Evaluation of Practices for Teaching Assistants in Active Learning Classrooms

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Funding level requested: Phase I
Duration of funding requested: 1 year
Abstract

Active learning results in benefits to students over traditional lecturing, including improvements in critical thinking and course performance (e.g., Freeman et al., 2014; Kim et al., 2013). To facilitate these teaching practices, universities have been building innovative, active-learning classrooms (ALCs) that are generally less instructor focused and promote greater student-to-student and student-instructor interaction compared to traditional classrooms. Along with opportunities, ALCs present a challenge for ensuring that all students receive the necessary support to fully engage with learning activities. The utilization of graduate and undergraduate teaching assistants (TAs) can ensure that students are provided with appropriate support. However, there is little research on the effectiveness of TAs in ALCs, particularly when TAs are working alongside the instructor rather than leading a discussion section (e.g., Chen et al., 2016). In addition to potential benefits to students in the courses, inclusion of greater numbers of TAs, particularly undergraduate TAs, can provide substantial benefits to the TAs themselves through greater engagement with course material and development of stronger connections with faculty. This study will assess both the effectiveness of TAs for supporting student learning in ALCs and benefits to the TAs. To address these goals, we will collect data from courses within the Departments of Speech and Hearing Sciences, Chemistry, and Recreation, Park and Tourism Studies. The data will include student and TA surveys, course video recordings, and a TA focus group. From the video recordings, the instructors’ and TAs’ movement patterns and interaction types will be analyzed. The surveys will probe students’ perceptions of the amount and quality of their TA interactions. TA surveys and a focus group will explore their successes and challenges. Our findings will provide suggestions for how TAs can best be utilized within ALCs and training that may benefit TAs assigned to ALCs.
Project description

Purpose: The central purposes of the proposed research are to investigate the best practices for utilization of teaching assistants in active-learning classrooms and to determine how to foster the benefits for the teaching assistants (TAs) at both the undergraduate and graduate levels. In this project, we will address the following four research objectives:

1. Determine the quantity and quality of student-TA interactions across multiple courses held in active learning classrooms (ALCs).
2. Identify the active learning activities that are most effectively facilitated by TAs.
3. Identify the benefits of the teaching assistant experience for the TAs from their perspective.
4. Identify gaps in knowledge or skills that, when addressed through appropriate training, would allow TAs to more effectively facilitate learning in ALCs.

Background: There is now a large body of research supporting the use of active learning approaches to enhance student learning, engagement, participation, attendance, social interdependence, and critical thinking (Freeman et al., 2014; Kim et al., 2013; Paulson, 1999; Slavin, 1996). Furthermore, growing evidence suggests that active-learning classrooms (ALCs) can enhance student learning in comparison to traditional classrooms (Brooks, 2011; Cotner et al., 2013; Walker, Brooks & Baepler, 2011). As these approaches to teaching, learning, and classroom design become more common, the types of support that will be needed to facilitate learning with these approaches and in these spaces should be considered.

The expansion of ALCs throughout the IU system provides both opportunities and challenges for enhancing student learning. These types of classrooms provide greater access to students than traditional classrooms of similar size. However, if there is only one instructor, it can be extremely difficult for the instructor to ensure that all groups have adequate support for completing in-class activities, particularly in large classes. The inclusion of both graduate and undergraduate TAs into courses held in ALCs allows for the TAs to become much more active participants in the teaching and learning experience and also provides a potential solution for instructors.

The incorporation of TAs into courses can lead to greater student learning and performance (Crowe, Ceresola, & Silva, 2014). However, TAs, particularly those at the undergraduate level, tend to have limited to non-existent visibility in the classroom (Fingerson & Culler, 2001). Increasing the visibility of TAs in the classroom has the potential to “open students’ minds to their own potential for contributing to the discovery and generation of knowledge” (Fingerson & Culler, 2001, p. 312). The configuration of ALCs and the frequent use of active learning techniques may help to raise the visibility of the TAs to more fully capture the advantages of their utilization.

In addition to the benefits to students taking the course, there is ample evidence that TA experience can benefit the TA themselves by building their confidence levels, providing additional faculty mentoring, giving them new perspectives on what it means to be a student, placing them in leadership positions, and engaging them with the course content in new, deeper ways (Fingerson & Culley, 2001; Murray, 2015). To facilitate the
acquisition of these skills and experiences, instructors should reflect on how to incorporate TAs into their courses so that the experience benefits both the students in the course and the TAs themselves. To most effectively utilize TAs, instructors should solicit feedback from both the students in the course and the TAs, an approach taken in this proposal.

