY.

5. **Exter, M. E.+*** & Ochoa, T. A. (2007). *The use of an interactive note-taking system: A pilot study in a teacher education course.* Paper and poster presented in special poster session at the annual meeting of the American Educational Research Association, Chicago, IL.

4. Cheng, J.+*, **Exter, M. E.+,** Korkmaz, N.+, Clark, L. V.+, Tian, L.+, Yoon, S.+ & Bichelmeyer, B. (2007). *Introducing the logic model as a framework for distance education program evaluation.* American Educational Research Association, Chicago, IL: 2007.

3. Damico, J. S.*, Baildon, M. C.*, **Exter, M. E.+*** & Guo, S.+* (2007). *Accessing prior knowledge and adjudicating between different perspectives: Students examine competing websites in social studies.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

2. **Exter, M. E.+*,** & Ochoa, T. A. (2006). *Interactive assistive technology: A preliminary analysis of the use of DyKnow Vision and tablet pens in a special education teacher preparation course.* Paper presented at the annual Workshop on the Impact of Pen-Based Technology on Education, West Lafayette, IN.

1. Treat, A. R.+* & **Exter, M. E.+*** (2005). *Virtual schools for the gifted.* Poster presented at the annual conference of the National Association for Gifted Children, Louisville, KT: 2005.

b. Invited Presentations 💬

5. Panel member in panel presentation/workshop at Polytech Summit, West Lafayette, IN, June 7, 2017

   Innovative Learning and Teaching, hosted by Nathan Mentzer and Clarence Maybee

   Invited to be part of a panel and subsequent workshop session as part of the international Polytech Summit.

4. Australasian Council on Open, Distance and e-Learning: 2017 workshop on Digital Badges and Credentials, Melbourne, Australia, March 2, 2017.

   Using Digital Badges in Competency-Based Degree Programs at Purdue University

   Presented with graduate students Iryna Ashby and Secil Caskurlu on competency based education and use of CBE at a program level in two Purdue programs. This day-long workshop was attended by over 45 faculty, administrators, and technical support personnel from across Australia.

3. NSF-funded Keystone "STEM" Seminar, Elmhurst College, August 9, 2015.

Invited to be part of a panel and make a brief presentation on skills and knowledge required on-the-job by software design professionals. Seminar was attended by STEM students and faculty from across Elmhurst College.

2. Mathematics Seminar, Elmhurst College, April 8, 2015.

Using Non-Parametric Statistics to Explore Gaps between On-the-Job Needs and Educational Experiences of Software Professionals.

Invited to speak by chair of the Computer Science department. Seminar was attended by faculty and undergraduate students from the Math and Computer Science departments at Elmhurst College.

1. Kumar, S., Dawson, K., Clif, M., Exter, M., Jones, G. & Weaver, C., November, 2014.

Presidential Session – Designing, implementing and evaluating online doctoral programs in Educational Technology and related fields.

Panel discussion presented at the annual meeting of the Association for Educational Communications and Technology, Jacksonville, FL.

3. Evidence of involvement in graduate research programs

a. Chair of PhD. committees (in progress)

1. Iryna Ashby. Admitted Fall, 2014.

2. Terri Krause. Admitted Fall 2015.

3. Carolina Cuesta. Admitted Fall, 2018.

4. Nathaniel Hilliard. Admitted Spring 2019

b. Chair of PhD. committees (completed)

1. Shih-Ping Kuo (2018). Graphic Design Students' Development of Adaptive Expertise in Ideation Strategies.

c.
d. Member, PhD. committees (completed)

1. Sha Yang (2015). Incorporating interactive electronic storybooks into shared reading programs by kindergarten teachers: A multiple case study.

2. Camilo Vieira Mejia (2016, Purdue Polytech: CIT). Students' Explanations in Complex Learning of Disciplinary Programming.

3. Kurtis Miller (2017, College of Liberal Arts: Communications). It was a Time of Confusion: Managing uncertainty in a new, competency-based polytechnic program.

4. Ali Alshammari (2018). She Is a Computer Scientist: A Quantitative Comparison between the Effectiveness of Game Design Studios and Robotics at Enhancing Women's Learning of, Self-Efficacy in, Attitudes toward, and Domain Identification with Computer Science.

5. Elizabeth Beese (2018). How Do They Do It? Describing Nontraditional Designs for Creating and Carrying Out Personalized Plans for Learning in Three High Schools.

6. Zheng Zhou. (2018; Purdue Polytech: CGT). Websites for Physics Demonstrations and Computer Simulations: A Non-Educational Quality Evaluation.

7. Secil Caskurlu. (2019). Revisiting the Community of Inquiry Framework through a Factor Analysis, Meta-Analysis, and Thematic Synthesis.

    e. Chair, Master's committees (completed, residential program)

1. Rachel Clark (2018). Non-thesis Master's.

    f. Chair, Master's committees (in progress, residential program)
    g. Member, Master's committees (completed, residential program)

1. Yishi Long (2019).
2. Joe Price (2018; Purdue Polytech: CGT), Thesis-based Master's. Responsibly Persuaded: An exploration of the ethics of persuasive technologies.
3. Yun-Han Huang (2018; Purdue Polytech: CGT), Thesis-based Master's. Understanding the Collaboration Difficulties between UX Designer and Developers in Agile Environments.
4. Jacob Varney (2018).

    h. Member, Master's committee (in progress, residential program)
    i. Chair, Master's committees (online program)

62 students currently; 55 graduated.

    j. Other Graduate Student Mentorship.

Dr. Exter spends a significant amount of time mentoring graduate students. In addition to her own advisees and research assistants who work under her, Dr. Exter informally mentors students that voluntarily take part in her research teams.

1. As part of a 2019-2020 PRF grant funded project that extends work Dr. Exter and doctoral student Iryna Ashby have been engaged in on interdisciplinary programs *(see section A.5.b),* Dr. Exter supervises Iryna Ashby as well as Fulbright student Carolina Cuesta.

2. As part of her 2015-2016 and 2017-2018 PRF grant funded project on competencies important to instructional design professionals *(see section A.5.a),* Dr. Exter supervised one Research Assistant, doctoral student Terri Krause. In 2017-2018, Iryna Ashby was hired as a Research Assistant on a PRF grant supported continuation of this study. They continue to work on publications related to this project, along with new student Carolina Cuesta.

3. As part of her 2014-2015 PRF grant funded project (*see section A.4.a*), Dr. Exter supervised one Research Assistant, doctoral student Secil Caskurlu. Unfunded work on this project is ongoing.

4. As part of her role as chair of the PPI evaluation team (*see section C.I.c.i*), Dr. Exter leads a team that has included up to 6 graduate students simultaneously from across colleges (LDT program, Polytechnic, and Liberal Arts (Communications)). These students participated in research and evaluation efforts including reviewing relevant literature, designing protocols and instruments, collecting data, analyzing data, and contributing to research presentations and papers. RA's hired by TST under her direction between fall 2014 and spring 2018 included Iryna Ashby (LDT), Terri Krause (LDT), Denise Wilder (Polytech, BCM), Luciana el Debs (Polytech, BCM), and Kurtis Miller (Communications). In 2016-2017, she also supported Secil Caskurlu (LDT), who was primarily involved in developing a training event for the Polytech but also assisted in related research activities.

