

## IITG Project Outcomes Form - Report Outcomes

### Name of person reporting outcomes

Dan MacIsaac

### Email

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### IITG Project Title

2015-Buffalo State College-MacIsaac- iPad Mechanics - Physics

### Have you applied for, or received additional funds? (choose all that apply):

- Other (please specify in text box below)

### Access Keywords: Enrollment, Diversity, Capacity, Affordability

We employed new technologies (tablet video analysis and production) to physics learning in both entry level and advanced pedagogical methods classes in new ways, seeking to extend subject appeal to more students, including hopefully, traditionally underrepresented students. The intervention was iPad (Tablet) based, but we hope to extend to mainstream modern smart camera phones.

### Completion Keywords: Completion, Persistence, Transfer, Retention

Our interventions were novel, engaging and motivating to our students. Despite the newness and immaturity of the intervention we showed (via pre and post testing) that student conceptual learning was not negatively impacted. We expect that as our intervention matures and is refined we will have measurable impacts on student learning, engagement and motivation.

### Success Keywords: Applied Learning, Student Supports, Financial Literacy, Career Success

Our project was inspired by work in physics learning at the University of Cologne, Germany (uni-Koeln) and both graduate students and instructors from uni-Koeln have been exchanged between institutions for short visits, working on this project. SUNY Buffalo State and uni-Koeln grad students and faculty jointly presented a half-day workshop on using tablet-based video technologies for fostering physics learning at National Conferences of the American Association of Physics Teachers in New Orleans LA (Jan 2016) and Sacramento, CA (July 2016) and we are currently working on a joint publication manuscript.

### Inquiry Keywords: Scholarship, Discovery, Innovation, Mentoring

SUNY Buffalo State and uni-Koeln graduate students and faculty presented workshops and papers on our physics digital physics project as follows:

Abbott, D.S., Falconer, K.A., Genz, F., Roberts, A.J., Weber, J., Bresges, A & MacIsaac, D.L. (2016). A guide to making short physics videos with tablets to promote physics learning. The Physics Teacher, manuscript in preparation.

Abbott, D.S., MacIsaac, D.L., Roberts, A. & Falconer, K.F. (2016). PST1E08: iPads in Intro Labs. National Meeting of the American Association of Physics Teachers in Sacramento, CA, July 2016.

MacIsaac, D.L., Weber, Jeremias, Genz, Florian, Bresges, A., Abbott, D.S., Roberts, A.J., & Falconer, K.A. (2016). Workshop: W15: Making Physics Videos Using Tablets. National Meeting of the American Association of Physics Teachers in Sacramento, CA, July 2016.

Roberts, A., MacIsaac, D.L., Abbott, D.S. Genz, F. and Falconer, K.F. (2016). PST2E05: iPad Physics Content Multimedia Presentations. National Meeting of the American Association of Physics Teachers in Sacramento, CA, July 2016.

MacIsaac, D.L., Abbott, D.S., & Falconer, K.F. (2016). iPad Physics Labs. Proposal to SUNY Conference on Instruction and Technology (CIT), SUNY Potsdam, May 31-June 3, 2016.

Maclsaac, D.L. (2016). Three invited plenary sessions: Using Videos to Foster Physics Learning Part 1-3. XXIV Taller Internacional "Nuevas Tendencias en la Enseñanza de la Física" (24th International Conference on New Methods in Teaching Physics) at Facultad de Ciencias Físico - Matemáticas, Benemérita Universidad Autónoma de Puebla, Puebla Mexico 26-29 May 2016.

Bresges, A., Wollny, C., & Maclsaac, D.L. (2016). Workshop: W27: Making Physics Accessible to Students with Different Abilities Using iPads and Simulated 3D Worlds. National Meeting of the American Association of Physics Teachers in New Orleans, LA, January 2016.

**1st Choice:**

Discipline Specific Pedagogy

**Discipline Specific Pedagogy**

- Gateway Courses
- Professional Education
- STEM

**2nd Choice:**

Instructional Technologies

**Instructional Technologies**

- BYOD
- Open Educational Resources (OER)
- Video Production

**3rd Choice:**

Instructional Design

**Instructional Design**

- Hybrid/Flipped/Blended Learning
- Online Education
- Student Engagement
- Student Learning Support

**What recommendations would you make to scale-up or share your project more broadly (within an educational sector, or perhaps SUNY-wide)?**

We are still working on this, but have shared project results on the SUNY Learning Commons and YouTube (danmacvids channel).

**If you would like to create a community of practice within the SUNY Learning Commons, please describe "members of your community" who would be most interested in your outcomes. Please be specific (e.g., math faculty, instructional designers, student services, registrars, administrators, accreditation or assessment specialists).**

physics and STEM teacher educators interested in student video production for learning physics

**Do you intend to create an ongoing "Community of Practice" within the SUNY Learning Commons to continue work and dialog regarding this project?**

Unsure at this time

**Overall, how successful was IITG in meeting your project goals? (You may elaborate on your response in the final question if not addressed elsewhere.)**

Extremely successful

**Do you wish your current abstract to be used?**

Yes

**File One Upload and Brief Description**

Roberts, A., Maclsaac, D.L., Abbott, D.S. Genz, F. and Falconer, K.F. (2016). PST2E05: iPad Physics Content Multimedia Presentations. National Meeting of the American Association of Physics Teachers in Sacramento, CA, July 2016.

Discusses advanced video making promoting physics learning by graduate students who are pre-and in-service physics teachers. Videos found at

**File One**

- [Poster-Roberts\\_AAPT\\_Sum2016.pdf](#)

**File Two Upload and Brief Description**

Abbott, D.S., Maclsaac,D.L., Roberts, A. & Falconer, K.F. (2016). PST1E08: iPads in Intro Labs. National Meeting of the American Association of Physics Teachers in Sacramento, CA, July 2016.

Discusses video recording and analysis of mechanics video phenomena in introductory physics labs. Lab handouts and videos available on SUNY Learning Commons and from

**File Two**

- [Poster-Abbott\\_CIT\\_June2016.pptx](#)

**File Three Upload and Brief Description**

Maclsaac, D.L. (2016). Three invited plenary sessions: Using Videos to Foster Physics Learning Part 1-3. XXIV Taller Internacional "Nuevas Tendencias en la Enseñanza de la Física" (24th International Conference on New Methods in Teaching Physics) at Facultad de Ciencias Físico - Matemáticas, Benemérita Universidad Autónoma de Puebla, Puebla Mexico 26-29 May 2016.

Three one hour presentations as single slide set on digital videos in physics leaning.

**File Three**

- [BUAP2016MaclsaacVideoPhysics1-3.pptx](#)

**Project Website Address (Hyperlink 1)**

[http://physicsed.buffalostate.edu/pubs/SUNY/SUNY\\_IITG2015-16/](http://physicsed.buffalostate.edu/pubs/SUNY/SUNY_IITG2015-16/)

**Any additional comments or resources you wish to share?**

Thank to IITG, and we are continuing on this project, possibly with uni-Koeln support.

**Consistent with the RFP, you must indicate which Creative Commons license you intend to use.**

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