**Significance and impact:** The incorporation of multiple TAs can be beneficial for TAs themselves as well as for the students in the course. However, research on teaching in ALCs has focused either on the faculty experience (Henshaw, Edwards, & Bagley, 2011; Peterson & Gorman, 2014) or on graduate TAs who are teaching an independent discussion section (Chen et al., 2016), but has not examined how TAs in ALCs may facilitate learning alongside a faculty instructor. Further, other work has examined the traits that are important for the recruitment, training, and success of undergraduate and graduate TAs (Filz & Gurung, 2013; Moon et al., 2013), but this work has not considered how the classroom space and teaching approach may influence recruitment and training decisions for the TAs. This research proposal aims to address these gaps in the literature. This knowledge has the potential to both enhance student learning and to improve benefits accrued by the TAs. The investigators involved in this research span departments and schools; the cross-disciplinary nature of this work should result in findings that can generalize widely for instructors teaching in the growing set of ALCs throughout the IU system and at other institutions.

**Contribution to student learning:** Prior research has provided evidence that active learning approaches (e.g., Freeman et al., 2014), active learning classrooms (e.g., Cotner et al., 2013), and the incorporation of TAs (e.g., Crowe et al., 2014) can all positively contribute to student learning. In this proposal, all three of these elements are integrated simultaneously. While we are not explicitly measuring student learning, our data directly bear on the practices that support student learning, such as ensuring the students are provided with the support and feedback needed to engage with in-class activities, encouraging a positive attitude towards the course content and discipline, and peer modeling of active engagement with learning (Chapin, Wiggings & Martin-Morris, 2014; Fingerson & Culley, 2001).

**Research Methodology:** We will employ a mixed-methods design with both quantitative and qualitative methods. Data collection will include videotaping, surveys, and a focus group.

**Courses:** Data will be collected from four courses in the Spring of 2017 (see Table 1). The inclusion of these courses will allow us to address our research objectives in courses which span three disciplinary domains, two courses levels (100- and 300-level courses), and with enrollments that range from 49 – 90 students. Additionally, the number and configuration of undergraduate and graduate TAs varies across courses. The data from the traditional classroom (Swain East) will be compared to data collected in the Fall of 2016 when the course was held in an ALC (SB 015).
Table 1: Information about courses included in data collection.

<table>
<thead>
<tr>
<th>Course number and title</th>
<th>Instructor</th>
<th>Building and room</th>
<th># grad TAs</th>
<th># undergrad TAs</th>
<th># students</th>
</tr>
</thead>
<tbody>
<tr>
<td>S111 – Phonetics for Speech and Hearing Sciences</td>
<td>Bent</td>
<td>Student Building, room 015</td>
<td>1</td>
<td>2</td>
<td>90</td>
</tr>
<tr>
<td>S333 – Survey of Children’s Language Development</td>
<td>Bent</td>
<td>Cedar Hall, room C102</td>
<td>1</td>
<td>1</td>
<td>49</td>
</tr>
<tr>
<td>R312 – Career and Internship Preparation</td>
<td>Knapp</td>
<td>Swain East, room 140</td>
<td>0</td>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>A316: Bioanalytical Chemistry Laboratory</td>
<td>Robinson</td>
<td>Student Building, room 015</td>
<td>5</td>
<td>0</td>
<td>70</td>
</tr>
</tbody>
</table>

**Videotaping:** Each course will be videotaped three times, including dates in the early, middle, and late portions of the semester. This semester we have been working with Chris Golden from UITS Classroom Technologies and the Mosaic Active Learning Initiative to install video recording equipment in the classrooms. As we pilot videotaping this semester, we anticipate refining the procedures for the data collection proposed for this grant.

The coding scheme for the video data builds upon the schemes developed in Lee, Arthur, and Morrone (2015) and Henshaw et al. (2011). The coding is adapted to address the research objects of this grant (see Table 2). We anticipate that as we code and analyze the data, our scheme may evolve (Lee et al., 2015). The time interval for analysis will also be determined based on pilot analyses, but will likely be one minute. There are three themes for the codes: Interactivity, Location, and Technology Use. The codes will vary slightly based on the room configuration. The examples in Table 2 are for the Collaborative Learning Studio (Student Building, room 015). This coding scheme will provide data that address several of our research objectives (e.g., Where are the TAs throughout the class? How many times and for how long does a TA interact with students at a specific table? How long does it take for students to get assistance? For each table, how much time is there a TA or faculty instructor present?).

Table 2: Coding scheme used to analyze video data

<table>
<thead>
<tr>
<th>Coding themes</th>
<th>Subdivisions</th>
<th>Examples of activities coded (from SB015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactivity</td>
<td>Instructor or TA</td>
<td>Direct instruction (lecture), circulating, approaching a small group (instructor initiated or student initiated), providing consultation to small groups Individual activities, small group activities, signaling for assistance, whole class discussion</td>
</tr>
<tr>
<td>Location</td>
<td>Instructor or TA</td>
<td>Close proximity to a table (# specified), front of room, corner or central instructor station</td>
</tr>
<tr>
<td>Technology use</td>
<td>n/a</td>
<td>Projector, video wall, student laptops, table computers, speakers, document cameras</td>
</tr>
</tbody>
</table>
**Student surveys:** Students will be given four surveys throughout the semester via Qualtrics. Three of these surveys will be given at the end of class on the same days as videotaping. These surveys will focus on student’s interactions with the TAs during that class session, including questions about the number and quality of the interactions. Most questions will be of a quantitative nature, but students will also have an opportunity to provide open-ended feedback. In addition to the surveys focusing on specific class sessions, students will be given a survey at the end of the semester. This survey will gather information about students’ impressions of their interactions with the TAs for the semester as a whole. Questions on this survey will focus on the amount and quality of students’ interactions with the TAs (e.g., How frequently did you interact with a TA throughout the semester? How often were the TAs able to answer your questions?). There will also be opportunities for students to provide more open-ended feedback (i.e., What are the benefits of having TAs in this course? Can you suggest ways to more effectively use TAs in this course?).

