

# Discussions on University Science Teaching: Proceedings of the Western Conference on Science Education

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## Introduction to Volume 1

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## Introduction to Volume 1

From the desk of a Founding Editor:

In July of 2011, I sat as a conference delegate among like-minded folk at the first ever Western Conference on Science Education (WCSE). The conference resonated with many great different ideas, conversations, concerns, and opportunities. There was one moment in particular that has stuck with me over the years, and that was when Tom Haffie talked about how there are relatively few published papers on teaching higher education science by Canadian authors - a concern he left with us to consider. In the winter of 2015, leading up to the third WCSE, the idea arose that we could provide a venue for sharing Canadian experiences in teaching higher education science by publishing the Proceedings of the conference. This publication was christened *Discussions on University Science Teaching* and “Wixie DUST” was created!

Although it then took many months for the editorial team to create the infrastructure and move the articles through to final publication, this inaugural volume of *DUST* aptly captures the forward momentum of WCSE through the lens of the 2015 conference theme “Gather+Create+Improve”. *DUST* aims to offer a space where those interested in undergraduate science education can gather to share in the creation of ideas and information, with a view to improving undergraduate science education. It is my hope that *DUST* generates further discussions and builds on the energy that permeates the biennial Western Conference on Science Education.

Several scholars working in the field of science higher education have chosen to share in more detail their stories and research on gathering, creating, and improving science education in this opening volume of the Proceedings. This volume is divided into three sections: highlights from the Keynote presenters and the *Ignite* series of ideas for teaching; extended abstracts; and peer-reviewed articles built upon the presentations given at the conference. The keynote presentations supported the conference theme and encouraged those present to expand their current thinking, with ideas ranging from creating space for students to learn through making (Peppler) and encouraging innovation through education (Charles), to science education as a collaboration (Bates) and how we might measure developing expertise (Tanner). The *Ignite* session offered an opportunity for presenters to share their ideas through a series of 5 minute presentations in what Rodenshiser describes as a “rapid-fire” series of talks, with ideas for inspiring students in science.

The extended abstract and manuscripts presented in this volume have all been blind peer-reviewed, and span the various disciplines of the sciences. While recognising that any division is somewhat artificial, these articles fall broadly under three themes: collaboration (which we could consider under “gather”); teaching approaches across the disciplines (fits in with the idea of “create”); and assessing learning (with a view to improving). Collaborative teaching and learning experiences are presented by Hobbins in her extended abstract, “*Do Students Who Live in Residence Learning Communities Perform Better Academically than Those who Live in Traditional Residence and Off-Campus?*”; by Worthington in “*Engaging Student Stakeholders in*

*Developing a Learning Outcomes Assessment Framework*"; by McCurdy in *"Enhancing Two-stage Collaborative Exams by Incorporating Immediate Feedback"*; by Young, McCorriston, and Ritchie in *"A Model to Incorporate Meaningful Community Engaged Learning Opportunities into Medium to Large Classes"*; and by Stang in *"Paired Teaching for Faculty Professional Development in Teaching"*. Assessing learning is addressed by Moore and Thomas in *"Inter- and Intra-Rater Consistency: Armies of Graduate TAs Grading in First Year"*; by Lozinski, Poon, and Spano in *"Effectiveness of Problem-Based Learning Prior to Lectures on Learning and Retention"*; by Moore and Thomas in *"From Nanometers to Kilometers and Beyond: Teaching Physical Properties Across Multiple Scales"*; and Thomas in *"Measuring Students' Approach to Learning"*. Considerations around teaching that spans across the disciplines, are highlighted by Ryan and Gass in *"Quantitative Reasoning: Exploring Troublesome Thresholds"*, Lovric in *"Tensions Between Mathematics and Science Disciplines: Creative opportunities to Enrich Teaching Mathematics and Science"*; and Jacobs, in *"Hijacking All the Courses: A Transdisciplinary Learning Experience for Undergraduate Students"*. It is my hope that you find something to take away either as an idea to build on, an activity to add to your classroom repertoire, or a spark to ignite. Indeed, it may be that something from a discipline other than your own offers a new perspective, or something from your own discipline causes you to stop and question.

In addition to the contributors to this first volume, I want to also thank especially the following, without whose contributions this volume would not have been possible: Tom Haffie offered the initial spark of inspiration to this idea, and has continued to be a beacon of inspiration with endless patience, a special thank you; to my partners-in-crime on the editorial board, Rob Dean, Tom Haffie and Sarah McLean (Western) and Sue Gass (Dalhousie), who stepped up to volunteer their time and expertise to help guide this volume through to publishing; the work of Erica Siba and Jordana Garbati in moving the articles through the various stages of reviewing and copy-editing definitely made our job more manageable; to the reviewers listed below, who gave of their time and expertise to give feedback and refine the original submissions, we all offer a special thanks. The respective Deans of Science at Dalhousie University and Western University provided much appreciated support for the administration and editing process in this joint venture between our two institutions.

The previous incarnations of the WCSE, and now the *Proceedings*, have been generously supported by Nelson Education.

We now all look forward to WCSE 2017, and on to the next volume of WCSE *DUST*, which will fall within the broad theme of "Embracing Change".

Anne Marie Ryan  
Founding *DUST* Editor  
Dalhousie University

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