

## EMIL EIDIN

Michigan State University, *CREATE for STEM Institute*  
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### EDUCATION and Certification

#### Ph.D. in Science Teaching

December 2018

Weizmann Institute of Science  
Rehovot, Israel

**Dissertation:** *Teachers Beliefs, Attitudes and Knowledge of Socio-scientific Issues.*

**Advisor:** Dr. Yael Shwartz

#### M.S. in Science Teaching

Jun.

2012

Weizmann Institute of Science  
Israel

Rehovot,

#### B. S. in Biology

Jun.

2007

Bar-Ilan University  
Israel

Ramat Gan,

#### Teaching Certificate

August,

2013

Weizmann Institute of Science  
Israel

Rehovot,

### ACADEMIC APPOINTMENTS

#### Postdoctoral Research Associate Fellow

Jan. 2019

–current

Michigan State University, *CREATE for STEM Institute*  
MI

East Lansing,

- Conduct research under the supervision of Professor Joe Krajcik in the field of Science Teaching, with a focus on engaging students in System Thinking and Computational Thinking to make sense of phenomena.
- Provide face-to-face and online professional development for High School teachers across the State of Michigan and New York City with the goal of enabling them to support students in building computational models to explain scientific phenomena.
- Develop National General Science Standards (NGSS) aligned curriculum units in Chemistry and Biology.

### TEACHING EXPERIENCE

#### Lecturer

Academic College Kiryat Ono, Israel  
2018

Sept.-Dec.

*August 2022*

- Taught introductory Physics to Sport Therapy undergraduate students
- Graduate Teaching Assistant** 2015-2017  
Weizmann Institute of Science Rehovot,  
Israel
- Conducted a professional development course about Socio Scientific Issues (SSI) implementation for Middle and High School Science teachers during three consecutive summers.
  - Disseminated the “Engage” project curriculum through active learning techniques.
  - Thought a course on SSI implementation to M.A students at the Rothschild-Weizmann Program for Excellence in Science Teaching. The course included different strategies for discussion management and theoretical tools to assess arguments with focus on Toulmin’s method, presumptive argumentation, and informal fallacies.

### Teacher

- Davidson Institute for Science Education 2016-2017  
Rehovot, Israel
- Served as a teacher in the “Chemistry in the web” initiative– the initiative provides students in Israel the opportunity to teach Chemistry at an advanced level almost exclusively through the web. The program is intended for students who wish to study Chemistry but whose schools could not provide appropriate facility and teachers.
- Herzliya Hebrew Gymnasium (Gymnasya Herzelia) 2012-2016  
Tel-Aviv, Israel
- Taught Chemistry in junior high and High School, including preparing students for the Matriculation exam (*Bagrut* certificate)
- Zomer, Anthroposophical School September-  
June, 2011-2012  
Ramat-Gan, Israel
- Established a Chemistry lab and taught Chemistry for the first time in the school’s history.
- Ben-Zvi High School 2009-2011  
Kiryat-Ono, Israel
- Taught Chemistry in High School, including preparing students for the Matriculation exam (*Bagrut* certificate)

## PUBLICATIONS

### In preparation

- 2022 Eidin, E., Shwartz, Y., “The Design of a teacher professional development on socio-scientific issues”. *In preparation*.
- 2022 Eidin, E., Bowers, J., Krajcik, J. “How different types of computational models prompt different types of reasoning?” In preparation for a special issue in *Frontiers in Education*

### Submitted

- 2022 Eidin, E., Bielik, T., Touitou, I., Bowers, J., Damlin, D. & Krajcik, J. “Characterizing advantages and challenges of students when developing time-based models and computational thinking”. Under review with *Journal of Science Education and Technology*
- 2022 Eidin, E., Shwartz, Y. “Why don’t I implement SSI in my classroom? - views and beliefs of science teachers about socioscientific issues”. Under review with *Journal of Research in Science Education*
- 2022 Bowers, J., Eidin E., Stephens A, & L., Brennan, L. “Testing and Debugging within a Computational Modeling Context”. Under review with *Journal of Science Education and Technology*

### Published

- 2022 Bowers, J., Damelin, D., Eidin, E. & McIntyre, C., Keeping Cool with SageModeler: Engaging Students in Systems Thinking and Computational Thinking Through Modeling. *Science Teacher*.
- 2022 Shin, N., Bowers, J., Roderick, S., McIntyre, C., Stephens, L., Eidin, E., Krajcik, J., & Damelin, D. (Accepted). A framework for supporting system thinking and computational thinking through constructing models. *Instructional Science*.
- 2020 Shwartz, Y., Eidin, E., Marchak, D., Kesner, M., Avraham Green, N., Marom, E., Cahen, D., Hofstein A. & Dori, Y.J. “A Holistic Approach to Incorporating Sustainability into Chemistry Education in Israel”, *Chemistry Education for a Sustainable Society Volume 1: High School, Outreach, & Global Perspectives*, 2020, 125-160. American Chemical Society.