5. In addition to RAs and TAs, mentored and co-authored/co-presented with graduate students Ali Alshammari, Luciana el Debs (Polytech: BCM), Tadd Farmer, Todd Fernadez (Engineering

Education), Brantly McCord (Polytech:CGT), Umair Sarwar (Engineering), Deena Varner (CLA: English), Mohan Yang.

6. In Fall, 2013, Dr. Exter mentored doctoral candidate Ji Hyun Yu, who assisted her in teaching a course as well as serving as a research assistant.

4. Evidence of involvement with undergraduate students in research

1. Currently working on a co-authored paper with undergraduate students B. Duncan Smith and Aubrey ("AJ") Hocker.

2. Co-mentored 10 Discovery in Undergraduate Research Internship (DURI) students with Dr. Colin Gray (Polytech/CGT, primary mentor). Consulted with primary mentor and attended meetings as needed.

    a. Spring 2016 undergraduate research interns: Moh'd Fares Alsamarah (ME); Caitlin Cowden (ECE); Jason Brier (CGT); Wilson Husin (CS); Unmesha Kale (ECE); Adam Kranz (CS)

    b. Fall 2016 undergraduate research interns: Xiaolu Bai (PSY); Meghavin Bhatsana (ME); Ashvin Lohiya (CS); Abilene Perez (CGT).

5. Research grantsmanship and awards

a. Internal grants and awards as primary applicant (awarded)

1. ***"Interdisciplinarity in Higher Education: Administrator and Faculty Perspectives," PRF Year-Long Research Grant, 2019-2020.***

Title of Award/Agency:	College of Education, Purdue University
Duration of Funding:	1 year (2017-2018)
Total Amount Awarded:	.50 FTE GA, Summer 2019-Spring 2020
Involvement:	Dr. Exter co-designed this study and co-wrote this proposal with the funded student, Iryna Ashby. Dr. Exter will be supervising and participating in data collection, data analysis, and dissemination of research results.

2. *Faculty Fellow,* **Purdue Polytechnic Institute, 2018-2019**

Title of Award/Agency:	Faculty Fellow
Duration of Funding:	1 year (2018-2019)
Total Amount Awarded:	25% course release for the 2018-2019 school year Supervised 2 RAs.
Involvement	Dr. Exter was re-appointed as Faculty Fellow for 2018-2019. Her involvement in the PPI is further described in section C.1.c.

3. **"Towards Maximizing LDT Students' Learning and Professional Experience: Exploring Roles and Responsibilities of Instructional Designers and Educational Technologists in K-12, Higher Education, and Corporate Settings," PRF Year-Long Research Grant, 2017-2018.**

Title of Award/Agency:	College of Education, Purdue University

Duration of Funding:	1 year (2017-2018)
Total Amount Awarded:	.50 FTE GA, Fall 2017-Summer 2018
Involvement:	Dr. Exter wrote the grant proposal, designed the study, and oversaw data collection and analysis. This is a continuation and expansion of the study funded in 2015-2016.

4. *Faculty Fellow,* **Purdue Polytechnic Institute, 2017-2018**

Title of Award/Agency:	Faculty Fellow/College of Technology, Purdue University
Duration of Funding:	1 year (2017-2018)
Total Amount Awarded:	25% course release for the 2017-2018 school year Supervised 3 GAs.
Involvement	Dr. Exter was re-appointed as a Faculty Fellow for the Purdue Polytechnic's Transdisciplinary Studies in Technology program. She continued to lead the research & evaluation team and led a re-design of the competency model and competency assessment framework. Her involvement in the PPI is further described in section C.1.c.

5. *Faculty Fellow,* **Purdue Polytechnic Institute, 2016-2017**

Title of Award/Agency:	Pioneer Faculty Fellow/College of Technology, Purdue University
Duration of Funding:	1 year (2016-2017)
Total Amount Awarded:	25% course release for the 2015-2016 school year Supervised 3 .50 FTE GAs Received funding for myself and graduate students to attend one international conferences and conduct a campus visit to observe their assessment center model
Involvement	Dr. Exter was re-appointed as one of 12 faculty fellows from across the university, based on her ongoing contributions to the project. Her involvement in the PPI is further described in section C.1.c.

6. **"Exploring and Comparing Gaps between the Educational and Professional Experiences of Instructional Designers," PRF Year-Long Research Grant, 2015-2016.**

Title of Award/Agency:	College of Education, Purdue University
Duration of Funding:	1 year (2015-2016)
Total Amount Awarded:	.50 FTE GA, Fall 2015-Summer 2016
Involvement:	Dr. Exter wrote the grant proposal, designed the study, and oversaw data collection and analysis.

7. *Faculty Fellow,* **Purdue Polytechnic Institute, 2015-2016.**

Title of Award/Agency:	Pioneer Faculty Fellow/College of Technology, Purdue University
Duration of Funding:	1 year (2015-2016)

Total Amount Awarded:	25% course release for the 2015-2016 school year Supervised 2 .50 FTE GAs, 1 .25 FTE GA, Fall 2015-Spring 2015 Received funding for myself and graduate students to attend two international conferences and one three-day workshop
Involvement	Dr. Exter was re-appointed as one of 12 faculty fellows from across the university, based on her ongoing contributions to the project. Her involvement in the PPI is further described in section C.1.c.

8. *Faculty Fellow,* **Purdue Polytechnic Institute, 2014-2015.**

Title of Award/Agency:	Pioneer Faculty Fellow/College of Technology, Purdue University
Duration of Funding:	1 year (2014-2015)
Total Amount Awarded:	50% course release for the 2014-2015 school year, 2 weeks summer pay, and funding for .25 FTE GA, Spring 2014 semester
Involvement	Dr. Exter was re-appointed as one of 12 faculty fellows from across the university, based on her ongoing contributions to the project. Her involvement in the PPI is further described in section C.1.c.

9. **"Alignment between Software Designers' needs on the job and formal education," PRF Year-Long Research Grant, 2014-2015.**

Title of Award/Agency:	College of Education, Purdue University
Duration of Funding:	1 year (2014-2015)
Total Amount Awarded:	.50 FTE GA, Fall 2014-Summer 2015
Involvement	Dr. Exter wrote the grant proposal, designed the study, and oversaw data collection and analysis.