**Teaching assistant surveys and focus group:** Teaching assistants will be administered two surveys through Qualtrics: one before the start of the semester and one at the end of the semester. Additionally, the TAs will participate in a focus group at the end of the semester. The focus group will be facilitated by two Ph.D. students who are not involved in any of the courses included in the study. They will be trained in focus group methodology by Dr. Knapp. The survey administered before the semester begins will gather information about prior experiences as TAs, their views about the preparation for the position, their reasons for being a TA, their views on what they hope to learn from the position, and expectations about challenges and benefits. The end-of-semester survey and focus group will explore their perceptions of their successes, how the space impacted their experience, how the experience will benefit them academically or professionally in the future, and the types of preparation they think could be beneficial for TAs in future semesters.

**Data analysis:** The video data will be used as a secondary source of data to triangulate with the survey data. The survey data will be analyzed first to support the analysis and interpretation of the video data. Through this method, we can apply an inductive approach to the analysis of the video data (Lee et al., 2015). We plan to analyze the video data in several ways including the development of “heat maps” to visually summarize the movements of the TAs and instructor as well as summaries of classroom activities and technology use. We can then compare this data to the survey data. For example, we can compare the movements of the TAs from the videos with the students’ responses regarding the availability and helpfulness of the TAs. The open-ended questions from both the surveys and the TA focus group will be analyzed with a theme analysis to identify common threads.

**Measurement of success:** We will consider this project a success if: (1) we disseminate our results by presenting our research at the four conferences identified below (three discipline specific and one focused on teaching broadly); (2) the data supports the development of training protocols for TAs in ALCs; (3) the data can suggest ways that TAs can be employed to more fully support learning in our classes.
**Dissemination of results:** The results from this study will be disseminated through several means. First, each of the investigators will present the results at a conference within their discipline including an Education in Acoustics session of the Acoustical Society of America (Bent, May 2018), the Biennial Conference on Chemical Education (Robinson, July 2018), and the Academy of Leisure Sciences Teaching Institute (Knapp, February 2018). Further, we plan to share our findings at the Teaching Professor Conference (June 2018). The strength of this dissemination plan is that we will reach multiple audiences including those from three distinct disciplines as well as a broad group of faculty with an interest in the scholarship of teaching and learning.

**Reflective teaching practices:** In addition to the quantitative and qualitative data collected, we will engage in reflective teaching practices. As we teach the courses involved in this study, we will have multiple sources of information to reflect upon. The video recordings will allow us to get a view of our classes that is not typically available. As we watch these videos and consider the patterns that emerge from the analysis of this data, we can reflect upon our own teaching behaviors and consider whether we are fully exploiting the affordances of our ALCs and whether we and our TAs are keeping the students engaged. We can consider whether our course organization and teaching practices are working in synergy with our TAs as well as how we will change our courses for future semesters. The collaborative nature of this project will also allow for peer feedback as we watch the videos of each other’s courses. Furthermore, as Mosaic Fellows, we will have opportunities to discuss our research project, reflections on our own teaching practices, and observations of our co-investigators with the other fellows in the program.

**Budget:** We are requesting funds for assistance with the coding of the video data and facilitation of focus groups. We are also requesting funds to help defray the cost of attending the Teaching Professor Conference, where we plan to present our research findings.

Table 3: Budget description

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<tr>
<th>Expense category</th>
<th>Details</th>
<th>Amount</th>
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<tr>
<td>Training for video coding</td>
<td>8 hours x $10 hour</td>
<td>$80</td>
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<tr>
<td>Video coding</td>
<td>12.5 hours of video X 10 hours of coding per hour of video = 125 hours of video coding x $10 / hour</td>
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<td>Training for focus group facilitation</td>
<td>1 hour x 2 facilitators x $10 hour</td>
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<td>3 hours x 2 facilitators x $10 hour</td>
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<td>Defraying conference registration for the Teaching Professor Conference</td>
<td>$600 ($200 for each investigator)</td>
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<td><strong>Total</strong></td>
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References
## Research plan and timeline

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</tbody>
</table>
Curriculum Vitae for Tessa Bent

Office: Department of Speech and Hearing Sciences
Home: 619 E. 1st St.
200 S. Jordan Ave.
Bloomington, IN 47405
(812) 856-3279
cell: (773) 266-9595
E-mail: tbent@indiana.edu

