

## Vita

Fouad Abd-El-Khalick  
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### Education

- 1998 Ph.D. – Science Education – Oregon State University, Corvallis, OR, USA  
(Minor: History and Philosophy of Science)
- 1995 M.A. – Science Education – American University of Beirut, Lebanon
- 1993 T.D. – Secondary Science Teaching Diploma – American University of Beirut,  
Lebanon
- 1991 B.S. – Biology – American University of Beirut, Lebanon

### Professional Experience

#### University of North Carolina at Chapel Hill

- 2022–present Alumni Distinguished Professor, School of Education.
- 2016–present Dean, School of Education.
- 2016–2021 Professor of Science Education (with tenure), School of Education.

#### University of Illinois at Urbana-Champaign

- 2014–2016 Associate Dean for Research & Research Education, College of Education.
- 2014–2016 Grayce Wicall Gauthier Professor of Education, College of Education.
- 2014–2016 Director, Bureau of Educational Research, College of Education.
- 2011–2015 Head, Department of Curriculum and Instruction, College of Education.
- 2010–2016 Professor of Science Education (with tenure), Department of Curriculum and  
Instruction, College of Education.
- 2009–2011 Director, STEM Education Collaborative, College of Education.
- 2004–2016 Faculty Member, Center for South Asian & Middle Eastern Studies.
- 2004–2009 Associate Professor of Science Education (with tenure), Department of  
Curriculum and Instruction, College of Education.
- 2004–2006 Division Chair, MST (Mathematics, Science, and Technology), Department of  
Curriculum and Instruction, College of Education.
- 2000–2004 Assistant Professor of Science Education, Department of Curriculum and  
Instruction, College of Education.

#### American University of Beirut, Lebanon

- 1998–2000 Assistant Professor of Science Education, Department of Education.

## Administrative Experience

2016–present: **Dean**, School of Education, University of North Carolina at Chapel Hill

This position reports directly to the provost & executive vice chancellor. The school is home to 55 faculty members, 60 staff members, and 15 post-doctoral fellows and grant coordinators. Two associate and four assistant deans; director of diversity, equity, inclusion, and belonging; director of laboratory school; director of communications and marketing; and all faculty members report directly to the dean. In 2021-22, the school had a total budget of \$22 million, an overall research portfolio of \$83 million, and \$17 million in total research expenditures. The school's endowment stands at \$25 million. The school has three undergraduate, five master's, one online, two EdD, and six PhD programs that enroll 878 undergraduate, professional, and graduate students. *US News & World Report* ranks five school programs between #16 and #22 nationally. The school is currently ranked #23 among all, and #14 among public, schools and colleges of education by *US News & World Report*.

2014–2016: **Associate Dean for Research & Research Education**, College of Education, University of Illinois at Urbana-Champaign

**Scope:** This position reported directly to the dean, managed the college's research portfolio, and served as director of the Bureau of Educational Research (BER). The college has four departments that ranked among top 10 national programs by *US News & World Report*. During my tenure, the college had 100 faculty members, 40 staff members, and about 1,700 in-person and online undergraduate, professional, and graduate students. The overall research portfolio was \$55 million with \$15 million in annual expenditures. The position supervised six fulltime BER staff members who provided extensive pre-award services: Prospecting and matching funding opportunities, building grant budgets, assisting with research design, securing partnerships with other units and organizations, developing ancillary and supporting grant proposal documents, negotiating and securing sub-awards and award transfers, and submitting grant proposals.

2011–2015: **Head**, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign

This position reported to the dean of the college. During my tenure, the department was home to 28 faculty members and 6 staff members—all direct reports to the head. In 2015, the overall budget was \$3.25 million with \$1.03 million in total research expenditures. The department enrolled 600 students in undergraduate, professional, and graduate programs that prepare early childhood through secondary school teachers. Programs also included master's, EdD, and PhD programs in curriculum, early childhood, language and literacy, science and mathematics, and aesthetics education. The department is among the best in the nation and consistently ranked in the top 8 departments of curriculum and instruction by the *US News & World Report*.

## Awards and Professional Honors

### Research

2022 *Distinguished Contributions to Science Education through Research Award*, National Association for Research in Science Teaching (NARST).

2021 *Kuwait Prize Laureate – Economics and Social Sciences (Education)*, Kuwait Foundation for the Advancement of Science. (\$130,000)

- 2011 *Fellow*, American Association for the Advancement of Science. Elected: November 4, 2011.
- 2011–2012 *Distinguished Senior Scholar Award*, College of Education, University of Illinois at Urbana-Champaign. (\$2,500)
- 2006–2009 *University Scholar*, University Scholars Program, University of Illinois at Urbana-Champaign. (\$30,000)
- 2005–2006 *Distinguished Scholar Award*, College of Education, University of Illinois at Urbana-Champaign. (\$1,500)
- 2003 *Early Career Research Award*, National Association for Research in Science Teaching (NARST).
- 2001–2002 *Faculty Fellow*, Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign.
- 2001 *Journal of Research in Science Teaching Award*, National Association for Research in Science Teaching (NARST).
- 1999 *Outstanding Doctoral Dissertation Award*, National Association for Research in Science Teaching (NARST).

#### **Research: Student Advisor and Director of Dissertation/Thesis**

- 2014 *The 2014 Robert Ferber Dissertation Award*, Survey Research Laboratory, University of Illinois at Urbana-Champaign. Awarded to Ryan Summers. (\$2,000)
- 2009 *Outstanding Doctoral Dissertation Award: Second Place and Honorable Mention*, National Association for Research in Science Teaching (NARST). Awarded to Ava Zeineddin.
- 2000 *Outstanding Master's Thesis Award*, National Association for Research in Science Teaching (NARST). Awarded to Rola Khishfe.

#### **Other Awards and Recognitions**

- 2014–2017 *Distinguished Research Associate*, Faculty of Education, University of Johannesburg, South Africa.
- 2014 *Entrepreneurial Excellence: Social Venture Award*, Champaign County Economic Development Corporation, Champaign, Illinois.
- 2013–2014 *Fellow*, Committee on Institutional Cooperation, Academic Leadership Program.
- 2010 *Special recognition for the scope, quality, and impact of scholarship, teaching, and engagement*. One of four faculty members selected for recognition from 100 cases of promotion and/or tenure (2009–2010). Awarded by the Vice Chancellor for Academic Affairs, University of Illinois at Urbana-Champaign. (\$3,000)

#### **Teaching**

- 2001–2010 *"List of Teachers Ranked Excellent by Students,"* University of Illinois at Urbana-Champaign: Fall semesters of 2010, 2009, 2007, 2006, 2004, 2003, and 2001; Spring semesters of 2008, 2005, 2004, 2003, 2002, and 2001.

- 2004 *Outstanding Undergraduate Teaching Award for Faculty*, College of Education, University of Illinois at Urbana-Champaign.
- 2000 *Teacher of the Year Award*, Education Students Society, Department of Education, American University of Beirut, Lebanon.
- 1998 *The Chemistry Department Laboratory TA Award*, Chemistry Department, Oregon State University, Corvallis, OR.

### **Leadership Development Activities**

- 2017, Feb Professional Fundraising for Deans and Academic Leaders, University of North Carolina at Chapel Hill.
- 2016–2017 Dean Transition Lab, Deloitte and University of North Carolina at Chapel Hill.
- 2013–2014 Fellow, CIC Academic Leadership Program, Committee on Institutional Cooperation (CIC).
- 2012, Oct Department Executive Officers Seminar, Committee on Institutional Cooperation (CIC), Chicago, IL.
- 2012, Aug Senior Leadership Retreat, University of Illinois at Urbana-Champaign.

### **State and University Service**

#### **State of North Carolina**

- 2017–present Member, Governor’s Commission on Access to Sound, Basic Education; Office of Governor Roy Cooper.
- 2018–present Member, “Color of Education” Guiding Committee, Public School Forum of North Carolina, Duke Policy Bridge, and the Samuel DuBois Cook Center on Social Equity at Duke University.
- 2021, Apr 15 Speaker, Closing session: Reflections and highlights, “Government research partnerships learning forum” (virtual), Office of Strategic Partnerships, North Carolina Office of State Budget and Management.
- 2021, March Member, Search Committee, Evidence Advisor, Strategic Partnerships, North Carolina Office of State Budget and Management.
- 2021, Mar 25 Panel member, “North Carolina boards and commissions: What they are and how to get involved,” Office of Strategic Partnerships, North Carolina Office of State Budget and Management.
- 2020–2022 Member, Advisory Council, North Carolina New Teacher Support Program.
- 2020–present Member, Advisory Council, North Carolina Strategic Partnerships, North Carolina Office of State Budget and Management.
- 2020 Member, Ad hoc Committee for the Flood Center for Educational Equity and Opportunity (FCEEEO), Public School Forum of North Carolina.
- 2019, Dec 10 Panel moderator, “Preparing a racially and ethnically diverse educator workforce”; DRIVE Summit: Developing a Representative & Inclusive Vision for

Education; Office of the Governor, the North Carolina Business Committee for Education, and The Hunt Institute; Raleigh.