10. *Pioneer Faculty Fellow,* **Purdue Polytechnic Institute, 2013-2014.**

Title of Award/Agency:	Pioneer Faculty Fellow/College of Technology, Purdue University
Duration of Funding:	1 year (2013-2014)
Total Amount Awarded:	50% course release for one semester and 4 weeks summer pay
Involvement:	Dr. Exter was selected as one of 15 faculty fellows from across the university, based on a competitive application process and interview. She was involved in research and planning activities aimed to prepare for pilot program beginning in Fall 2014.

 b. Grants as member of the investigative/development team (awarded)

1. **"Using Web-based Tools to Support Source Work and Inquiry in Social Studies"**

Title of Grant/Agency:	Office of Education Research, National Institute of Education, Singapore
Duration of Funding:	2009-2012
Total Amount Awarded:	$450,000 (Singapore)
Role:	Collaborator, managed technical aspects of project
Amount responsible for	N/A
Involvement	Dr. Exter contributed to the planning and writing of the grant application, and later to developing a contract between the National Institute of Education in Singapore and Indiana University, through which she and staff she supervised were funded.

   c. **External grants applied for but not funded**

2. **"Implementing Interdisciplinarity in Higher Education: Characteristics, supports, and barriers."** Spencer **Small Grant.** *(Submitted February, 2019)*

Title of Grant/Agency:	Spencer Foundation
Duration of Funding:	2 years
Total Amount Requested:	$50,000.00
Role:	PI
Amount Responsible For:	100%
Involvement	Dr. Exter led the writing of this grant proposal and the design of the proposed study. If granted, Dr. Exter will supervise one graduate student, refine data collection instruments, participate in data analysis, and co-author papers and presentations with the co-PI and graduate student.

3. **"An Outlook on Interdisciplinarity in Higher Education: Trends and Obstacles Based on Administrator and Faculty Perspectives."** Spencer **Small Grant.** *(2018)*

Title of Grant/Agency:	Spencer Foundation
Duration of Funding:	2 years
Total Amount Requested:	$49,973.00
Role:	PI
Amount Responsible For:	100%
Involvement	Dr. Exter led the writing of this grant proposal and the design of the proposed study.

4. **"Metacognition and critique in transdisciplinary undergraduate technology education"** *NSF IUSE EHR grant. (2016).*

Title of Grant/Agency:	EHR Core Research (ECR)/NSF
Duration of Funding:	3 years
Total Amount Requested:	$496,307.01
Role:	Co-PI
Amount Responsible For:	40%

Involvement	Dr. Exter was heavily involved in planning and writing this grant proposal and the design of the proposed study.

5. **"Metacognition and critique in transdisciplinary undergraduate technology education"** *NSF IUSE HER grant. (2015).*

Title of Grant/Agency:	Improving Undergraduate STEM Education/NSF
Duration of Funding:	3 years
Total Amount Requested:	$296,364.70
Role:	Co-PI.
Amount Responsible For:	40%.
Involvement	Dr. Exter was heavily involved in planning and writing this grant proposal and the design of the proposed study.

6. **"Investigation of EPICS as a High School Pathway into Engineering,"** *NSF REE grant. (2014)*

Title of Grant/Agency:	Research in Engineering Education/NSF
Duration of Funding:	2 years
Total Amount Requested:	$305,098.
Role:	Co-PI.
Amount Responsible For:	50% FTE Graduate assistant + 60% of a month of summer pay for each of 3 years
Involvement:	Dr. Exter was heavily involved in planning and writing this grant proposal and the design of the proposed study.

d. External grants applied for, under review

1. **"Workshop Proposal: Toward Annual Feedback from Computing Professionals to Academia"** *NSF IUSE EHR grant. (Submitted May, 2019).*

Title of Grant/Agency:	EHR Core Research (ECR)/NSF
Duration of Funding:	1 year
Total Amount Requested:	$80,000
Role:	see note below
Amount Responsible For:	0% (see note below)
Involvement	This proposal represents the first step towards a larger agenda, which was inspired by Dr. Exter's previous work (especially Exter, Caskurlu & Fernandez, 2018). The long-term goal is to develop a large-scale, longitudinal survey-based study on competencies required by computing professionals, with the aim of informing computing educators and accreditation agencies of current industry needs. This grant proposal would fund a workshop to bring together stakeholders to gain their perspectives before submitting a larger NSF IUSE grant proposal.

	Dr. Exter was heavily involved in brainstorming meetings, initial planning of the workshop, and writing the grant proposal. Should the proposal be funded, she would join the PI and four other collaborators in running the workshop, analyzing workshop findings, and writing the subsequent grant proposal. It is anticipated that she would be (co-)PI on subsequent grant proposals. **NOTE:** This was officially submitted by PI Dr. Rahul Simha at George Washington University. As stated in the proposal: *"Submitted by George Washington University (GW), this project involves an equal partnership of investigators from Mississippi State University (MSU), Purdue University (PU), and Rochester Institute of Technology (RIT) working collaboratively with GW."* Dr. Exter is the sole collaborator from Purdue University.

6. **Current research interests, including experimentation and other projects in progress**

   a. **Learning from In-Practice Professionals.**

Dr. Exter continues to work on several studies related to the experiences and beliefs of in-practice design professionals. This includes:

- *Software Design & Development:* Collaborated with graduate students Secil Caskurlu and Todd Fernandez (Engineering Education). Although data collection is complete and we have published and presented several times, additional manuscripts are in progress. This work has leading to collaborative opportunities with members of CC2020, ABET, and chairs of several computer science departments, and the NSF EHR grant proposal currently under review submitted by Dr. Rahul Simha: "Workshop Proposal: Toward Annual Feedback from Computing Professionals to Academia" NSF IUSE EHR grant."
- *Instructional Design & Educational Technology:* Collaborated with graduate students Iryna Ashby, Terri Krause, and Carolina Cuesta on a study related to competencies required and roles played by instructional design and educational technology working in corporate, k-12, and higher education settings. The team has 3 manuscripts in progress and is currently piloting an online questionnaire for a survey of professionals.

   b. **Creating Real Change in Design Education:**

Dr. Exter's involvement in several experimental design education initiatives allows her to explore ways to address recommendations from in-Practice professionals. These include:

- Working within the Purdue Polytech Educational Research & Development incubator on *Transdisciplinary Studies in Technology program*, focused on creating a new curriculum and pedagogical model to develop 21st century skills through transdisciplinary, student-centered, hands-on, project-based learning experiences within a Competency Based Education model. As part of the Transdisciplinary Studies in Technology team, Dr. Exter has been chair of the research and evaluation committee, and led a team that has included up to 2 additional faculty and 6 graduate students in designing instruments and protocols

and collecting formative evaluation data from students, parents, and faculty. This team has published 4 journal articles, 1 dissertation, 10 proceedings papers, and 18 presentations on topics including inter-/transdisciplinarity, studio model, competency-based education, and faculty and students' experiences within the program.

- Dr. Exter continues to present and write about the development and implementation of her *Educational Software Design course*, and has published a book chapter co-written with the students from the first iteration of the course. A design case related to the design of the course was published in 2018, and she has co-authored with her students including a book chapter in 2018, a poster presentation in 2019, and a symposium submission that will eventually be developed into a book chapter in 2019.
- Dr. Exter has been working with doctoral student Iryna Ashby to further understanding of *interdisciplinary education*, with a focus on program design. In addition to co-authored papers and presentations, Dr. Exter has been awarded a Purdue Research Foundation grant to fund an interview-based study on interdisciplinary programs in Big 10 universities, to gain a rich understanding of the types of programs offered and challenges and barriers faced in their creation and maintenance.

c. Beyond Courses in Graduate Programs.