Education
B.A., 1998: English, Millersville University (Millersville, PA)
Specialization: Linguistics; Minor: Psychology
Ph.D., 2005: Department of Linguistics, Northwestern University (Evanston, IL)
Dissertation title: The perception and production of non-native prosodic categories

Current positions
2009 – present Affiliate member, Cognitive Science Program, Indiana University
2015 – present Adjunct associate professor, Department of Linguistics, Indiana University
2015 – present Associate professor, Department of Speech and Hearing Sciences, Indiana University

Grants (selected)
2009-2012 NIH/NIDCD Exploratory/Developmental Grant R21
Title: Children’s perception of foreign-accented speech
Tessa Bent, Principal Investigator
Direct costs: $250,000
2011 Indiana University, Pervasive Technology Institute/Office of the Vice President for Information Technology
Title: A longitudinal study of trilingual acquisition
Lisa Gershkoff, Principal Investigator; Tessa Bent, Co-investigator
Direct costs: $1,996

Fellowships, Honors, and Awards (recent)
2008 Young Investigator Travel Grant, Acoustic Society of America
2009 ASHA Lessons for Success Research Conference fellow
2010 ASH Foundation-RSAC Grant Review and Reviewer Training Program
2012 Trustees Teaching Award, Indiana University
2013 Provost’s Women in Science Travel Award, Indiana University Bloomington
2015 Provost’s Women in Science Travel Award, Indiana University Bloomington
2016 Trustees Teaching Award, Indiana University

Publications

Refereed Articles (recent)


**Presentations (teaching related)**


2016 **Bent, T.** & Abaci, S. Active-learning classrooms: Student perceptions and faculty teaching experiences. EDUCAUSE Learning Initiative annual conference. San Antonio, TX.

**Other conference activities (recent)**


2014 Session chair, Psychonomic Society, Speech Perception session, Long Beach, CA.


**Teaching experience at Indiana University**

*College of Arts and Sciences*

- E105: Born to be a Genius, Spring 2010, 2011; Enrollment: 111 – 117
- C105/S105: My Fair Language: The perception and projection of identity through speech
  Summer 2012, 2013; Enrollment: 16 - 18
Department of Speech and Hearing Sciences
- S110: Survey of Communication Disorders, Fall 2008; Spring 2009; Enrollment: 65 – 115
- S111/S511: Phonetics for Speech and Hearing Sciences; Fall 2009 - 2015; Spring 2010 – 2016; Enrollment: 54 – 104
- S420/S521: Phonological Acquisition and Disorders, Spring 2012–2014; Enrollment: 42–57

Student Honors (recent)
2014 Rachel Shepherd
   Hutton Honors College Travel Grant
   Awarded to present at the Acoustical Society of America
2014 Megan McKee, Student principal investigator
   Hutton Honors College Undergraduate Research Grant
   Title: Cognitive-based explanations for perception of different speech varieties
2014 Kelsey Marks
   Charles S. Watson Honors Student Award, Co-recipient
2014 Emma Bonifield
   Hutton Honors College Research Partnership Grant
2015 Julianne Frye, Student principal investigator
   Hutton Honors College Undergraduate Research Grant
   Title: Perceptual adaptation to foreign-accented speech by school-aged children
2016 Emma Bonifield
   IU STARS Summer Research Scholarship

Other teaching activities
2014 – 2015 Co-facilitator of the Faculty Learning Community on Active Learning Spaces
2015 – 2016 Pedagogy Discussion Group organizer, Department of Speech and Hearing Sciences
2016 – 2017 Mosaic Faculty Fellow

Service

National and international (recent)
2006–08, 14–16 Ad hoc grant reviewer for the National Science Foundation
2007 – present Speech Communication technical committee member, Acoustical Society of America
2012 – 2015 Tutorials Committee member, Acoustical Society of America
2014 – 2016 Advisory Committee member for Acoustics Today
2014 Communication and Language review panel member, International Conference on Infant Studies
2014 Speech Science Committee for the American Speech-Language-Hearing Association annual convention
2014 Program Committee member for the 14th Conference on Laboratory Phonology
2014 Local Organizing Committee for the 168th meeting of the Acoustical Society of America
2016 Grant reviewer for State of Louisiana Board of Regents
2016 Reviewer for NewSounds conference
2016 Program Committee member for the 15th Conference on Laboratory Phonology
2016 Co-organizer, Early-Career Acousticians Retreat, Acoustical Society of America
2016 Reviewer for ASHA Advancing Academic-Research Career (AARC) Awards
2016 – 2019 Executive Council member, Acoustical Society of America
2016 – 2017 Vice Chair, Administrative Council on Member Engagement and Diversity, Acoustical Society of America
2016 Scientific Committee member, 16th Australasian International Conference on Speech Science and Technology

University
2008; 2009 Panelist for University Division, “Explore your options: Language and thought”
2015 – 2017 Bloomington Faculty Council member, College of Arts and Sciences Unit D representative
2015 – 2016 Center for Innovative Teaching and Learning Faculty Advisory Board member
2015 – 2017 Educational Policies Committee member
2016 Faculty Writing Group, co-facilitator