2019–2020 Member, North Carolina Strategic Research Capacity and Partnership Initiative, Office of Governor Roy Cooper.

2019, Jan 15 Expert panelist, “Teacher preparation: Pathways to excellence,” 2019 Education Policy Retreat, The Hunt Institute, Cary.

2018, Mar 19 Expert panelist, “School leadership: Identification, preparation, and retention,” 2018 Holshouser Legislators Retreat, The Hunt Institute, Pinehurst.

### **University of North Carolina at Chapel Hill**

2022–2025 Member, Advisory Committee on Undergraduate Admissions.

2020–2022 Member, Chancellor’s Advisory Committee for Naming University Facilities and Units.

2019–2020 Chair, Search Committee, Vice Chancellor for Student Affairs.

2018–present Member, Steering Committee, Carolina Operational Excellence.

2017–present Member, Advisory Board, Carolina Center for Public Service.

2016–present Member, Advisory Board, World View.

2016–present Member, Advisory Board, Center for Faculty Excellence.

2018–2019 Member, Advisory Committee, School of Social Work Strategic Planning.

2017–2019 Member, New General Education Curriculum Coordinating Committee, College of Arts & Sciences.

2017–2018 Chair, Fifth-Year Review Committee, Vice Chancellor of Student Affairs.

2016–2018 Member, Taskforce on the New Learning Initiative, Carolina Strategic Framework Working Groups.

2016–2017 Member, Working Group on Online Learning to Improve Access and Success.

2016–2017 Member, Search Committee, Director of the Frank Porter Graham Child Development Institute.

2016–2017 Member, Search Committee, Associate Vice Chancellor for Diversity.

2016–2017 Delegate, Guidance and Admission Assembly, College Board.

### **University of Illinois at Urbana-Champaign**

2015–2017 Member, Research Policy Committee, Office of the Vice Chancellor for Research.

2015–2016 Member, I-STEM Review Team, Office of the Provost and Vice Chancellor for Academic Affairs.

2015–2016 Member, Design Center Initiative Executive Committee, Office of the Provost and Vice Chancellor for Academic Affairs.

- 2015–2016 Member, Campus Budget Advisory Task Force, Office of the Provost and Vice Chancellor for Academic Affairs.
- 2015–2016 Member, Construction Management Selection Committee for the Design Center project, Facilities and Services.
- 2015–2016 Member, Institutional Review Board – Social & Behavioral Sciences, Office of the Vice Chancellor for Research.
- 2015–2016 Member, Design Center Program Working Group, Office of the Vice Chancellor for Academic Affairs and Provost.
- 2015, Feb Program Chair, “Toward an Illinois Learning Sciences Design Laboratory: A Lightning Symposium.”
- 2014–2015 Member, Review Committee for Equipment Funding Proposals, Special Programs, Office of the Vice Chancellor for Research.
- 2014–2015 Member, Sesquicentennial Design Building Planning Committee, Office of the Vice Chancellor for Academic Affairs and Provost.
- 2013–2014 Member, Planning Committee for Joint Area Centers Symposium, Center for South Asian & Middle Eastern Studies.
- 2010–2011 Member, University of Illinois Fulbright Interview Committee.
- 2009–2011 Member, Academic Freedom and Tenure Committee, Faculty Senate.
- 2009–2011 Member, Faculty Senate.
- 2009–2010 Member, Annual Review Committee for the Director of the Illinois STEM Education Initiative.
- 2008–2011 Advisor, Lebanese Cultural Club.
- 2002–2015 Reviewer, Campus Research Board.

**College of Education, University of Illinois at Urbana-Champaign**

- 2015–2016 Chair, O’Leary Learning Center Design Committee.
- 2014–2016 Conflict of Interest Director.
- 2014–2016 Member, Governmental Relations Ad hoc Task Force.
- 2014–2016 Ex-officio, College Research Committee.
- 2014–2016 Ex-officio, Academic Programs Committee.
- 2014–2015 Co-Chair, Search Committee, open-rank position, Science Education.
- 2013–2015 Chair, Ad-hoc Committee on Faculty Recruitment.
- 2013–2014 Chair, Taskforce on Teacher Education Redesign: Final Phase.
- 2013–2014 Member, Ad-hoc Task Force on Undergraduate Recruitment, Enrollment, and Admission.
- 2011–2016 Member, Council of Department Executives.
- 2011–2012 Member, Search Committee, open-rank position, Human Resource Development.

- 2010–2013 Member, Taskforce on Re-envisioning Teacher Education: Stage II.
- 2010–2011 Chair, Taskforce on Rankings with the *US News & World Report*.
- 2009–2011 Member, College Executive Committee.
- 2008–2009 Member, STEM and Ubiquitous Learning Faculty Excellence Nomination Committee.
- 2007–2008 Member, Search Committee, Research and Policy Analyst, Illinois New Teachers Collaborative.
- 2006–2008 Member, Human Subjects Committee.
- 2006–2008 Member, Graduate Awards Committee.
- 2006, Fall Chair, STEM Education Task Force.
- 2005–2006 Co-Chair, SWOT Process Planning Subcommittee.
- 2005–2006 Member, Combined Leadership Committee for Strategic Planning.
- 2005–2006 Member, Committee on Evaluating the Dean of the College of Education.
- 2004–2006 Member, College Executive Committee.
- 2004–2005 Member, Hach Foundation Ad hoc Scholarship Committee.
- 2003–2005 Campus Liaison, National Science Olympiad Planning Committee.
- 2003–2005 Member, Website Redesign Extended Team.
- 2003–2004 Member, Internationalization Committee.
- 2001–2005 Member, Science Area of Specialization Committee.
- 2001–2004 Advisor, Student Education Association (SEA).

**Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign**

- 2015–2016 Member, Promotion and Tenure Committee, Dr. Robb Lindgren.
- 2009–2011 Member, Faculty Advisory Committee.
- 2008–2009 Member, Supplementary Promotion and Tenure Committee.
- 2008–2009 Member, Promotion and Tenure Committee, Dr. Sharon Tettegah.
- 2008–2009 Chair, Search Committee, clinical assistant position, Science Education.
- 2008–2009 Chair, Search Committee, “Entrepreneurial Leadership in STEM Teaching & learning” (EnLiST) Project Coordinator.
- 2007–2008 Member, Promotion and Tenure Committee, Dr. Sharon Tettegah.
- 2006–2008 Member, Faculty Advisory Committee.
- 2006–2008 Member, Intercollegiate Transfer Application Review Committee (Secondary Science).
- 2006–2007 Member, Ad hoc Committee on Faculty Loads.

- 2006–2007 Member, Department Leadership Team.
- 2005–2006 Member, Search Committee, open-rank position, Mathematics Education.
- 2004–2005 Member, Search Committee, Department Head.
- 2004–2005 Member, Ad hoc Committee on Evaluating Graduate Student Progress.
- 2001–2004 Member, Faculty Advisory Committee.
- 2001–2002 Member, Search Committee, open-rank position, Science Education.
- 2001–2002 Member, Illinois State Board of Education Science Area Review Committee.
- 2001–2002 Member, NCATE Science Area Review Committee.
- 2000–2001 Department Team Member, *Forum on Exemplary Practices and Challenges in Teacher Preparation*, American Association of Universities and the American Academy of Arts and Sciences.
- 2000–2001 Member, Search Committee, open-rank position, Educational Technology.
- 2001–2002 Member, Search Committee, Office of Clinical Experiences Assistant and Associate Directors.

**Division of Education Programs, American University of Beirut**

- 1999–2000 Acting Chair, Academic Affairs Committee.
- 1998–2000 Member, Committee for Revising Promotion Criteria.
- 1998–1999 Member, Admissions and Student Affairs Committee.
- 1998–1999 Advisor, Education Students Society.