- Dr. Exter joined Dr. Victoria Lowell in writing about *the training and supports designed for adjunct (LTL) instructors in the LDT Master's online program*. One article and two presentations have focused on this topic. An additional article is being planned.
- Dr. Exter has been engaging with her graduate students and other faculty members to better *understand and improve mentorship of doctoral students*. She co-authored a paper on cognitive apprenticeship for qualitative research with Iryna Ashby, her "mentee" in the process experienced. She is also planning to write about experiences of assistant professors navigating the role of doctoral adviser with Dr. Jake Burdick and Dr. Stephanie Zywicki.

7. Evidence of interdisciplinary activity

- Collaboration with faculty members from across multiple colleges and disciplines (including the Purdue Polytechnic, College of Liberal Arts, Libraries and others) in the Transdisciplinary Studies in Technology program. This includes active participation in program-level planning as a member of the Faculty Fellows; serving as Chair of the Research & Evaluation committee and overseeing that team's efforts, including supervising 3-6 paid and unpaid graduate students; and being a member of the Four Year Learning Experience Committee and the Competencies Sub-Committee (see section A.6.b, B.3.c, and C.1.b and for more details).
- Conducting research on interdisciplinary programs *(see A.5.b).*
- Co-authored a paper with her students from the Fall, 2016 offering of EDCI62700-02. This group of students from a variety of home departments across campus (including Curriculum & Instruction, Computer Graphics Technology, Engineering Education, and Linguistics) participated in reflecting on their experience in this course designed to develop multidisciplinary skills while engaging in projects for clients from around campus. She is co-presenting and co-authoring once again with students from the Fall 2018 offering of EDCI627-02, this time for a poster presentation at the Harvey Mudd XI conference relating to student synthesis of process models from different disciplines, and a symposium paper that will be developed into a book chapter about the groups' development of thinking about process through engaging in course activities and collaborative reflection.
- Attended Purdue Polytech's STEM Education Research Workshop, and became a member of a cluster focused on use of critique in technology-focused classrooms.

- Collaboration with Engineering Education as part of her work with the EPICS program. This involved attending regular meetings, contributing to study design and survey design efforts, and collaborating on conference papers. (2013-2014)
-

8. **Other evidence of national recognition**

   a. **Review for Professional Journals**

   - **TechTrends**. 2012-present
   - **Invited reviewer:**
     - **Transactions on Computing Education**, 2018, 2019
     - **International Journal of Designs for Learning,** 2014, 2016, 2018, 2019.
     - **International Journal of Designs for Learning,** 2016
     - **International Journal of Designs for Learning,** 2014.
     - **Software: Practice and Experience**, 2011.
     - **Internet and Higher Education:** 2009
     - **THEN journal**, 2008.
     - **TechTrends**, 2005.

   b. **Review of Book Chapters**

   - **Association for Educational Technology and Communication: Summer Symposium Book Chapters.** 2014, 2016, 2018

   c. **Review of Conference Proposals**

   - **Association for Computing Machinery, Special Interest Group in Computer Science Education**: 2017
   - **American Educational Research Association (AERA),** 2017: SIG-DAT panel.
   - **American Society for Engineering Education,** 2013-2014: Abstracts and drafts for conference papers (3-stage review process).
   - **American Educational Research Association (AERA),** 2010: SIG-IT & SIG-CTE panels.
   - **American Educational Research Association (AERA),** 2009. Division J & SIG-DAT.
   - **American Educational Research Association (AERA),** 2008.
   - **Workshop on the Impact of Pen-based Technology on Education (WIPTE),** 2008.
   - **American Educational Research Association (AERA),** 2007.
   - **Workshop on the Impact of Pen-based Technology on Education (WIPTE),** 2007.

SECTION B: LEARNING

Dr. Exter teaches graduate courses that prepare students to work in the field of Instructional Design or Human Performance Technology. Her approach to teaching is (a) student centered and (b) hands-on. She aims to serve as a mentor to students in all her classes. She is also interested in adapting a studio approach to instructional design and development courses.

As lead instructor of EDCI 528 since 2013, Human Performance Technology, Dr. Exter systematically redesigned the online course, adding activities which required students to connect readings, discussions, and presentations to their own personal interest and development of understanding of the course materials. She hosts synchronous online sessions with guest speakers to provide students exposure to the variety of potential HPT roles across industries and allow them to engage in discussion with experienced professionals. Student end-of-course feedback indicated that the majority of students appreciated this approach, as well as the personalized feedback they received on every assignment, blog post, and on weekly discussion participation. In addition to high ratings, students expressed high satisfaction with the course design as well as instruction; *"I loved this class. I think it should be a required class for the LDT program. Was very eye-opening! I absolutely loved the guest speaker web conferences"*; *"Dr. Exter is an excellent professor and facilitator. I hope she can continue bringing weekly speakers to the class."*

Dr. Exter was inspired by her research and professional experience to create a course in Educational Software Design in 2015. This multi-disciplinary course design adapts the studio model to the limited time-frame and resource availability in a traditional weekly class session. In the past four years, 45 students have enrolled from Curriculum & Instruction, Polytechnic, Engineering, Human Development & Family Studies, and Language Education among others. Students engage in authentic projects for unique projects for a variety of clients including faculty from Entomology and Aviation and Purdue's Bechtel Innovation center. Although students gave many suggestions for improvement in the end-of-semester evaluation and debrief sessions each semester, they also gave positive feedback, including *"Dr. Exter is wonderful at taking time to answer questions and to discuss projects with the students. She expresses sincere interest in each of us. She is kind and helpful, and goes above and beyond to accommodate our personal lives. She is trying to give us a real world experience and has gone to the effort to secure real clients for our projects."*

Dr. Exter encourages a collaborative relationship with limited term lecturers (LTLs), LTL-mentees, and TAs under her direction (5-10/year). This is accomplished through an introduction presentation and discussion, enrolling instructors in each section so they can benefit from observing each other's practice, encouraging instructors to contact one another with questions or issues, and regularly sharing resources and announcements. LTLs have expressed satisfaction with this practice. As one wrote in an unprompted email, *"I'd like to express my gratitude that you gave me such a great teaching opportunity and have helped us a lot make it a wonderfully productive course. This is my first time teaching of HPT for Purdue and it turned out a very pleasing experience. There are a few things I'd like to improve as an instructor next time, but I can tell I'm really satisfied with this experience. The level of collaboration among the instructors was incredibly impressive and having great guest speakers made this course special!!"*

Finally, Dr. Exter was involved in the design and evaluation of the Transdisciplinary Studies in Technology degree within the Purdue Polytechnic Institute from 2013-2018 (*see description in section C.1.b*). This project allows the faculty team to push the boundaries of traditional undergraduate education, through providing student-centered, hands-on experiences through a studio and seminar model. Her involvement included collaborating on the development of a competency model for the program and design of the overall four-year learning experience (curriculum). She also contributed to documentation submitted to the Indiana Commission for Higher Education for approval of this degree program.