Department
Indiana University
2009 – 2010 Member of the enhancing research committee
2009 – 2014 Advisor for Speech-Language Pathology Master’s students
2010 – 2011 Member of salary committee for academic faculty
2010 – 2011 Member of PhD and undergraduate curriculum committees
2010 – 2015 Member of the MA admissions committee
2011 – 2012 Chair of Search and Screen committee for an academic faculty position
2012 – 2013 Member of the IT Security committee
2013 – 2014 Member of the undergraduate curriculum committee
2014 – 2016 SPHS representative to the Linguistics Coordination Committee
2016 – present Faculty mentor to Rita Patel

Editorial
Editorial Board Member for Journal of Phonetics, 2012 – present
Associate Editor for the Journal of the Acoustical Society of America, 2014 - 2017
Editorial Board member for Journal of the International Phonetics Association, 2016 - 2020
Ad hoc reviewer for 30 journals

Recent guest lectures
Indiana University, Speech and Hearing Sciences Department
2014 S415: Research presentation for the Junior Honors students
2014 TRACCS: Seminar on writing a personal statement
2014 S415: Two seminars on lectures and small groups for the Undergraduate Teaching Assistant program
2014 SLST T500: Perception for Foreign Accent, Lecture on individual differences in the perception of nonnative speech
2015 S415: Two seminars on lectures and small groups for the Undergraduate Teaching Assistant program
2015 S702: Introduction to speech perception research
2016 TRACCS: Seminar on writing a personal statement

Professional Membership

- Acoustical Society of America
- American Speech-Language-Hearing Association
- Psychonomic Society

Updated: October 26, 2016
Julie S. Knapp, Ph.D.
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Indiana University
School of Public Health
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Bloomington, IN 47405
julknapp@indiana.edu

EDUCATION
2000 – Ph.D. Indiana University, Bloomington, IN (Leisure Behavior) Dissertation:
Leadership Development: Marker Events and Experiences of Leaders in Local
Public Parks and Recreation
Minor: Public Administration
1997 – M.S. Indiana University, Bloomington, IN (Recreation Administration)
1991 – B.S. University of Nebraska, Lincoln, NE (Recreation and Leisure Studies)

APPOINTMENTS
2010-present Clinical Assistant Professor, Indiana University- Internship Coordinator, Indiana
University, Department of Recreation, Park and Tourism Studies
Director of Executive Development Program, Indiana University, Department of
Recreation and Park Administration
2004-present Graduate Faculty Status, Indiana University
2002-2010 Part Time Assistant Professor, Academic Advisor and Internship Coordinator, Indiana
University, Department of Recreation, Park and Tourism Studies
2001-2002 Assistant Professor, Indiana State University, Department of Recreation and
Sport Management
1998-2001 Visiting Lecturer, Indiana University
Extended Studies Instructor, Indiana University

COURSES TAUGHT
Indiana University
Philosophy of Leisure (R500)
Budget and Finance (R451)
Marketing (R522/R422)
Introduction to Recreation and Leisure (R160)
Management of Leisure Services (R466, R330, R311)
Graduate Prerequisite in Recreation (R391)
Recreation Activity and Leadership Methods (R272)
Internship Preparation Course (R301)
Career Perspectives and Internship Preparation (R312)
Foundations of Public, Nonprofit and Community Recreation (R220)

Honors, Awards and Special Projects
Mosaic Faculty Fellows- Indiana University- 2016-2017
Faculty Learning Community-Indiana University Active Learning Spaces 2014-2015
Indiana University Learning Analytics Fellow –2015
Disney Educators Forum (Orlando, FL) 2014
IPRA State Conference Education Session Review Committee (2012)
2012 Educator of the Year (Indiana Park and Recreation Association)
American Camp Association Review Committee Member for Endorsed Education Program (2011-Present)
Recreation and Park Administration Deppe Fellowship (1999- 2000)
Indiana University’s HPER Fellowship recipient (1997)

PUBLICATIONS

Indiana University-Eppley Institute. (1999). *City of Fairfield needs assessment*, Department of Parks and Recreation, Fairfield, OH.


**PRESENTATIONS AT PROFESSIONAL MEETINGS**


Knapp, J. (January, 2011). From the Classroom to the Intern’s Cubicle: Making the most of your internship. The Indiana Park and Recreation Association Annual Conference, Indianapolis, IN : IPRA.


Knapp, J., & Jamieson, L. (October, 2000). An exploratory study of collaborative efforts between police and public parks and recreation departments in three Midwestern communities. NRPA National
Congress Leisure Research Symposium, Phoenix, AZ: NRPA.
Jamieson, L., & Knapp, J. (October, 1999). Police and recreation collaboration: On the beat. The Indiana Park and Recreation Association Annual Conference, Columbus, IN: IPRA.