**Department of Education, Division of Education Programs, American University of Beirut**

- 1998–2000 Member, Curriculum and Examination Committee.
- 1998–2000 Member, Practice Teaching Committee.
- 1998–1999 Member, Committee on Revising Graduate Programs.

**ACADEMIC PRODUCTIVITY, ACTIVITIES, LEADERSHIP, AND SERVICE**

**Editorships**

- 2015–2019 Co-Editor, *Journal of Research in Science Teaching*.
- 2013–2018 Associate Editor, *Journal of Science Teacher Education*.
- 2004–2009 Associate Editor, *Journal of Research in Science Teaching*.
- 2001–2006 Associate Editor, *School Science and Mathematics*.

**Grants**

**National and International**

- 2016–2020 **National Association for Research in Science Teaching (NARST) and**

- Wiley®.** Editorship of the *Journal of Research in Science Teaching*. Fouad Abd-El-Khalick: Principal Investigator. (\$464,757)
- 2015–2016 **National Science Foundation, Directorate for Engineering, Division for Engineering Education and Centers, Engineering Research Centers.** “Power Optimization of Electro-Thermal Systems” (P.O.E.T.S). Fouad Abd-El-Khalick: Co-Director, Education and Workforce Development. (\$18,500,000)
- 2010–2013 **Qatar Foundation, Qatar National Research Fund, National Priorities Research Program.** “Qatari students’ Interest in, and Attitudes toward Science” (QIAS). Fouad Abd-El-Khalick: Co-Principal Investigator. (\$1,031,878)
- 2009–2014 **National Science Foundation, Division of Undergraduate Education, MSP–Teacher Institutes.** “Entrepreneurial Leadership in STEM Teaching & learning” (EnLiST). Fouad Abd-El-Khalick: Co-Principal Investigator. (\$5,000,000) [Fouad Abd-El-Khalick: Principal Investigator; Curriculum and Instruction EnLiST sub-ledger; \$3,630,923]
- 2009–2012 **Qatar Foundation, Qatar National Research Fund, National Priorities Research Program.** “Qatar Science Teachers Energy Project” (QSTEP). Fouad Abd-El-Khalick: Co-Principal Investigator. (\$578,998)
- 2002–2008 **National Science Foundation; Division of Undergraduate Education; Science, Technology, Engineering and Mathematics Teacher Preparation (STEMTP).** “An Alternative Program for Recruiting, Educating, Certifying, and Retaining Underrepresented Populations in Teaching Science and Mathematics” (RECRUIT). Fouad Abd-El-Khalick: Principal Investigator. (\$866,015)
- 2004–2006 **The McCarthy Dressman Education Foundation.** “Egyptian Teacher Opportunities for Professional Growth (Egyptian TOP Grants).” Fouad Abd-El-Khalick: Principal Investigator. (\$35,000)
- 2002–2003 **Hewlett Packard Mobile Computing K-12 Classroom Grant.** Fouad Abd-El-Khalick: Co-Principal Investigator. “Using technology to enhance achievement in math, science, and literacy: A middle school-university partnership.” (\$128,934)

#### University

- 2012–2013 **INSPIRE: Illinois-Sweden Program for Educational and Research Exchange, Illinois Strategic International Partnerships (ISIP), International Programs and Studies, University of Illinois at Urbana-Champaign.** “Inquiry and Nature of Science in Precollege Classrooms: Epistemology, Language, and Practice Within and Across American and Swedish Contexts.” Fouad Abd-El-Khalick: Principal Investigator. (\$5,000)
- 2004–2005 **Campus Research Board, University of Illinois at Urbana-Champaign.** Research project titled, “The development of global and science epistemologies during the school years.” Fouad Abd-El-Khalick: Principal Investigator. (\$12,780)
- 2001–2002 **Faculty Fellows Program, Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign.** Research project titled, “The development of global and science epistemologies during the school

- years.” Fouad Abd-El-Khalick: Principal Investigator. (\$15,000)
- 2000–2001 **Campus Research Board, University of Illinois at Urbana-Champaign.** Research project titled, “The development of views about the nature of scientific knowledge and knowing in the middle and high school years.” Fouad Abd-El-Khalick: Principal Investigator. (\$12,517)
- 1999–2000 **University Research Board Grant, American University of Beirut.** Research project titled, “Do students’ views of nature of science influence their conceptual understandings of science content?” Fouad Abd-El-Khalick: Principal Investigator. (\$3,000)
- 1998–1999 **University Research Board Grant, American University of Beirut.** Research project titled, “The development of Lebanese students’ conceptions of science in the middle and high school years.” Fouad Abd-El-Khalick: Principal Investigator. (\$3,000)

## Publications

### Citation Research Profiles

Google Scholar profile: <https://scholar.google.ca/citations?hl=en&user=eGwh3SQAAAAJ>  
(indexed publications: 138; citations: 21,745; h-index: 50; i10-index: 85)

SCOPUS profile: <https://www2.scopus.com/authid/detail.uri?authorId=6602606306>  
(indexed publications: 66; citations: 6,090; h-index: 31; i10-index: 43)

### Manuscripts in Preparation

Abd-El-Khalick, F. (in preparation). The development of conceptions of nature of science and knowing in the middle and high school years: A cross-sectional study. *Journal of Research in Science Teaching*.

Abd-El-Khalick, F. (in preparation). Scientific Literacy that Matters (SLiM): The need to differentiate the pre-college science education curriculum. *Journal of Research in Science Teaching*.

### Manuscripts Under Review

Abd-El-Khalick, F., Summers, R., Brunner, J., Belarmino, J., & Myers, J. (revise & resubmit). Development and validation of *VAScoR*: A rubric to qualify and quantify responses to the Views of Nature of Science (*VNOS*) questionnaire. *Journal of Research in Science Teaching*.

### Handbook Chapters

Abd-El-Khalick, F., & Lederman, N. G. (in press). Research on teaching, learning, and assessment of nature of science. In N. Lederman, D. Zeidler, & J. Lederman (Eds.), *Handbook of research on science education (Volume III)*. Mahwah, NJ: Lawrence Erlbaum.

Abd-El-Khalick, F. (2014). The evolving landscape related to assessment of nature of science. In N. G. Lederman & S. K. Abell (Eds.), *Handbook of research on science education (Volume II)* (pp. 621-650). New York, NY: Routledge. <https://doi.org/10.4324/9780203097267>

Abd-El-Khalick, F. (2012). Nature of science in science education: Toward a coherent framework for synergistic research and development. In B. J. Fraser, K. Tobin, & McRobbie,

C. (Eds.), *Second international handbook of science education (Vol. 2)* (pp. 1041-1060). The Netherlands: Springer. [https://doi.org/10.1007/978-1-4020-9041-7\\_69](https://doi.org/10.1007/978-1-4020-9041-7_69)