1. **Courses taught during past three years**

   a. **EDCI 56600, Educational Applications of Multimedia,** Spring 2019 (enrollment: 11)
   b. **EDCI 62700, Educational Software Design,** Fall 2018 (enrollment: 11)
   c. **EDCI 56600, Educational Applications of Multimedia,** Spring 2018 (enrollment: 13)
   d. **EDCI 62700, Educational Software Design,** Fall 2017 (enrollment: 13)
   e. **EDCI 66000, Learning Design and Technology Seminar,** Fall 2017 (enrollment: 7)
   f. **EDCI 56600, Educational Applications of Multimedia,** Spring 2017 (enrollment: 13)
   g. **EDCI 62700, Educational Software Design,** Fall 2016 (enrollment: 11)
   h. **PTEC 40700/20700, ePortfolio,** Fall 2016 (enrollment: 8)
   i. **EDCI 52800, Human Performance Technology,** Summer 2016 (enrollment: 13)
   j. **EDCI 56600, Educational Applications of Multimedia,** Spring 2016 (enrollment: 14)

2. **Courses for which she has administrative or supervisory responsibility during past three years**

   a. **EDCI 52800:** *Lead* for online course with multiple sections (three in 2013, five in 2014, four in 2015, four in 2016, five in 2017, six in 2018). This involved:

   - Introducing the course and course materials to LTLs and adapting it based on their feedback
   - Monitoring LTL course sections
   - Answering questions from LTLs in a timely manner throughout the course and meeting with them as necessary to discuss and collaborate
   - Addressing issues as they arose.

   b. **EDCI 56600:** *Temporary lead* for online course with multiple sessions (three in 2017 with three instructors including herself and two mentee instructors, including one in her own section). This involved:

   - Introducing the course and course materials to LTLs and mentee LTLs
   - Monitoring LTL course sections
   - Answering questions from LTLs and mentees in a timely manner throughout the course and meeting with them as necessary to discuss and collaborate
   - Addressing issues as they arose
   - Consulting with course lead as necessary. Jennifer Richardson is the lead for this course, but was on sabbatical during this semester.

   c. **EDCI 566: LTL Mentor** (Spring 2017, Spring 2018)

   - Co-taught course with mentee.
   - Oriented mentee to course design and my teaching styles prior to beginning of semester.
   - Organized schedule for responding to students and posting course announcements, allowing mentor and mentee to coordinate schedules while ensuring ongoing engagement with all students.
   - Co-graded course discussions, assignments, and other activities. Graded several together and compared, then each graded half of the remainder and swapped. Each of us provided detailed feedback to students, and added to or adjusted each-other's feedback to add clarity and consistency.
   - Assessed mentee at the end of the semester.

3. **Contributions in course and curriculum development**

a. **New Course Development**

   i. **Developed EDCI 62700, Educational Software Design: face to face course**

The purpose of this interdisciplinary course is to bring together students from a range of disciplinary backgrounds to design and prototype educational software. Students are exposed to skills and knowledge from across multiple disciplines and apply them in designing software to meet the needs of a client and intended users.

- Designed course in 2015. Offered Fall 2015, Fall 2016, Fall 2017, Fall 2018
- Investigated into similar experiences outside of Purdue. None found that incorporated all of the elements planned for this course.
- Devised a new conceptual design and learning out comes for the course.
- Located readings from across several disciplines.
- Created syllabus, activities, assignments, and associated materials (information sheets, templates, and rubrics)
- Requested feedback from individuals with expertise in Instructional Design, Computer Graphics Technology, Human Computer Interaction, and Software Design. Adjusted course design based on feedback.
- Located clients and worked with them to agree on appropriate projects
- Worked with Peter Dunn to create IP agreements with clients.

   ii. **Developed PTEC 40700/20700, ePortfolio: face to face course, for Purdue Polytech.**

The purpose of this course is to guide students in creating an ePortfolio of badges to represent their work across program-level competencies. The course design called for the instructor to partner with students and their individual mentors to help students set goals and a realistic pace for working on these goals in order meet the requirements of the program while using their own unique path to get there. The course design was centered on these goals. Therefore, little instruction was planned – instead, the instructor and mentors worked together to devise a system to support students and to then revise and individualize it as the course progressed during weekly meetings.

- Designed course and offered in Fall, 2016
- Created open-ended syllabus.
- Developed materials to help scaffold students' progress (including checklists, planning cards, and sample reflection statements).
- Planned formal and informal check-in sessions. Informal sessions were conducted by instructors weekly on an individual student basis. Formal review sessions were conducted in conjunction with mentors.

b. **Significant course revision**

   i. **EDCI 627: Educational Software Design**

- Significantly re-designed the course in 2016, 2017, 2018 based on feedback from students, clients, and her own observations.
  - Moved to a flipped classroom model in order to ensure that individual students utilize course readings while leveraging new skills and knowledge. This model was designed to ensure that everyone, especially those with little familiarity in a given area, have the opportunity to practice and be assessed on new skills and knowledge, while allowing teams to leverage ideas of all team members for

their final team projects. It also allowed the majority of class time to be dedicated to facilitated group-work time and instructor/peer critique.
- o Adjusted course schedule and materials to move towards a rapid-prototyping model
- o Reconsidered the most important topics, reducing load on some and adding additional topics requested the previous or current year.
- o Revised syllabus and schedule to redistribute work load
- o Redesigned project report templates and rubrics
- o Located additional readings to address new topics and removed some readings that were not as useful
- o Identified and made agreements with new sponsors/clients for student projects
- o Worked with UCO to update IP acknowledgement.
- o Conducted mid-term evaluation and informal focus group at the end of the semester to gain input for improving in subsequent years

ii. EDCI 52800: online course

- In 2013, substantially redesigned the course to:
  - o Move from a 4-unit 8 week course to a 6-unit, 6-week schedule
  - o Revise learning objectives to better align with course content
  - o Redesign and re-write the syllabus, most assignments, online materials, and discussion prompts to make them more clear for students and self-explanatory for LTLs teaching the course.
- In 2014, based on what Dr. Exter learned in the first round of revisions, continued to substantially revise through:
  - o Substantial revision of several course assignments and discussion prompts to promote clarity
  - o Add a more coherent series of blog post prompts aimed to facilitate connection between the material and students' own professional lives and goals
  - o Reduce the overall work-load to better suit the six-week format.