ADDITIONAL TEACHING AND ACADEMIC ADVISEMENT
Course Supervisor –Indiana University
R413 Fiscal Management (2013-Present)
R311 Management in Recreation Park and Tourism Studies (2012- Present)

Graduate Student Supervision (2012-Present)
Associate Instructor Supervision- 2 students per semester
Faculty Advisor – Recreation Student Club (2015- Present)
Co-Developer-Teaching Award online application system School of Public Health (2015-2016) Coordinator of Internship in Recreation and Parks-150 students each year (2002- Present)
Member -RPTS Public, Nonprofit and Community Recreation Option (2012 -Present)
SPH Committee on Teaching and Learning (School of Public Health Committee) 2013- Present
Member of the RPTS Undergraduate Curriculum Committee (2008-2010)
School of HPER Undergraduate Studies Committee (2009-2010)
Member of SPH Career Advisory Board (2015- present)
May, 2002- National Park Service Training, Fundamentals. Presented a two day training component related to pedagogy and instruction of adult learners. Indiana University, Bloomington, IN.
Jill K. Robinson, Ph.D.
Indiana University
Department of Chemistry
800 E. Kirkwood Ave.
Bloomington, IN 47405
jirobins@indiana.edu

Education:

1999 Ph.D. Analytical and Atmospheric Chemistry, University of Colorado, Boulder, CO
1994 B.S. Chemistry, Truman State University, Kirksville, MO

Academic Positions:

2008-present Senior Lecturer, Department of Chemistry, Indiana University, Bloomington
2002-2008 Lecturer, Department of Chemistry, Indiana University, Bloomington, IN
1999-2002 Academic Professional Lecturer in Analytical Chemistry, University of Wyoming, Laramie, WY

Courses:

General Chemistry I and II lecture and laboratory
Honors General Chemistry I and II
Preparatory Chemistry lecture and laboratory
Quantitative Analysis
Environmental Chemistry (300 level)
Instrumental Analysis lecture and laboratory
Ethics in Science

Honors and Awards:

2016 Mosaic Fellow for Active Learning Indiana University
2011 Indiana University President’s Award for Distinguished Teaching
2010 Excellence in Teaching Award, Indiana University Board of Trustees
2008 Excellence in Teaching Award, Indiana University Board of Trustees
2003 Excellence in Teaching Award, Indiana University Board of Trustees
2002 Outstanding Service by a Faculty Member, University of Wyoming Chemistry Students
2001 Extraordinary Merit in Teaching, University of Wyoming College of Arts and Sciences
2001 Award for Excellence in Teaching, University of Wyoming Honors Program (Student Choice)
1999 Faculty Growth Award, University of Wyoming
1998 Graduate Fellowship, Cooperative Institute for Research in Environmental Sciences
1998 Graduate Fellowship in Atmospheric Chemistry, National Science Foundation
1995 Graduate Excellence in Teaching Award, University of Colorado
Publications and Patents:

- Analytical Sciences Digital Library Active Learning Modules
  - Biological Mass Spectrometry: Proteomics, Jill K. Robinson, Michelle Kovarik

Professional Presentations:

- Harris Teaching Workshop Keynote Speaker, University of Alberta, Canada, 2016
  - Strategies for Effective Active Learning
- Biennial Conference on Chemical Education, Colorado, 2016
  - Learning is Not a Spectator Sport
- Texas Community Colleges Consortium, Houston, 2016
  - Strategies for Effective Active Learning
- ALEKS Symposium, Boston, 2015
  - General Chemistry Placement: A Comparison of Review Courses
- 249th American Chemical Society Meeting, Denver, 2015
  - Using Technology to Facilitate Discussion in an Instrumental Analysis Course
- Biennial Conference on Chemical Education, Aug 2015
  - Project Based Learning in Analytical Chemistry Laboratory
- Pittcon, Chicago, IL, 2014
  - Analytical Chemistry Students Perform Quality Assurance Tests for a Local Microbrewery
- Pittcon, Philadelphia, PA, 2013
  - Active Learning Strategies for Large Analytical Chemistry Lecture and Laboratory Courses
- 243rd American Chemical Society Meeting, San Diego, 2012
  - “A Tale of Ales: Project Based Learning in Analytical Chemistry Laboratory”
- Biennial Conference on Chemical Education, Bloomington, IN, 2008.
  - “A New Integrated Laboratory and Lecture Course in Bioanalytical Chemistry”
- Indiana University, Summer Enrichment Program, 2007
  - “The Chemistry of Global Warming”
- International Center for First Year Undergraduate Chemistry Education, Boulder, CO, 2007
  - “Strategies to Improve Problem Solving in First Year College Chemistry”
Additional Teaching and Advising:

2016  
Faculty Learning Community-Indiana University: Collaborative Learning

2015  
New Faculty Orientation: Master class on student engagement for the new faculty at Indiana University.

2015  
Science in a Snap: Teacher Professional Development Workshop, Wonderlab Science Museum

2015  
Master Class: Using technology to facilitate discussion in the collaborative learning studio. (Sponsored by Indiana University Center for Innovative Teaching and Learning)

2015  
Preparing Future Faculty Panel, Indiana University: Workshop on Student Engagement

2013-present  
Academic mentor for student athletes

2012  
Engaging Students in Scientific Inquiry Faculty Panel Presenter
(Sponsored by Indiana University Center for Innovative Teaching and Learning)

2010  
Preparing Future Faculty Panel: Balancing Teaching, Research, and Service

2007, 2010  
Master Class: Using clickers to promote discussion in a large lecture hall
(Sponsored by Indiana University Instructional Support Services)

2007  
Freshmen Learning Project Fellow-Indiana University

2005-present  
Indiana University Dance Marathon Faculty Advisory Board

2005-2010  
Faculty Advisor: Alpha Chi Sigma Professional Chemistry Fraternity

2002-present  
AI Training, Indiana University: Assisted in preparing associate instructors (AI’s) for laboratory and discussion sections by developing interactive training sessions such as role playing and microteaching.

