The SPU Physics Department: Case Study in Strategic Reinvention

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Institutional Context

Mission, Signatures, and Vision

“Seattle Pacific University is a Christian university fully committed to engaging the culture and changing the world by graduating people of competence and character, becoming people of wisdom, and modeling grace-filled community.”

—Seattle Pacific University Mission Statement

Signature Commitments

We have adopted four signature commitments to guide us as we engage the culture and help to bring about positive change in the world.

Seattle Pacific will be a place that …

- Masters the tools of rigorous learning and is a vibrant intellectual community.
- Embraces the Christian story, becoming biblically and theologically literate.
- Understands and engages our multicultural and complex world.
- Values the centrality of character formation in the life of the individual.

University Vision

Engaging the Culture, Changing the World
A Short History

- In late 1990’s, the SPU Physics Department had three faculty, all close to retirement.
- In the last dozen years, the Department has grown significantly.
  - The annual number of well prepared teachers of physics has given SPU national recognition.
    - phystec.org/taskforce
    - phystec.org/sustainability
  - The annual number of physics majors 4-8/yr has not increased proportionally.
How do you tell the story?
Follow the money?

Funds supporting physics teacher education at SPU

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Follow the projects?

NSF:

- Collaborative Research: Focus on Energy: Preparing Elementary Teachers to Meet the NGSS Challenge (9/14-8/18)
- Collaborative Research: Video Resource for Professional Development of University Physics Educators (11/13-10/16)
- Collaborative Research: Assessing, Validating and Developing Content Knowledge for Teaching Energy (9/12-8/16)
- Honing Diagnostic Practice: Toward a New Model of Teacher Professional Preparation and Development (9/08-8/13)
- Improving the Effectiveness of Teacher Diagnostic Skills and Tools (4/05-3/10)
- Helping students learn how to learn: Open-source physics worksheets integrated with TA development resources (9/04-8/07)
- Adaptation and implementation of research-based curricula in introductory physics courses at Seattle Pacific University (9/03-8/06)
Follow the projects?

Other:

- PhysTEC grants (2006-2014)
- Qatar Foundation National Priorities Research Program grants:
  - Development of a Framework for practical Science in alignment with the Curriculum Standards of grades K-12 of Independent Schools in Qatar (12/14-11/17)
  - Energy City (10/12-9/15)
  - Qatar Science Teachers Energy Project (QSTEP) (9/09-8/12)
- Boeing Co. grants:
  - Improving Physical Science Instruction through Teacher Collaboration and Research-Based Curriculum Development (2014)
  - Modeling Instruction in Science to Support Student Learning and Teacher Identity (2012)
  - A Collaborative Preparation Model to Increase the Math and Science Competence of K-12 Preservice Teachers (2004-2007)
No, follow the people.
Faculty:
Lezlie DeWater*
Kara Gray
Matt Lautenschlager
John Lindberg
Amy Robertson
Rachel Scherr
Lane Seeley
Stamatis Vokos

*Master Teachers

Visiting Researcher:
Sam McKagan

Graduate Student (not for long):
Abby Daane*

Project Coordinator:
Katey Houmiel

Department AA:
Laurie Mendes
Faculty:
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*Master Teachers
Not your typical Physics Department
Your typical physics department
(Solvay Conference 1927)
Your typical physics department (Solvay Conference 2008)
Your typical physics department (Solvay Conference 2008)
How did we get here?

- Short Answer:
  - Negotiate a compelling vision (what are we about?)
  - Recruit top notch collaborative people who resonate with the vision broadly
    - Renegotiate vision again and again
  - Identify, cultivate, and reward intellectual passions and interests of individuals
  - Capitalize on crises to create and seize opportunities
  - Make mentorship and human flourishing central to the work
    - It’s about them, not about you.
  - Get it going; then get it good.
University students are flourishing

- Improved student learning
  - Current FCI g-scores 0.5-0.8

- Increased student belonging

- About half of our students participate in UR/REU; all do senior project.

- Graduate-school bound students are successful.
Positive impact on K-12 students
School districts with which we have long-term strategic partnerships

- Seattle Public Schools
- Bellevue School District
- Issaquah School District
- ESD 101
- ESD 105
- ESD 112
Two guiding questions

- I will work toward furthering whose personal and professional goals today?
- Who considers the Department an authentic partner?
  - Authentic partner = partner who does things for you for which there is no proximal reward for them.
The SPU Physics Department has thrived because it has dedicated itself to the thriving of all the persons (faculty, staff, students) who call it home.
as well as the numerous entities that think of it as a true partner.