- In 2018, Updated course based on expert review by LDT's Instructional Designer, Holly Fiock.
  - o Reviewed all recommendations by Ms. Fiock and weighed benefit with potential student concerns regarding amount of work and technologies used.
  - o Updated course to ensure alignment between course objectives, week-level objectives, and learning activities.
  - o Improved assignment materials and rubrics to make them easier to follow for all students.
  - o Added resources where recommended.

iii. EDCI 57700: online course

- Collaborated with and provided feedback to course lead in course update in 2013. This included detailed feedback on course assignments, weekly introduction statements, forum prompts, rubrics, etc.

c. Curriculum Development

- *Update of Learning Design and Technology PhD program.* 2014-2016. Dr. Exter took a lead role in a programmatic redesign through:

- o Organizing and facilitating faculty discussions on the topic during faculty meetings and retreats.
    - o Working with Dr. Jennifer Richardson to create materials to describe new portfolio structure and updating handbook accordingly.
    - o Reviewing existing courses and thinking about how course offerings could be scheduled to ensure students can complete in a timely fashion.
    - o Collecting information on what was working and what could be improved in the current program, through co-organizing a focus group of students and alumni, and working with a GA to collect information about peer programs
- *Moving LDT online Master's to a Competency Based Model.* 2014-2016. Dr. Bill Watson led effort to design a competency model for the LDT online Master's program. Dr. Exter participated in the effort through:
    - o Detailed review and feedback on all related materials
    - o Identifying course-match and example submissions for relevant competencies
    - o Active participation in faculty discussions during retreats

- *Program Design work for Purdue Polytechnic Institute: Transdisciplinary Studies in Technology (TST)*. As part of her involvement as a Faculty Fellow in this initiative from fall 2013- current, Dr Exter participated in:
    - o Initial information gathering and conceptual design of spiral-model studio+seminar degree, 2013-2014.
    - o Development of a proposal for the new TST undergraduate degree program, sent up for university and ICHE approval, as part of a group of approximately 5 faculty fellows led by Dr. Jeff Evans.
    - o Development of initial competency model in 2014, and co-led (with Professor Richard Dionne, Theatre, CLA) a team to redesign competencies in Spring and Summer 2016. Significantly revised competency model and assessment framework for increased transparency and consistency (with Dr. Deena Varner and Iryna Ashby), 2018.
    - o Co-Design (with Dr. Colin Gray, CGT, Polytech) of a model for an integrated four-year curriculum for a transdisciplinary degree in Summer 2017.
    - o As head of the research and evaluation team, provides feedback to faculty fellow group and instructional team curriculum to drive continuous improvement of course- and program-level curriculum.

4. **Preparation of instructional materials**

As described in section B.3, Dr. Exter has created or heavily revised several courses in her time here.

- New or revised online courses required the development of online modules that integrate readings, planned discussion and other interactive activities, and project-based assignments.
- As described in section B.5, she has developed materials to support a "flipped" classroom model for her course on Educational Software Design, as well as templates and materials aimed at facilitating engagement in activities that allow students with a wide range of prior experience to apply what they have learned in their projects.

5. **Experimentation in teaching methods and techniques**

Dr. Exter's course on Educational Software Design adapts the Studio Model to a 3-hour-per-week class. This involves providing activities intended to scaffold learners with a wide range of backgrounds to apply what they have read to real projects; heavy use of formal and informal instructor, peer, and client critique

on projects, fostering an ongoing refinement of problem framing and design; and use of just-in-time instruction as necessary. Because projects are based on requests from clients and because the student body make up may vary widely from year to year, the reading list, activities, timelines, and guidance given must be adapted for each semester.

In 2018, Dr. Exter made further modifications to provide a "flipped" experience for her Educational Software Design students. This serves several purposes: saving class time for group work and critique; encouraging students to complete readings and think more deeply about them; and ensuring that each individual student has the opportunity to apply new skills and knowledge and synthesize across readings and experiences, which may not always be the case when work is done as part of a group. To facilitate this, she worked with research assistant Iryna Ashby to develop weekly discussion forum prompts which range from asking students to review existing software, to create and critique one-another's sketches, to designing their own process models. In each case, students are prompted to engage in discussion on one-another's work, bringing in course readings and outside resources from a variety of disciplines and, in some case, exploring the interdisciplinary nature of designing educational software.

6. **Special activities that have contributed to teaching effectiveness**

   Dr. Exter attended and actively participated in the following workshops:

   - *QMethodology Primer: A Mixed Methods Approach to Research* (November 8, 2017). This half-day workshop introduced Q-methodology, a mixed method technique for collecting perceptual data, as well as a related tool that can be used to design activities to facilitate meaningful discussion on complex topics inside and outside of classroom settings.
   - *Clive L. Dym Mudd Design Workshop X: Design and the future of the engineer 2020* (June 1-3, 2017)*.* This 2.5 day workshop included presentations with discussions and interactive activities designed to foster teaching practices aligning with traits of "the Engineer of 2020" and co-develop "Engineer of 2040" guidelines.
   - *Serious Game Design and Development Workshop* (October 7, 2016, 8:30 – 4:30). This full day workshop presented the basics of educational games and serious games, and provided hands-on experience with the Unity game design platform.
   - *Libscomb University Assessment Center: Assessment Center Observation.* (June 23, 2016, 8:00 – 4:45). Lipscomb University's Assessment center allows for visitors to observe without interfering with their Prior Learning assessment for their particular competency based model, and to meet with a variety of individuals involved in designing the assessment center, conducting assessments, and making behavioral observations.
   - *Universal Designed Distance Learning Platforms.* (November 7, 2015). 3-hour workshop discussing universal design in online platforms, and introducing one used for adults with autism.
   - *Competency-Based Education Summit* (September 16, 2015)*.* One-day summit offered by the Indiana Commission for Higher Education.
   - *Teaching for Competencies using Performance Assessment Workshop.* (June 6-8, 2015). Three day workshop on competency assessment development offered by Alverno College.
   - *Mental Health Lunch & Learn* (Spring, 2015) four one-hour workshops focused on student mental health issues and services on campus.
   - *Creativity in Learning.* (November 8, 2014). 3 hour workshop on fostering creativity within teaching. Offered after the Association for Educational Communications and Technology conference.

- *Say What? Designing, Facilitating, and Assessing for Intersubjectivity within Online Discussions.* (November 5, 2014). Three hour workshop on fostering lively and productive online discussions in distance education courses. Offered as part of the Association for Educational Communications and Technology conference.
- *Performance Improvement Institute: Principles & Practices of Performance Improvement* (April 11-13, 2014). Three day workshop including hands-on experience with Human Performance Technology tools and techniques. Dr. Exter attended his workshop to improve and update her skills in this area and inform the development and teaching of EDCI 528.
- *Process Oriented Guided Inquiry Learning.* (March 7, 2014). 3 hour workshop on the POGIL method of inquiry-based learning. Offered at the annual Association for Computing Machinery Special Interest Group on Computing Education conference.
- *Managing and Mentoring Graduate Students* (January 28, 2014)
  This workshop sponsored by ADVANCE – Purdue FAST discussed topics relating to recruiting and advising students and gave practical advice on how to maintain a good mentorship relationship with graduate students.
- *Purdue New Faculty Teaching Workshop* (August 12, 2013).
  This one-day workshop was sponsored by the Office of the Provost, Center for Instructional Excellence, and the Teaching Academy and included an overview of teaching policies and procedures specific to Purdue, introduced a range of teaching resources available at Purdue, and provided the opportunity to brainstorm with other junior faculty and be mentored by senior faculty from a variety of disciplines.
- *From "I Know" to "We Trust" & Beyond* (September 24, 25 and October 1, 2013).
  Workshop lead by Dr. David Goldberg, consisting of three-hour sessions which covered leadership, coaching, and communication. Part of Purdue Polytechnic Institute training for Faculty Fellows (see section C.1.c).