### Refereed Journal Articles

- Alameh, S., Abd-El-Khalick, F., & Brown, D. (2022). The nature of scientific explanation (NOSE): Examining the perceptions of the nature, quality and ‘goodness’ of explanation among college students, science teachers, and scientist. *Journal of Research in Science Teaching*. <http://doi.org/10.1002/tea.21792>
- Brunner, J. L., & Abd-El-Khalick, F. (2020). Improving nature of science instruction in elementary classes with modified science trade books and educative curriculum materials. *Journal of Research in Science Teaching*, 57(2), 154-183. <https://doi.org/10.1002/tea.21588>
- Summers, R., Alameh, S., Brunner, J., Maddux, J., Wallon, R., & Abd-El-Khalick, F. (2019). Representations of nature of science in U.S. science standards: A historical account with contemporary implications. *Journal of Research in Science Teaching*, 56(9), 1234-1268. <https://doi.org/10.1002/tea.21551>
- Summers, R., & Abd-El-Khalick, F. (2019). An exploration of Illinois students’ attitudes toward science using multi-level modeling with a cross-sectional sample of responses from grades 5 through 10. *Journal of Research in Science Teaching*, 56(8), 1106-1134. <https://doi.org/10.1002/tea.21552>
- Lederman, N. G., Abd-El-Khalick, F., & Smith, M. U. (2019). Teaching nature of scientific knowledge to Kindergarten through university students. *Science & Education*, 28, 197-203. <https://doi.org/10.1007/s11191-019-00057-x>
- Summers, R., & Abd-El-Khalick, F. (2019). Examining the representations of NOS in instructional resources: An analysis of lesson plans aligned with the Next Generation Science Standards. *Science & Education*, 28, 269-289. <https://doi.org/10.1007/s11191-018-0018-4>
- Summers, R., Wang, S., Abd-El-Khalick, F., & Said, Z. (2019). Comparing Likert scales functionality across culturally and linguistically diverse groups in science education research: An illustration using Qatari students’ responses to an attitudes toward science survey. *International Journal of Science and Mathematics Education*, 17(5), 885-903. <https://doi.org/10.1007/s10763-018-9889-8>
- Alameh, S., & Abd-El-Khalick, F. (2018). Towards a philosophically-guided schema for studying scientific explanation in science education. *Science & Education*, 27, 831-861. <https://doi.org/10.1007/s11191-018-0021-9>
- Martin, A. M., Abd-El-Khalick, F., Mustari, E., & Price, R. (2018). Effectual reasoning and innovation among entrepreneurial science teacher leaders: A correlational study. *Research in Science Education*, 48, 1297-1319. <https://doi.org/10.1007/s11165-016-9603-1>
- Summers, R., Abd-El-Khalick, F., & Wang, S. (2018). Development and validation of an instrument to assess student attitudes toward science across grades 5 through 12. *Journal of Research in Science Teaching*, 55(2), 172-205. <https://doi.org/10.1002/tea.21416>
- Abd-El-Khalick, F., Myers, J., Summers, R., Brunner, J., Waight, N., Wahbeh, N., Zeineddin, A., & Belarmino, J. (2017). A longitudinal analysis of the extent and manner of representations of nature of science in U.S. high school biology and physics textbooks.

- Journal of Research in Science Teaching*, 54(1), 82-120. <https://doi.org/10.1002/tea.21339>
- Myers, J., & Abd-El-Khalick, F. (2016). "A ton of faith in science!": Ideas about science and epistemology generated upon watching a sci-fi film. *Journal of Research in Science Teaching*, 53(8), 1143-1171. \* <https://doi.org/10.1002/tea.21324>
- Said, Z., Summers, R., Abd-El-Khalick, F., & Wang, S. (2016). Attitudes toward science among grades 3 through 12 Arab students in Qatar: Findings from a cross-sectional national study. *International Journal of Science Education*, 38(4), 621-643. <https://doi.org/10.1080/09500693.2016.1156184>
- Abd-El-Khalick, F., Summers, R., Said, Z., Wang, S., & Culbertson, M. (2015). Development and large-scale validation of an instrument to assess Arabic-speaking students' attitudes toward science. *International Journal of Science Education*, 37(16), 2637-2663. <https://doi.org/10.1080/09500693.2015.1098789>
- Abed, O. H., & Abd-El-Khalick, F. (2015). Jordanian pre-service primary teachers' perceptions of mentoring in science teaching. *International Journal of Science Education*, 37(4), 703-726. <https://doi.org/10.1080/09500693.2015.1010629>
- Wahbeh, N., & Abd-El-Khalick, F. (2014). Revisiting the translation of nature of science understandings into instructional practice: Teachers' nature of science pedagogical context knowledge. *International Journal of Science Education*, 36(3), 425-466. <https://doi.org/10.1080/09500693.2013.786852>
- Houseal, A., Abd-El-Khalick, F., & DeStefano, L. (2014). Impact of a student-teacher-scientist partnership on students' and teachers' content knowledge, attitudes toward science, and pedagogical practices. *Journal of Research in Science Teaching*, 51(1), 84-115. <https://doi.org/10.1002/tea.21126>
- Abd-El-Khalick, F. (2013). Teaching *with* and *about* nature of science, and science teacher knowledge domains. *Science & Education*, 22(9), 2087-2107. <https://doi.org/10.1007/s11191-012-9520-2>
- Cope, W., Kalantzis, M., Abd-El-Khalick, F., & Bagley, E. (2013). Science in writing: Learning scientific argument in principle and practice. *E-Learning and Digital Media*, 10(4), 420-441. <https://doi.org/10.2304/elea.2013.10.4.420>
- Waight, N., & Abd-El-Khalick, F. (2012). Nature of technology: Implications for design, development, and enactment of technological tools in school science classrooms. *International Journal of Science Education*, 34(18), 2875-2905. <https://doi.org/10.1080/09500693.2012.698763>
- Schwartz, R., Lederman, N., & Abd-El-Khalick, F. (2012). A series of misrepresentations: A response to Allchin's whole approach to assessing nature of science understandings. *Science Education*, 96(4), 685-692. <https://doi.org/10.1002/sce.21013>
- Abd-El-Khalick, F. (2012). Examining the sources for our understandings about science: Enduring confluences and critical issues in research on nature of science in science education. *International Journal of Science Education*, 34(3), 353-374.

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\*Finalist, National Science Teachers Association's (NSTA) "Research Worth Reading" for potential to inform science teaching, 2017.

<https://doi.org/10.1080/09500693.2011.629013>

- Abi-El-Mona, I., & Abd-El-Khalick, F. (2011). Perceptions of the nature and “goodness” of argument among college students, science teachers, and scientists. *International Journal of Science Education*, 33(4), 573-605. <https://doi.org/10.1080/09500691003677889>
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## Editorials

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### Invited Articles

- Abd-El-Khalick, F. (2013). Commentary: The role of inquiry in science teaching [Rutherford, F. J. (1964)]. *Journal of Research in Science Teaching*, 50<sup>th</sup> Anniversary Virtual Issue. Available [http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291098-2736/homepage/50th\\_anniversary\\_virtual\\_issue.htm](http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291098-2736/homepage/50th_anniversary_virtual_issue.htm)
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### **Op-Eds**

Abd-El-Khalick, F. (2021, April 11). To educate the whole child, N.C. must provide more [Op-Ed]. *The News & Observer*. Available <https://www.newsobserver.com/opinion/article250560549.html> [Also appeared in the *Charlotte News & Observer*. Available <https://www.charlotteobserver.com/opinion/article250560549.html>]

Abd-El-Khalick, F. (2021, April 26). It takes a state: Nurturing learners in classrooms, schools, and communities. *EdNC*. Available [https://www.ednc.org/perspective-it-takes-a-state-nurturing-learners-in-classrooms-schools-and-communities/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=perspective-it-takes-a-state-nurturing-learners-in-classrooms-schools-and-communities](https://www.ednc.org/perspective-it-takes-a-state-nurturing-learners-in-classrooms-schools-and-communities/?utm_source=rss&utm_medium=rss&utm_campaign=perspective-it-takes-a-state-nurturing-learners-in-classrooms-schools-and-communities). (Reprinted from Abd-El-Khalick, F. (2021, April 11). To educate the whole child, N.C. must provide more [Op-Ed]. *The News & Observer*.)

### **Book Reviews**

Abd-El-Khalick, F. (2006). Choose a career in science. *Science Books & Films*, 42(5), 209.

Abd-El-Khalick, F. (2004). Inquiring safely: A guide for middle school teachers. *Science Books & Films*, 40(2), 66.

Abd-El-Khalick, F. (2003). Isaac Newton and Albert Einstein (from the Scientists Who Made History Series). *Science Books & Films*, 39(2), 69-70.

Abd-El-Khalick, F. (2001). Transforming middle school science education. *Journal of Curriculum Studies*, 33(3), 382-386.

### **Reports / Commissioned Papers**

Abd-El-Khalick, F. (2011). *Consolidated Classroom Observation Tool for Public Education in Lebanon*. Report prepared for the Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI) Project, Beirut, Lebanon.

Abd-El-Khalick, F. (2011). *An analysis of the Lebanese Ministry of Education and Higher Education instructional practice classroom observation tools*. Report prepared for the Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI) Project, Beirut, Lebanon.

Abd-El-Khalick, F. (2010). *SCOPE baseline report: Education Quality and Access for Learning and Livelihood Skills (EQuALLS)*. Report prepared for the EQuALLS Project, Manila, the Philippines.

Abd-El-Khalick, F., & Summers, R. (2010). *Science curriculum framework mapping for grades 1–10: Nile Egyptian Schools versus the Finnish National Science Curriculum*. Report prepared for the Nile Egyptian Schools, A Project with the Education Development Fund of Egypt, Cairo, Egypt.