### Conference Proceedings

- 2022 Bowers, J., Shin, N., Brennan, L., Eidin, E., Stephens, L., & Roderick, S. “Developing the Systems Thinking and Computational Thinking Identification Tool.” *The International Conference of the Learning Sciences*, Hiroshima, Japan, June 6-10, 2022.
- 2020 Eidin, E., Bielik, T., Touitou, I., Shin, N., Damlin, D. & Krajcik, J. “Characterizing advantages and challenges for students engaging in computational thinking and systems thinking through model construction”, *The 14<sup>th</sup> International Conference of the Learning Sciences*, Nashville, Tennessee, June 19-23, 2020.

### CONFERENCE PAPERS

- 2022 Eidin, E., Bowers, J., Krajcik, J. “Do different types of computational models prompt different types of reasoning?” Accepted to NARST annual conference, Chicago, Illinois.
- 2022 Eidin, E., Bowers, J., “Comparing how students' conceptual understanding and computational model explain system mechanisms in time-based phenomena” NARST annual conference, Vancouver, British Columbia.
- 2021 Eidin, E., Touitou, I., “Characterizing Students Progression Patterns in CT and ST through Modeling”. NARST virtual conference.
- 2020 Eidin, E., Bielik, T., Touitou, I., Shin, N., Damlin, D. & Krajcik, J. **“Characterizing advantages and challenges for students engaging in computational thinking and systems thinking through model construction”**, *The 14<sup>th</sup> International Conference of the Learning Sciences*, Nashville, Tennessee, June 19-23, 2020.
- 2020 **Eidin, E., Shwartz, Y.**, Tension and Conflict in Implementing SSI as Reflected in Teachers' Beliefs and Implementation. NARST annual international conference, Portland, Oregon.
- Bielik, T., Eidin, E., Touitou, I., Krajcik, J., “Characterizing Progression of Computational Thinking Practices as Students Build and Revise Dynamic Models” NARST annual international conference, Portland, Oregon.
- 2017 Eidin, E. “Teachers’ perceptions, knowledge, and practice of Socio Scientific Issues”, NARST Annual International Conference, San Antonio, Texas.
- Eidin, E., & Yael, S. “The Influence of SSI Pedagogical Development Course on Science Teachers PCK and Argumentation”, NARST Annual International Conference, San Antonio Texas.
- 2016 Shwartz, Y., & Eidin, E. “Can Science Teachers Effectively Support Discourse Regarding Socio-Scientific Issues?”, 1<sup>st</sup> International conference on Discourse and Communicative Interaction Lasi, Romania.
- 2015 Eidin, E., & Evagorou, M. “Implementing RRI aspects in the classroom- Pilot results of the ‘Engage’ project”, NARST Annual International Conference, Chicago, Illinois.

## DESIGN AND DEVELOPMENT OF LEARNING MATERIALS

- 2022 Develop NGSS aligned Assessment items for the M-step. The M-step is Michigan’s state level standardized test in science.
- 2019- Developed NGSS aligned curriculum units for high school students in Chemistry and

- present      Biology as a research associate at CREATE for STEM institute.
- 2013-2014    Developed learning materials for Chemistry experiments for 9<sup>th</sup> grade students in accordance with the new program guideless (under the guidance of Dr. Zahava Scherz).
- 2010          Developed learning materials for the History and Philosophy of Chemistry High School learning unit as part of my teaching practicum.

### National Projects

- 2018-2019    **Argumentation Skills in Chemistry** – a project aiming to equip Chemistry teachers with tools that support students in answering Values, Engagement and Relevancy (VER) questions – a new type of question incorporated in the Chemistry matriculation exam
- 2012          **We Got Chemistry** – A project encouraging High School Chemistry students to conduct research on issues related to everyday life.

### International Projects

- 2014-2017    **“Engage” Project team member.** “Engage” was a European Union funded project aimed at implementing Responsible Research and Innovation (RRI) into the Science Teaching curriculum over several countries in Europe. My duties included curriculum development and its dissemination among science teachers in Israel. <https://www.engagingscience.eu/en/>

### FELLOWSHIPS, GRANTS, AND AWARDS

- 2008          **Excellence scholarship**, Bar Ilan University in cooperation with Tel Hashomer Hospital

### PROFESSIONAL SERVICE

- 2017-2019    **Founding member** of the Weizmann Institute of science debating club.
- 2018          **Organizing Committee member** of a one-day conference on Learning Technologies, Weizmann Institute of Science
- 2017-2018    **Volunteer member** at *Common Ground*, an Israeli association that promotes gender equality in education.

### PROFESSIONAL AFFILIATIONS

- Member of NARST- A global organization for improving science education through research

- Michigan Science Teacher Association

## **LANGUAGES**

**Hebrew** (native speaker)

**English** (near native)

**Russian** (advanced speaking proficiency)

**Georgian** (intermediate understanding proficiency)