7. **Recognition received from students and other evidence of impact on students.**

   a. **Student Evaluations**

	Course	Overall, I would rate this course as… (Median)	Overall, I would rate this instructor as… (Median)	Number of students completed/enrolled
Spring 2019[#]	EDCI 56600-001 XLIST Educational Applications of Multimedia	4.3	4.5	8/11
Fall 2018[#]	EDCI 62700-002, Educational Software Design (redesigned)	4.6	4.3	7/11
Spring 2018[#]	EDCI 56600-001XLIST, Educational Applications of Multimedia	4.0	4.3	7/13
Fall 2017[#]	EDCI 62700-002, Educational Software Design (redesigned)	4.3	4.3	9/13
Fall 2017	EDCI 66000-01, Learning Design and Technology Seminar	4.1	4.1	5/7

	Course	Overall, I would rate this course as… (Median)	Overall, I would rate this instructor as… (Median)	Number of students completed/enrolled
Spring 2017#	EDCI 62700-002, Educational Software Design	4.7	4.9	10/13
Fall 2016#	EDCI 62700-002, Educational Software Design (redesigned)	3.9	3.9	5/11
Fall 2016	PTEC40700-001 & PTECH 20700-001 ePortfolio (new course)	4.8	4.8	4/6 (40700-01), 0/2 (20700-01)
Summer 2016	EDCI 52800-003, Human Performance Technology	4.3	4.9	5/13
Spring 2016#	EDCI 56600-002, Educational Applications of Multimedia	4.5	4.3	12/14
Fall 2015#	EDCI 62700-02, Educational Software Design (new course)	4.2	4.7	8/10
Fall 2015#	EDCI 66000-01, Learning Design and Technology Seminar	4.4	4.4	16/19
Summer 2015	EDCI 52800-002, Human Performance Technology	4.8	4.9	9/9
Spring 2015#	EDCI 56600-002, Educational Applications of Multimedia	4.7	4.8	17/18

Due to Dr. Exter's involvement in the PPI, Dr. Exter has received a course reduction each spring and fall

8. **Commitment to active and responsive mentoring, advising, and support for the academic success of undergraduate and graduate students and postdoctoral scholars**

As detailed in section A.3.a, Dr. Exter is or has been: chair of 3 PhD committees, member of 6 PhD committees, chair of 1 Master's committee, member of 2 residential Master's committees, chair of 90 online Master's committees, and member of 148 master's committees.

In addition to research-related mentorship discussed in A.3.h, Dr Exter has formally and informally mentored students in the following ways:

1. Mentored volunteer Teaching Assistants in the LDT program. Worked with volunteer TAs to ensure that this was a learning experience for each.

   a. Iryna Ashby, Summer 2015 - 2018: EDCI 52800. Dr. Exter mentored Ms. Ashby through a co-teaching model in which Ms. Ashby contributed to course redesign considerations, facilitated about half of the weekly discussions, and graded and provided feedback on about half of discussion, blog, and assignment activities. In each case, Dr. Exter and Ms.

Ashby went through the work of several students together, then graded separately with Dr. Exter reviewing Ms. Asbhy's feedback and grading Ms. Ashby has designed and conducted a related research study. Dr Exter and Ms Ashby discussed difficult-to-grade assignments together, to the benefit of both.

In 2018, Dr. Exter did not teach the course, but continued to serve as lead instructor, with Ms. Ashby as volunteer TA contributing to minor redesign of the course materials. Ms Ashby took the lead on a 2-week activity for which she designed two variants of a case study (full case and incident method), each used in two of the four class sections, to determine which approach worked better for our students.

b. Iryna Ashby, Fall 2017, Fall 2018: EDCI 62700. Ms. Ashby served as volunteer TA. She suggested the new "flipped" model approach and collaborated with Dr. Exter to create related materials, including discussion forum prompts. She offered several mini-lectures on topics related to education and instructional design. She mentored one student group and provided in-class critique to students across groups. Dr. Exter and Ms. Ashby both contributed to grading and feedback, each taking the first pass on half of the group projects and then switching with one another to provide additional feedback. Grades were determined collaboratively.

c. Terri Krause, Spring 2016, EDCI 56600. Ms. Krause responded to and graded discussion forum postings, consulting with me when she had questions, and contributed to weekly summary messages. Terri also presented on a special topic in her area of expertise (graphic design software) during a synchronous session.

2. Mentored non-student TAs and Mentees. As part of the LDT online program's instructor mentorship program intended to prepare new instructors to teach in the unique 8-week, project-based, interaction-intensive format, Dr. Exter mentored two instructor-in-training mentees (Dr. Nilufer Korkmaz, Spring 2017 and Dr. Annette Tomory, Spring 2018) and one online Master's program alumnus as TA (Kimberly Usry, Spring 2019). She took a co-teaching approach, involving these mentees in decisions about the course and interactions with students. Dr. Exter and the mentees divided up the tasks of grading, responding to students in discussion forums, and creating announcements to students. After co-grading a subset of assignments, the remainder were divided up between them, then swapped so that Dr. Exter and each mentee reviewed each other's grades and added to feedback given, allowing for consistency and improved feedback for all students. While Dr. Exter took on grading and responses for more difficult students, she talked through decisions with her mentees. She also encouraged mentees to add to their instructional experience through creating helpful videos or resources to improve students' learning and experience.

3. Provided just-in-time mentorship for graduate students (including advisees and others) on topics such as program requirements, academic job search, surviving graduate school including family and mental health issues for LDT and other graduate students. Provided feedback on dissertation study designs, curriculum vita, reference letters, etc.

4. Presented renewed PhD program expectations, recommended timeline, portfolio requirements, and tips to new PhD students, and answered general questions about the PhD program in EDCI660 (September 1, 2016; August 31, 2017) and EDCI 591 (August 24, 2017; August 31, 2018).

5. As PTEC 207/407 instructor in Fall 2016, met weekly with all student mentors to discuss students' progress and brainstorm how to help those not making adequate progress, review

assessments for consistency, plan for formal reviews, and revise instruction and supports as appropriate.

6. Dr. Exter was asked to serve as a design reviewer for student projects for CNIT 58100, "Cyber-Physical Systems Integration for Learning" (February 24, 2014). She attended a design review session and scored student presentations, as well as reviewing design documents and providing detailed feedback prior to the event.

SECTION C: ENGAGEMENT

Dr. Exter's engagement activities reflect her interest in redefining students' experiences and their interactions with faculty at a program level.

Dr. Exter has participated in ongoing service to the C&I department and the LDT program. She is a member of the C&I Graduate Committee (2014-current), Awards Sub-Committee (2014-2015, 2017-2019), and Doctoral Seminar Subcommittee (2015-2017). She has attended and actively participated in weekly LDT program meetings, served on the LDT online admissions committee in Spring 2014, Spring 2015, and Summer, 2016. She presented and answered questions at an online open house for potential LDT students in Spring 2015. In Spring 2015, she arranged for presentations on mental health issues for the C&I faculty and for doctoral students attending the doctoral seminar. As part of the C&I awards sub-committee, Dr. Exter led an effort in 2018-2019 to redesign rubrics and submission forms for incoming doctoral student awards in order to improve consistency and transparency in the review process.