Abd-El-Khalick, F. (2010). *Major themes in the Nile Egyptian Schools (NES) curriculum*

- framework in comparison to international curricular trends and alignment of the specific NES learning outcomes for grades 1–10 with these major themes.* Report prepared for the Nile Egyptian Schools, A Project with the Education Development Fund of Egypt, Cairo, Egypt.
- Abd-El-Khalick, F. (2009). *Using the Extended Standards-based Classroom Observation Protocol for Egypt (SCOPE) in Support of the Professional Academy for Teachers (PAT).* Report prepared for the American Institutes for Research Education Reform Project, Cairo, Egypt.
- Abd-El-Khalick, F. (2007). *Egypt Education Reform Project (ERP): Education quality study: SCOPE III data analysis report.* Report prepared for the American Institutes for Research Education Reform Project, Cairo, Egypt.
- Abd-El-Khalick, F. (2006). *Egypt Education Reform Project (ERP): Education quality study: SCOPE II data analysis report.* Report prepared for the American Institutes for Research Education Reform Project, Cairo, Egypt.
- Abd-El-Khalick, F. (2005). *Education Reform Project: Education quality baseline study.* Report prepared for the American Institutes for Research Education Reform Project, Cairo, Egypt.
- Abd-El-Khalick, F. (2005). *The differential effects of the Literacy Enhancement Assistance Program (LEAP) on teachers' instructional practices in Islamic vs. non-Islamic schools in Nigeria.* A report prepared for the Education Development Center LEAP Project, Abuja, Nigeria.
- Abd-El-Khalick, F. (2004). *The impact of the Literacy Enhancement Assistance Program (LEAP) in Nigeria on teacher training, effectiveness, and instructional practices, community involvement, and the education management information system.* A set of four reports prepared for the Education Development Center LEAP Project, Abuja, Nigeria.
- Abd-El-Khalick, F. (2003). *New Schools Project school clusters: Assessment of the first round of implementing the Education Quality Supervisory Support Teams (EQSS Teams).* Report prepared for the Education Development Center New Schools Project, Cairo, Egypt.
- Abd-El-Khalick, F. (2001). *Integrating technology in teaching secondary science and mathematics: Effectiveness, models of integration, and illustrative examples.* Paper prepared for the United Nations Educational, Scientific and Cultural Organization, Cairo Office, Egypt.

### **Non-Refereed**

- Haythornthwaite, C., Gao, W., & Abd-El-Khalick, F. (2014). Networks of change: learning from peers about science teaching. In R. H. Sprague (Ed.), *Proceedings of the 47<sup>th</sup> Hawaii International Conference on System Sciences (HICSS-47)* (pp. 100-109). Los Alamitos, CA: IEEE Computer Society.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2008). The nature of argument among freshmen college students, science teachers, and practicing scientists. In P. Lari (Ed.), *Proceedings of the Second International Conference of the American Institute of Higher Education (Vol. 1)* (pp. 193-198). Atlantic City, NJ: American Institute of Higher Education.
- Abd-El-Khalick, F., Boyle, H., & Pier, D. (2006). *Educational quality in Islamic schools in*

Nigeria. Washington, DC: American Institutes for Research.

- Abd-El-Khalick, F. (2004). Alternative pathways to teaching: Quality teachers versus warm bodies in classrooms. *Proceedings of the Teacher Preparation Principal Investigator Conference*. Washington, DC: The Science, Technology, Engineering, and Mathematics Teacher Education Collaborative (STEMTEC). Available: <http://www.stemtec.org/piconf/Proceedings/Papers/Abd.doc>
- Abd-El-Khalick, F. (2003/2004). An alternative program for recruiting, educating, certifying, and retaining underrepresented populations in teaching science and mathematics (RECRUIT). In S. Walter (Ed.), *Proceedings of the 2003 and 2004 Annual International Conferences of the Association for the Education of Teachers in Science*. Pensacola, FL: Association for the Education of Teachers in Science.
- Abd-El-Khalick, F. (2002). The influence of a philosophy of science course on preservice secondary science teachers' views of nature of science. In B. Crawford, J. Rye, W. DiBiase, & P. Rubba (Eds.), *Proceedings of the 2002 Annual International Conference of the Association for the Education of Teachers in Science* (pp. 856-890). Pensacola, FL: Association for the Education of Teachers in Science. (ERIC Document Reproduction Service No. ED 465 602)
- Abd-El-Khalick, F. (2001). Do history of science courses influence college students' views of nature of science? In W. F. McComas (Ed.), *Proceedings of the Sixth International History, Philosophy, and Science Teaching Conference* (pp. 1-43). Denver, CO: International History, Philosophy, and Science Teaching Group.
- Abd-El-Khalick, F., Lederman, N. G., Bell, R. L., & Schwartz, R. S. (2001). Views of nature of science questionnaire (VNOS): Toward valid and meaningful assessment of learners' conceptions of nature of science. In P. Rubba, J. Rye, W. DiBiase, & B. Crawford (Eds.), *Proceedings of the 2001 Annual International Conference of the Association for the Education of Teachers in Science* (pp. 212-277). Pensacola, FL: Association for the Education of Teachers in Science. (ERIC Document Reproduction Service No. ED 453 083)
- Abd-El-Khalick, F. (2000). Improving elementary teachers' conceptions of nature of science in the context of a science content course. In P. Rubba, J. Rye, P. Keig, & W. DiBiase (Eds.), *Proceedings of the 2000 Annual International Conference of the Association for the Education of Teachers in Science* (pp. 337-365). Pensacola, FL: Association for the Education of Teachers in Science. (ERIC Document Reproduction Service No. ED 438 191)
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- Abd-El-Khalick, F. (1999). The new Lebanese science and math curricula: Revolution, evolution, and other dangerous ideas. *SMEC Newsletter*, 5(1), 2-4. (*SMEC Newsletter* is a publication of the Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Beirut, Lebanon.)
- Abd-El-Khalick, F., Lederman, N. G., & Bell, R. L. (1998). Developing and acting upon ones’ conception of the nature of science: A follow-up study. In P. Rubba & J. Rye (Eds.), *Proceedings of the 1998 Annual International Conference of the Association for the Education of Teachers in Science* (pp. 317-356). Pensacola, FL: Association for the Education of Teachers in Science. (ERIC Document Reproduction Service No. ED 421 363)
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- Bell, R., Lederman, N. G., & Abd-El-Khalick, F. (1997). Developing and acting upon one’s conception of science: The reality of teacher preparation. In P. Rubba, P. Keig, & J. Rye (Eds.), *Proceedings of the 1997 Annual International Conference of the Association for the Education of Teachers in Science* (pp. 429-448). Pensacola, FL: Association for the Education of Teachers in Science. (ERIC Document Reproduction Service No. ED 405 220)
- Abd-El-Khalick, F. (1997). Preservice and expert biology teachers’ global and specific subject matter structures: Implications for conceptions of pedagogical content knowledge. *Proceedings of the Oregon Academy of Science*, 33, 62.
- Abd-El-Khalick, F., & BouJaoude, S. (1996). An exploratory study of the pedagogical content knowledge of science teachers. *Proceedings of the Oregon Academy of Science*, 32, 57-58.
- BouJaoude, S., & Abd-El-Khalick, F. (1995). *Lebanese middle school students’ definitions of science and perceptions of its purpose and usage*. (ERIC Document Reproduction Service No. ED 387 328)

### **Conference Papers and Presentations – National and International**

- Abd-El-Khalick, F., & Lederman, N. (2023, April, submitted). *Review of the research on teaching, learning, and assessment of nature of science: 2013–2021*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Abd-El-Khalick, F., Summers, R., & Brunner, J. (2023, April, submitted). *Development of VAScoR: A rubric to qualify and score responses to the Views of Nature of Science (VNOS) questionnaire*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