2005-2007  
Science Education Doctoral Committee Member: Advised chemical education student on curriculum for teacher workshops, created assignments for the purpose of revalidating classes, and served on the committee for the oral exam and doctoral defense.

2005  
Service Learning: Developed several hands-on activities for college students in General Chemistry to teach in a 6th grade classroom.

2003-present  
Study Skills Workshop: Presented a workshop titled “How to Study for College Level Science Courses” for incoming freshmen at Indiana University.

1999-2001  
Faculty Advisor: American Chemical Society Student Affiliate Chapter, Univ. Wyoming

2000  
Meet the Professors Program: Visited Wyoming high schools for college recruitment.
Professional Activities:

2013-present  Contributor: Development of E-learning Modules for Analytical Chemistry
National Science Foundation Transforming Undergraduate Education program

2015  Symposium Organizer: Active Learning in the Undergraduate Analytical Chemistry Curriculum
249th American Chemical Society Meeting

2015  American Chemical Society General Chemistry Exam Committee for 2017 Exam

2014  Textbook Reviewer: Reviewed 5 chapters in Quantitative Analysis by Daniel Harris, 9th Ed. W.H. Freeman

2014, 2016  Active Learning in Analytical Chemistry Workshop  This workshop was funded by an NSF
Transforming Undergraduate Education grant. I was one of twelve analytical chemistry faculty
who developed active learning materials and facilitated a workshop for thirty professors from
historically black and Hispanic serving universities.

2012  Faculty Advisory Board Member for Themester:
   Good Behavior/Bad Behavior: Molecules to Morality

2012  National Science Foundation Reviewer: Targeted Infusion Projects for Improving STEM
   education at Historically Black Colleges and Universities.

2011-present  Peer Reviewer: Journal of Chemical Education

2009, 2011  National Science Foundation Review Panel: Transforming Undergraduate Education (TUES)
   Grants in Analytical and General Chemistry

Science Outreach:

2008-2012  Outreach Coordinator: Nanoscience Center, Indiana University
   a. STEM Diversity Summer Science Camp (2012): Developed hands on nanoscience activities
      around the theme of germs for seventy middle school students. (i. Synthesis of silver
      nanoparticles followed by testing their antibiotic properties, ii. Testing surfaces for germs, iii.
      School teachers in Bloomington and Columbus to develop nanoscience projects. During these
      projects 250 students visited research facilities on the IU campus such as the Cyclotron and
      Nanocharacterization Facility. A survey developed by the IU Center for Evaluation and
      Education Policy (CEEP) indicated that the number of students indicating a preference for
      STEM degrees doubled as a result of this experience.
   c. Molecules Matters Teacher Workshop (2010-2012): Developed and taught a two week workshop
      which trained middle and high school science teachers in nanoscience and project-based
      learning.
   d. Nanodays at the Louisville Science Center (2009): Developed three hands-on activities to teach
      nanoscience concepts to the general public; “Stained Glass Art with Gold and Silver
      Nanoparticles,” “Lithography,” and “Nanotechnology in Commercial Products.” Recruited and
      trained 25 Indiana University graduate and undergraduate students to help with the event.

2004-present  Chemistry Open House Participant: Presented a “Careers in Chemistry” booth, performed
   demonstrations at the Chemistry Department “Magic Show,” and supervised the various rooms
   with annual theme set by American Chemistry Society for National Chemistry Week, “Cooking
   with Chemistry,” “Life Science,” “Nanoscience,” etc.

2009  Judge for Science Olympiad Finalists, Indiana University

2009  Wonderlab Teen Night: Developed a Crime Scene Investigation Activity Based on DNA
   Analysis.

2007-2009  Science in a Snap (A Summer Institute for Teachers): Developed a one day workshop at
   Wonderlab Science Museum to help elementary teachers better understand chemistry concepts
   set by state standards.
Oct. 26, 2016

Evaluation Committee:

I am writing a letter of nomination for Drs. Bent, Knapp, and Robinson’s Scholarship of Teaching and Learning (SOTL) Phase 1 application titled “Evaluation of Practices for Teaching Assistants in Active Learning Classrooms.” I fully support this application as Dr. Bent is one of the best teachers in the Department of Speech and Hearing Sciences, she has demonstrated her interest in student engagement for many years, and this project has the potential to lead to increases in student learning and engagement here at IU.