Dr. Exter has also taken the lead on a plan to rejuvenate the LDT PhD program. The goals of this effort are to provide students more hands-on research experiences through the development of a new series of courses specific to research in LDT; to engage students in the development of a holistic portfolio of research, teaching, and service activities, and to ensure that students' needs are met through a rotating schedule of courses. Dr. Exter has (co-)organized six faculty retreats from 2013-2016 and led or co-led faculty discussions about the program redesign. She has conducted or led efforts to work on the detailed design of the program, including working with Dr. Richardson to plan a focus group of soon-to-graduate students and alumni and to (re)write a revised PhD handbook; directing a graduate assistant to review existing course and program requirements and comparing these to requirements of peer programs, and working with program faculty in a series of retreats to design and refine a new course sequence and portfolio process. Finally, she has documented the group's decisions across the process, and has developed and offered an introduction to the program for entering students.

As a Purdue Polytechnic Institute incubator faculty fellow, Dr. Exter has been involved in program design and is the Chair of the Research & Evaluation Committee and member of the Four Year Learning Experience Committee. These efforts have allowed her to experience and provide inputs into the development and implementation of this new learning experience for students within and beyond the Purdue Polytechnic. In addition to research efforts described in section I, Dr. Exter's role as chair of the research & evaluation team includes planning, coordinating the team's efforts, designing evaluation protocols and instruments, training and leading graduate students in data collection and analysis, and reporting evaluation findings back to the larger faculty group. She has also been involved in the design of the four-year program model and in co-designing and documenting the competency model. In 2015 and 2016, she contributed to the architectural planning and the writing of a degree proposal which was approved by Purdue University and by the Indiana Commission for Higher Education.

Finally, Dr. Exter has pursued opportunities that relate to her research in computing competencies and computing education. This includes reviewing instructional materials for EngageCSEdu according to principles which aim to increase engagement among historically underrepresented students in introductory computing courses (2016-present). Dr. Exter has also been involved in the ACM/IEEE Taskforce on Computing Curricula 2020, which aims to provide guidance on curricula for computing degree programs (2018-present). She has leveraged her knowledge about competency-based education as part of the competencies committee.

1. **Major Programs & Roles**

   a. **Learning Design and Technology.**

      - *LDT admissions committee.* This responsibility is rotated among program faculty on a semester basis. Dr. Exter served in Spring 2014, Spring 2015, Summer 2016, Summer 2017, Fall 2018. Reviewed between 45-100 application files for LDT online program each semester served.
      - *Other services to the program:*
        o *Update of Learning Design and Technology PhD program.* As described in B.3.c, Dr. Exter facilitated and actively participated in programmatic redesign of the LDT PhD program, which took place in 2014-2016.
        o *Online Open House.* February 19, 2014. Presented and answered questions at LDT online program open house for potential students.

   b. **Transdisciplinary Studies in Technology (Purdue Polytechnic)**

      - *Member of Faculty Fellows (2013-2019).* Attended and actively participates in governance, curriculum development, and reflection meetings. Participated in writing and provides feedback on drafts of reports, official communications, degree plan, and other documents produced by the larger team
      - *Chair of the Research & Evaluation Committee (2014-2019),* which involved project management, training and mentoring of graduate students, preparation of evaluation reports and presentations for faculty fellows and administration, and research activities (as described in A.3.h.3 and A.6.b)
      - *Member of Four Year Learning Experience and Competencies sub-committees (led, 2018),* with responsibilities as described in B.3.b.

2. **University and departmental administrative service**

   a. **College**

      - *Awards:* Reviewed applications for PRF awards, 2016, 2017, 2018.
      - *Other service to college:*
        o Presented at the College of Education Research Seminar: 2015, 2017

   b. **Department**

      - *C&I Department Graduate Committee* (2014-present). Member.
        o Awards sub-committee (2017-2019). In 2018-2019, led effort to revise graduate student awards process, application forms, and rubrics to create a clearer and more consistent process for awards submission and review.
        o Doctoral seminar sub-committee (2014-2017)
        o Non-program Specific Courses Standing Committee representative (2018-2019)
      - *Other service to department:*
        o Organized live streaming and recording for Power Friday events to make them available to distance students, and served as online facilitator for first streamed event (2017-2018)
        o Organized presentation on mental health resources for C&I faculty, and workshop for doctoral students enrolled in the C&I doctoral seminar (2015).

   c. **University**

- **Purdue Faculty Writing Group.** (Fall 2013-Spring, 2014). Dr. Exter participated in a group of junior faculty from across the University who met weekly to provide detailed feedback on one group member's draft publication manuscript or grant application. This is a good opportunity to learn about the work being done in and methodologies used by other disciplines, as well as improving our own scholarly writing.

3. **Offices Held in State, National, or International Societies**

    a. **ACM/IEEE Taskforce on Computing Curricula 2020 (CC2020)**, 2018-present.

    - Member of taskforce responsible for creating updated guidelines for computing curricula.
    - Member of Competencies committee and Software Engineering competencies subcommittee, tasked with writing competency statements for key software engineering skills, knowledge, and human behavioral attributes

    b. *AERA SIG Design and Technology Officer (Web Content Manager),* 2008-2011

4. **International Programs, Technology transfer, and Commercialization**

    - *Business planning for DELVE Learning,* 2012-August 2013. Involved in business planning for a business that will continue development of the Critical Web Reader (a web-based tool designed to guides learners to critically evaluate information on the Internet developed at Indiana University), and provide related curricular design, instructional design, and evaluation services.

5. **Consulting activities**

    - *Consulting for DELVE Learning*, 2013-current. Dr. Exter has continued to serve as a consultant for DELVE Learning and a team in the National Institute of Education (NIE) in Singapore. This has involved helping with short and long term strategic planning, providing guidance with database management and testing procedures and practices, and offering assistance related to issues related to code transfer as part of sale of the system to the Singapore NIE.

6. **Other Evidence of Local, National & International Recognition**

    a. **EngageCSEdu,** 2016-present. Serve as "social science reviewer" for repository of instructional materials submitted by Computer Science educators (sponsored by the National Center for Women & IT). Review focuses on whether engagement principles are followed, and whether materials are non-biased and relevant to a wide range of students.

    b. **Review for Awards**

    - **ASGERS Judge,** March 4, 2015: Judge of student poster sessions
    - **Association for Educational Research and Technology,** 2015: SIG-DDL Journal Article Award.
    - **Association for Educational Research and Technology,** 2012: SIG-DDL Crystal Award

    c. **Other**

    - *South Carolina Science Academy.* 2012.
      Provide feedback to curriculum committee on development of new STEM-centric curriculum and on grant proposal for charter school opening in 2013.

- *IST Conference, Advisor to Chair & Member of Submission-Review Committee,* Indiana University, 2008.
  Assisted current conference chair in the development of the conference and served on Submission-review committee.
- *IST Conference Chair,* Indiana University, 2007.
  Organized two-day professional conference for residential and distance students, faculty and alumni (total attendance of approximately 125). Conference activities included a keynote speaker, panel discussion of invited speakers, presentations of research and practice by participants, a job fair, social gatherings, and special interactive sessions.