- Abd-El-Khalick, F. (2022, October). *Inquiry and teaching about nature of science in college geoscience courses*. Presented at the invited session on, “Bringing inquiry into geoscience labs for students, teaching assistants, and faculty,” Geological Society of America Connects 2022, Denver, CO.
- Abd-El-Khalick, F., & Jones, G. (2022, March). A celebration of NARST award recipients: A discussion of the future of science education. Distinguished Contributions to Science Education through Research Award panel conducted at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Akerson, V., Lederman, J. S., Zeidler, D., Schwartz, & R., & Abd-El-Khalick, F. (2022, March). *The unnatural nature of science without Norm Lederman: Honoring the legacy of Dr. Norman Lederman*. President-sponsored session conducted at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Abd-El-Khalick, F., Summers, R., Brunner, J., Belarmino, J., & Myers, J. (2022, March). *Development and validation of a rubric to qualify and quantify responses to the VNOS questionnaire*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Alameh, S., Abd-El-Khalick, F., & Brown, D. (2021, April, virtual). *The nature of scientific explanation (NOSE): Examining the perceptions of the nature, quality and ‘goodness’ of explanation among college students, science teachers, and scientist*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.
- Abd-El-Khalick, F., Zeidler, D., Sadler, T., Mensah, F., & Niswander, B. (2020, March, virtual). *Publishing, reviewing and writing for the Journal of Research in Science Teaching: Lessons learned and new visions*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Portland, OR.
- Summers, R., Brunner, J., & Abd-El-Khalick, F. (2020, March, virtual). *Evidence and rationale for expanding the Views of Nature of Science Questionnaire*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Portland, OR.
- Alameh, S., Abd-El-Khalick, F., & Brown, D. (2020, March, virtual). *The nature of scientific explanation (NOSE): A philosophically-guided framework examining the nature and quality of scientific explanations*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Portland, OR.
- Abd-El-Khalick, F., Harris, P., Ohito, E., Hurtado, R., Lindsay, C., Lys, D., Papoi, K., Townsend, E., Bolick, C., & Gilliam, C. (2019, October). *Recruiting and preparing a diverse and culturally responsive teaching force*. Panel conducted at the Color of Education 2019 Summit, Raleigh, NC.
- Journell, W., Abd-El-Khalick, F., Zeidler, D., Cai, J., Thomas, E., Stornaiuolo, A., Campano, H. G., Curry, M. J., & Goldberg, T. (2019, April). *Support for international scholars seeking to publish in English-medium journals*. Course presented at the annual meeting of the American Educational Research Association, Toronto, Canada.
- Gray, R., Abd-El-Khalick, F., Zeidler, D. L., Southerland, S. A., Settlage, J., Jones, G., Gouvea, J., Milne, C. E., Siry, C., Yoon, S., Crippen, K., Campbell, T., Verma, G., Kelly, G., King, D., Johnson, C., Avraamidou, L., McComas, W., Nehm, R., & Richmond, G. (2019, March–

- April). *How to get your research published in science education journals*. Symposium sponsored by the Publications Advisory Committee, annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Ozer, F., Dogan, N., & Abd-El-Khalick, F. (2019, March–April). *The impact of innovative instructional effort to enhance the understanding about scientific inquiry of 7<sup>th</sup> graders*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abd-El-Khalick, F., Zeidler, D., & Niswander, B. (2019, March–April). *Publishing and reviewing in the Journal of Research in Science Teaching*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abd-El-Khalick, F., Monk, D., Kelly, G., & Good, G. (2018, November). *Online Ed.D. programs: Issues, challenges and successes*. Panel presented at the annual conference of the American Association of Universities (AAU) Education Deans, Washington, DC.
- Crawford, B., Abd-El-Khalick, F., Zeidler, D., Lederman, N. G., Lederman, J. S., Southerland, S., Benson, L. C., van Driel, J., Kamourakis, K., Geelan, D., King, D., & Lin, H-S. (2018, March). *Data sharing and research transparency at the article publishing stage: Advantages and limitations*. Presidential sponsored symposium, annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Waight, N., & Abd-El-Khalick, F. (2018, March). *How culture and values impact realizations of technology-supported, inquiry-based science teaching and learning*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Alameh, S., & Abd-El-Khalick, F. (2018, March). *Scientific explanation in science education: A critical review of literature*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Gray, R., Abd-El-Khalick, F., Zeidler, D. L., Southerland, S. A., Settlege, J., van Driel, J. H., Dolan, E. L., Milne, C. E., Siry, C., Mueller, M., Benson, L., Berland, L., Crippen, K., Lederman, N. G., Lederman, J. S., Kamourakis, K., Geelan, D., Johnson, C., Avraamidou, L., & Dillon, J. (2018, March). *How to get your research published in science education journals*. Symposium sponsored by the Publications Advisory Committee, annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Kampourakis, K., Abd-El-Khalick, F., Lederman, J. S., Lederman, N. G., Clough, M. P., McComas, W., Erduran, S., Kaya, E., Aksoz, B., & Akgun, S. (2018, March). *Practical perspectives in teaching and learning nature of science*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Zeidler, D. L., & Abd-El-Khalick, F. (2018, March). *Publishing in, and reviewing for, the Journal of Research in Science Teaching*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Tuan, M., Abd-El-Khalick, F., & Quam, J. (2017, September). *Opening session for new deans*. Session presented at the AERA-CURI 2017 Fall Policy Meeting: Demonstrating the Relevance and Impact of Education Research, Washington, DC.

- Zeidler, D., Abd-El-Khalick, F., Akerson, V. L., Antink Meyer, A., Bartos, S. A., Buzzelli, C. A., Christodoulou, A., Donnelly, L. A., Herman, B. C., Howell-Richardson, C., Lederman, N. G., Lederman J. S., Linder, A., Osborne, J., Ruzek, M., Schwartz, R. S., Shu-Sheng, A. L., Simon, S., & Waight, N., (2017, August). *Epistemological inquiry from the Journal of Research in Science Teaching*. Invited symposium conducted at the biannual conference of the European Science Education Research Association, Dublin, Ireland.
- Rivera Maulucci, M. S., Mensah, F. M., Parker, C., Schwartz, R., Kowalski, S., & Boda, P., Abd-El-Khalick, F., Zeidler, D. (2017, April). *Methodological, ethical, and identity issues in naming ourselves and others*. Research committee administrative session conducted at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Summers, R., Alameh, S., Brunner, J., Maddux, J., Wallon, R., & Abd-El-Khalick, F. (2017, April). *Nature of science treatment in U.S. science standards: A historical account with contemporary implications*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Abd-El-Khalick, F., Zeidler, D. L., Southerland, S. A., Settlage, J., van Driel, J. H., Nehm, R., Milne, C., Siry, C., Mueller, M., Reid, A., Tunnicliffe, S. D., Benson, L., van Aalst, J., Yoon, S., Crippen, K., Lederman, N., Lederman, J., Kelly, G. J., & Osborne, J. (2017, April). *How to get your research published in science education journals*. Symposium sponsored by the Publications Advisory Committee, annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Brunner, J., & Abd-El-Khalick, F. (2017, April). *Improving nature of science instruction in elementary classes with educative curriculum materials and trade books*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Abd-El-Khalick, F., & Zeidler, D. L. (2017, April). *The “Doctoral Student Mentored Reviewer initiative: Bolstering the contributions of a top-tier refereed journal to graduate education*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Antonio, TX.
- Akyol, G., Oztekin, C., Sungur, S., & Abd-El-Khalick, F. (2016, April). *Development and validation of the intention to integrate nature of science questionnaire*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Brunner, J., Summers, R., Myers, J., & Abd-El-Khalick, F. (2016, April). *Toward quantifying responses to the views of nature of science questionnaire: Empirically investigating qualitative coding*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abd-El-Khalick, F., & Zeidler, D. L. (2016, April). *The “Guest Doctoral Student Reviewers” initiative: Realizing the professional development potential of the Journal of Research in Science Teaching*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Alameh, S., Abd-El-Khalick, F., & Waskan, J. (2016, April). *Constructing scientific explanations: How philosophically informed models can guide instruction, learning, and*

- assessment in NGSS*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Myers, J., & Abd-El-Khalick, F. (2016, April). *A wiser goal for K-12 science education*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Summers, R., Maddux, J., Wallon, R., Alameh, S., Akyol, G., Aybuke, P., Brunner, J., Myers, J., Silliman, C., & Abd-El-Khalick, F. (2016, April). *The history of nature of science representation in state science standards: A Systematic Assessment*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- McDonald, C., Abd-El-Khalick, F., BouJaoude, S., Dagher, Z., Brunner, J., Ramnarain, U., & DiGiuseppe, M. (2016, April). *Global perspectives on nature of science in school science textbooks: Representations, methodologies, contexts, and implications*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Myers, J., & Abd-El-Khalick, F. (2016, April). *Should K-12 science education adopt a wiser goal?* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
- Summers, R., & Abd-El-Khalick, F. (2016, April). *A cross-sectional investigation into Illinois students' attitudes toward science using multilevel modeling*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
- Abd-El-Khalick, F., & Gaffney, J. (2016, March). *Entrepreneurial models for leading STEM learning*. Session presented at the Carnegie Foundation Summit on Improvement in Education, San Francisco, CA.
- Abd-El-Khalick, F., & Zeidler, D. L. (2015, April). *New horizons for the Journal of Research in Science Teaching*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Summers, R., & Abd-El-Khalick, F. (2015, April). *Cross-sectional study of Illinois students' attitudes toward science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Matthews, M., Osborne, J., Lederman, N., Abd-El-Khalick, F., Clough, M. P., Kampourakis, K., Smith, M. U., Kelly, G. J., Peters-Burton, E., & Sherman-Heckler, W. (2015, April). *The past, present and possible future of HPS-informed science education research*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Schroyer, M., Abd-El-Khalick, F., Martin, A., & Haythornthwaite, C. (2015, April). *Tracking emergence and development of entrepreneurial teacher leaders in science teaching and learning networks*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Myers, J. Y., & Abd-El-Khalick, F. (2015, April). Faith as integral to science! *What graduate students "saw" while watching a sci-fi film*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.