Dr. Bent is a well-liked and highly effective teacher. Her introductory course SPHS S111 is recommended by 97% students (according to OCQ at Indiana University) and SPHS S333 is recommended by 95% of students. Not only are her teaching evaluations excellent, she also is known for her innovative teaching methodologies in her main professional society, the Acoustical Society of America.

I believe that Dr. Bent and her collaborators are excellent candidates to receive a SOTL grant due to their demonstrated interest in implementing active learning strategies in the classroom (the topic of this proposal). Dr. Bent has frequently utilized the active learning classrooms here at Indiana University, and has worked toward implementing this teaching philosophy into the classroom. The topic of this proposal is also timely, given that we are seeing increases in class size, which often limit the ability to implement active learning strategies. The potential advantage provided by undergraduate teaching assistants in an active learning classroom could, in part, offset the negative impact that large class size has on the student’s development of critical thinking skills.

I fully support Dr. Bent’s application and trust that the outcome would be of benefit to our department and the college as a whole.

Please feel free to contact me for additional information.

Sincerely,

Jennifer J Lentz, PhD
Professor and Chair
Dept. of Speech and Hearing Sciences
Indiana University
October 24, 2016

Office of the Vice Provost for Undergraduate Education
Scholarship of Teaching and Learning Grants
Indiana University Bloomington

Dear Colleagues,

In forwarding my highest recommendation to the committee regarding the proposal of Drs. Bent, Knapp, and Robinson regarding Evaluation of Practices for Teaching Assistants in Active Learning Classrooms, I first wish to applaud the insight that these professors have with regard to ensuring the success of active learning for all students. It is one effort to organize a class around the learning principles inherent in active learning experiences and quite another challenge to ensure that those providing the experiences are also learning their important role and function within this setting. There appears to be little research on ensuring the effectiveness of those who work with a master teacher in this type of process.

The grant proposal has several strong features that will ensure that goals are met. First, the collaborative role of the Mosaic instructors allows for comparisons between learning content and delivery and the role of supportive teaching assistants. Second, the grant request builds upon the already extensive knowledge that has been developed by these teachers as a result of their participation in this program. Further, the methods used to gauge the effectiveness of teaching assistants and their ultimate experiences are extensive; therefore, I believe that there will be important results that can be useful for other Mosaic activities.

I strongly recommend that this grant be awarded to this team of teaching scholars, and also that additional funds be considered to support the full endeavor.

Regards,

Lynn M. Jamieson, Re.D.
Professor & Interim Chair
October 27, 2016

I fully support Dr. Jill Robinson’s application for a Phase I Scholarship of Teaching and Learning Grant from Indiana University. Dr. Robinson has been a Lecturer in the Chemistry Department at Indiana University for 14 years, and currently holds the rank of Senior Lecturer. Since her arrival at IU, she has demonstrated a strong commitment to improving teaching in our undergraduate program. For her efforts, she has won the highest teaching honor, the President’s Award for Distinguished Teaching in 2011, along with the Board of Trustees Excellence in Teaching Award in 2003, 2008, and 2010.

Dr. Robinson has been using active learning strategies in her analytical chemistry courses for the past few years. Students work collaboratively to solve challenging problems in the lecture course and develop and critique multi-week projects in the laboratory course. Dr. Robinson is a participant in a National Science Foundation grant to develop active learning materials in the field of analytical chemistry and has published guidelines for project-based laboratory exercises in the Analytical Sciences Digital Library. She has facilitated three-day workshops on Active Learning in the Analytical Sciences for faculty from minority serving colleges and universities (HBCUs). Additional faculty workshops will be held over the next three years through funding from an Improving Undergraduate Stem Education (IUSE) grant from the National Science Foundation for $950,000.

Through her work as a Mosaic fellow in 2016-2017, Dr. Robinson strives to improve teaching practices in active learning classrooms on campus. She has taught for several semesters in Student Building Room 015, and associate instructors (AIs) for her General Chemistry class hold discussion sections in active learning spaces in the Global and International Studies Building. Active learning classrooms provide opportunities for student engagement and interaction, but also present a challenge in ensuring that all students are provided with the necessary support. Graduate and undergraduate AIs can provide assistance to student teams in completing in-class activities. However, there is very little research on the effectiveness of AIs in active learning classrooms.

Dr. Jill Robinson (Chemistry), Dr. Tessa Bent (Speech and Hearing Sciences), and Dr. Julia Knapp (Recreation, Park, and Tourisms Studies) will direct a study to assess the effectiveness of AIs in supporting student learning in active learning classrooms. Also, benefits to the AIs such as improved presentation skills and preparation for professional exams will be examined. Data will include AI and student surveys, video recordings of the courses, and an AI focus group. Institutional Review Board approval has been obtained for the various aspects of the study.

In summary, I believe Dr. Robinson has a detailed and feasible plan for studying the use of associate instructors in active learning classrooms. I hope the committee concurs. Please let me know if any additional information is needed.

Sincerely,

Stephen C. Jacobson
Professor and Chair