- Martin, A., Mustari, E., Abd-El-Khalick, F., & Israel, M. (2015, April). *Middle school students made substantially greater gains in the nature of engineering (NOE) knowledge domain after teacher shifts in practice and NOE*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Martin, A., Abd-El-Khalick, F., Mustari, E., & Price, R. (2015, April). *Entrepreneurial teachers, effectual reasoning, and risk in science reform*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Schroyer, M., Martin, A., Abd-El-Khalick, F., Haythornthwaite, C. (2015, April). *Tracking entrepreneurial leaders in science learning networks: Longitudinal social network analysis of a partner district*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Abd-El-Khalick, F. (2014, March-April). *Assessment of understandings of nature of science in science education: past, present, and future*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Martin, A., Israel, M., & Abd-El-Khalick, F. (2014, March-April). *Middle school students' conceptions of nature of engineering (NoE)*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Schroyer, M., Abd-El-Khalick, F., Martin, A., & Haythornthwaite, C. (2014, March-April). *A longitudinal, district-wide social network analysis of the impact of science teacher leaders*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Abd-El-Khalick, F., & Dogan, N. (2014, March-April). *A national study of Turkish grade 10 students' and science teachers' conceptions of scientists and the interactions between science, technology, and society*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Summers, R., Abd-El-Khalick, F., Said, Z., & Culbertson, M. (2014, March-April). *Assessment of precollege Qatari students' attitudes toward science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Myers, J., & Abd-El-Khalick, F. (2014, March-April). *Graduate students' ideas about science and the nature of knowing generated by a Sci-Fi film*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Savage, E. L., Burgon, H., Gaffney, J., Price, R., Bagley, E., Martin, A., & Abd-El-Khalick, F. (2014, April). *Innovation at the frontline: A theoretical model of entrepreneurial teacher leadership*. Poster presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Haythornthwaite, C., Gao, W., & Abd-El-Khalick, F. (2014, January, accepted). *Networks of change: learning from peers about science teaching*. Paper presented at the annual meeting of Hawaii International Conference on System Sciences (HICSS-47), University of Hawai'i at Manoa, Honolulu, HI.
- Martin, A., Abd-El-Khalick, F., & Price, R. (2014, January, accepted). *Entrepreneurial teachers in STEM education: A theoretical model*. Paper presented at the annual international meeting of the Association of Science Teacher Education, San Antonio, TX.

- Martin, A., Israel, M., & Abd-El-Khalick, F. (2014, January, accepted). *The nature of engineering (NOE) among middle school students and K-8 teachers: Phase I*. Paper presented at the annual international meeting of the Association of Science Teacher Education, San Antonio, TX.
- Wahbeh, N., & Abd-El-Khalick, F. (2013, April). *The effect of an explicit-reflective instructional approach on inservice science teachers' understandings and practices related to nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Abd-El-Khalick, F. (2013, April). *Teaching with and about nature of science: Coupling inquiry and nature of science teaching and learning goals*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Akerson, V. L., Lederman, N. G., Matthews, M., Binns, I., McDonald, C., & Abd-El-Khalick, F. (2013, April). *Nature of science: We know the past, but what about the future?* Symposium presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Martin, A., Abd-El-Khalick, F., & Price, R. (2013, April). *Year 2 longitudinal study of effectual reasoning scores of high and low innovators*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Bagley, E., Martin, A., Gaffney, J., Price, R., & Abd-El-Khalick, F. (2013, April). *Epistemic network analysis of high and low innovators in high school science classrooms*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- McDonald, C., Abd-El-Khalick, F., Wahbeh, N., Akerson, V., & Schwartz, R. (2013, April). *Explicit-reflective nature of science instruction across contexts and learner outcomes*. Related paper set presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Said, Z., Abd-El-Khalick, F., Summers, R., Culbertson, M., & Friesen, H. (2013, April). *Large-scale validation of an instrument to assess precollege students' attitudes toward science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Schroyer, M., Abd-El-Khalick, F., Martin, A., & Haythornthwaite, C. (2013, April). *Effecting 'reform' through transformations in district-wide science teacher learning networks*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Machluf, Y., Yarden, A., Waight, N., Abd-El-Khalick, F., Nisselle, A., Pineda-Catalan, O., Micklos, D., Schneider-Gricar, V. M., Fernandes, P., & Jungck, J. R. (2013, April). *Authentic bioinformatics tools and database in the biology classroom: Affordances, challenges, and implications for learning*. Related paper set presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Waight, N., & Abd-El-Khalick, F. (2013, April). *Implications of nature of technology for tool enactment in precollege science classrooms*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.

- Abd-El-Khalick, F., Belarmino, J., Myers, J., Summers, R., & Brunner, J. (2013, April-May). *Views of nature of science (VNOS) questionnaire: development and validation of a scoring rubric*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Martin, A., Price, R., & Abd-El-Khalick, F. (2013, April-May). *Correlation between high, medium, and low innovators' effectual reasoning scores in science teaching and learning: Year 2 in a longitudinal study*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Said, Z., Abd-El-Khalick, F., Summers, R., & Culbertson, M. (2013, April-May). *Development and validation of an instrument to assess grade 3 through 12 Arab students' attitudes toward science*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Abd-El-Khalick, F., & Schroyer, M. (2013, February). *Monitoring transformations in district-wide teacher learning networks through social network analysis*. Paper presented at the National Science Foundation MSP Learning Network Conference, Washington, DC.
- Abd-El-Khalick, F., Said, Z., Summers, R., Culbertson, M., Friesen, H., & Zemmahi, H. (2012, October). *Development and large-scale validation of an instrument to assess precollege Arabic speaking students' attitudes toward science*. Paper presented at the Joint Qatar Foundation Annual Research Forum and Arab Expatriate Scientists Network Symposium, Doha, Qatar.
- Abd-El-Khalick, F., Said, Z., & Summers, R. (2012, March). *Developing and validating an instrument to assess Arabic speaking students' attitudes toward science*. Paper presented at the Fourteenth Annual Science and Math Teachers Conference (SMEC XIV), American University of Beirut, Beirut, Lebanon.
- Martin, A., Abd-El-Khalick, F., & Price, R. (2012, March). *The relationship between science teachers' effectual reasoning and teaching innovation*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Abd-El-Khalick, F., Haythornthwaite, C., Phelps, K., & Martin, A. (2012, March). *Characterizing district-wide teachers' science learning networks: silos and barriers to change and innovation*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Greenberg, S., & Abd-El-Khalick, F. (2012, March). *Impact of social media as an instructional component on content knowledge, attitudes, and public engagement related to global climate change*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Abd-El-Khalick, F., Belarmino, J., & Summers, R. (2012, March). *Development and validation of a rubric to score the views of nature of science questionnaire*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Summers, R., Abd-El-Khalick, F., Said, Z., Friesen, H., & Culbertson, M. (2012, March). *Development and validation of an instrument to assess Arabic speaking students' attitudes*

*toward science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.

Abd-El-Khalick, F. (2011, September). *The development of conceptions of the nature of scientific knowledge and knowing in secondary school*. Paper presented at the biannual conference of the European Science Education Research Association, Lyon, France.

Wahbeh, N., & Abd-El-Khalick, F. (2011, September). *The primacy of content-embedded teacher understandings of nature of science in impacting instruction*. Paper presented at the biannual conference of the European Science Education Research Association, Lyon, France.

Abd-El-Khalick, F. (2011, September). *A longitudinal study of the representations of nature of science in US high school science textbooks*. Paper presented at the biannual conference of the European Science Education Research Association, Lyon, France.

Banerjee, A., Abd-El-Khalick, F., Houseal, A., Lederman, N. G., Lederman, J. S., & Schwartz, R. (2011, April). *Professional development models to support teachers to teach nature of science and inquiry*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Abd-El-Khalick, F., & Martin, A. (2011, April). *Entrepreneurial Leadership in STEM Teaching & learning (EnLiST): The partnership's conceptual framework and approach*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Gao, W., Abd-El-Khalick, F., & Haythornthwaite, C. (2011, April). *Learning, leadership, and innovation in science teaching as manifested in teachers' social networks*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Koehler, J., Bresler, L., & Abd-El-Khalick, F. (2011, April). *From procedural change to substantive innovation: Science teachers and the entrepreneurial mindset*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

Houseal, A., Destefano, L., & Abd-El-Khalick, F. (2011, April). *STARRS in Yellowstone: Student outcomes from a student-teacher-scientist partnership*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Gao, W., Haythornthwaite, C., & Abd-El-Khalick, F. (2011, April). *Social networks, learning, and innovation in science teaching*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Abd-El-Khalick, F., & Martin, A. (2011, April). *Entrepreneurial Leadership in STEM Teaching and learning (EnLiST)*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Halbig, P., & Abd-El-Khalick, F. (2011, April). *Representations of evolutionary theory in high school biology textbooks through the 20<sup>th</sup> century*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Abd-El-Khalick, F., Bresler, L., Erickson, F., Gaffney, J. S., Gao, W., Haythornthwaite, C., Koehler, J., Lederman, N. G., Martin, A., & Price, R. L. (2011, April). *Toward a framework*

- for conceptualizing and effecting teacher entrepreneurial leadership for transforming STEM teaching and learning.* Symposium conducted at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Wahbeh, N., & Abd-El-Khalick, F. (2011, April). *The translation of teachers' understandings of nature of science into their instructional practice.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Abd-El-Khalick, F., Gaffney, J. S., Price, R. L., Koehler, J., & Martin, A. M. (2011, January). *Student success as a function of entrepreneurial teacher leadership in STEM.* Paper presented at the National Science Foundation MSP Learning Network Conference, Washington, DC.
- Halbig, P., & Abd-El-Khalick, F. (2010, March). *Degrees of concordance between scientific representations of evolutionary theory and contemporaneous high school biology textbooks through the 20<sup>th</sup> century.* Paper presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Martin, A., & Abd-El-Khalick, F. (2010, March). *Entrepreneurial Leadership in STEM Teaching and learning (EnLiST): A longitudinal case study.* Poster presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Abd-El-Khalick, F., Mittelsten Scheid, N., Schwartz, R. S., Kremer, K., Mayer, J., Cetin, P., Erduran, S., & Kaya, E. (2010, March). *Nature of science between subject-specific and subject-comprehensive science education approaches.* Symposium conducted at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Abd-El-Khalick, F. (2010, March). *Nature of science in science education: Toward a coherent framework for synergistic research and development.* Paper presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Zeineddin, A., & Abd-El-Khalick, F. (2010, March). *The impact of epistemological beliefs on scientific reasoning among college science students: Comparing two epistemology assessments.* Paper presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Abd-El-Khalick, F., Rudolph, J. L., & Ruggeri, N. (2010, March). *The NARST digital archives project: A repository and resource for the history of science education research.* Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Wahbeh, N., & Abd-El-Khalick, F. (2010, March). *The effect of a content-embedded explicit-reflective instructional approach on inservice teachers' views and practices related to nature of science.* Paper presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Waight, N., & Abd-El-Khalick, F. (2010, March). *The life cycles of technological tools: Implications for the science classroom.* Paper presented at the annual meeting of the National association for Research in Science Teaching, Philadelphia, PA.
- Abd-El-Khalick, F., Rachel, C., & Boyle, H. (2010, March). *From planned systemic reform to actualized system-wide transformation: Development of a performance-based teacher*

- professional promotion system in Egypt*. Paper presented at the 54<sup>th</sup> annual meeting of the Comparative and International Education Society, Chicago, IL.
- Abd-El-Khalick, F., Martin, A., Price, R., Shapley, P., & Selen, M. (2010, January). *Entrepreneurial Leadership in STEM Teaching & learning (EnLiST)*. Poster presented at the 2010 Math-Science-Partnerships Learning Network Conference, Washington, DC.
- Koehler, J. L., Price, R., Gaffney, J., Bresler, L., Abd-El-Khalick, F., & Martin, A. (2010, January). *EnLiST: Developing entrepreneurial teacher leaders*. Paper presented at the 2010 Math-Science-Partnerships Learning Network Conference, Washington, DC.
- Abd-El-Khalick, F. (2009, September). *Scientists' views of nature of science: Their trouble or ours?* Paper presented at the 2009 meeting of the European Science Education Research Association, Istanbul, Turkey.
- Abd-El-Khalick, F. (2009, September). *Representations of nature of science in high school biology and physics textbooks in the United States: A longitudinal study*. Paper presented at the 2009 meeting of the European Science Education Research Association, Istanbul, Turkey.
- Abd-El-Khalick, F. (2009, June). *A longitudinal study of the representation of nature of science in high school biology and physics textbooks*. Paper presented at the biennial meeting of the International History and Philosophy of Science Teaching Group, Notre Dame, IN.
- Waight, N., & Abd-El-Khalick, F. (2009, April). *Factors that compromise the potential of technological tools in fostering authentic inquiry in science classrooms*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Abd-El-Khalick, F., & Jadallah, M. (2009, April). *The trouble with scientists' views of nature of science!* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Abd-El-Khalick, F., Joslin, P., Holliday, W., Markle, G., Staver, J., Tillotson, J., & Kyle, B. (2009, April). *Increasing our influence with today's researchers, practitioners, and policymakers: Perspectives from past and present NARST executive secretaries and directors*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Zeineddin, A., & Abd-El-Khalick, F. (2009, April). *Scientific reasoning and epistemological commitments: Coordination of theory and evidence among college science students*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Abd-El-Khalick, F., Wahbeh, N., Waight, N., & Zeineddin, A. (2009, April). *A longitudinal analysis of the representations of nature of science in high school biology and physics textbooks*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Dagher, Z., BouJaoude, S., Abd-El-Khalick, F., Dillon, J., Mansour, N., & Gholam, G. (2009, April). *Challenges and opportunities for science education in Arab states*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.

- Abd-El-Khalick, F. (2009, April). *Representations of nature of science in high school biology and physics textbooks: A "longitudinal" study*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Waight, N., & Abd-El-Khalick, F. (2009, April). *From scientific practice to science classrooms: "Realizations" of technological tools in high school science classrooms*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Abd-El-Khalick, F., Jadallah, M., & Prillaman, J. (2009, April). *Should we be troubled about scientists' views of nature of science?* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Abd-El-Khalick, F., Boyle, H., & Rachel, C. (2009, March). *Impact of a systemic reform initiative on Egyptian teachers' instructional practice: A longitudinal study*. Paper presented at the 53<sup>rd</sup> annual meeting of the Comparative and International Education Society, Charleston, SC.
- Abd-El-Khalick, F., & Boyle, H. (2009, March). *Egyptian teacher opportunities for professional growth grants (TOP G-rants): A bottom-up approach to professional development*. Paper presented at the 53<sup>rd</sup> annual meeting of the Comparative and Education Society, Charleston, SC.
- Zafeirakou, A., Abd-El-Khalick, F., Boyle, H., Massialas, B., & Jarrar, S. (2009, March). *Pedagogical reforms in MENA countries: What is changing in classrooms? Historical perspective, influences, progress and challenges*. Symposium conducted at the 53<sup>rd</sup> annual meeting of the Comparative and Education Society, Charleston, SC.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2008, September). *Perceptions and assessment of arguments among freshmen college students, science teachers, and practicing scientists*. Paper presented at the meeting of the American Institute for Higher Education, Atlantic City, NJ.
- Abd-El-Khalick, F., BouJaoude, S., Duit, R., Tiberghien, A., Jiménez-Aleixandre, M. P., & Dillon, J. (2008, April). *Science education research traditions in Europe: Shedding light on didactics*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abd-El-Khalick, F., Abdulkadir, D., BouJaoude, S., Czerniak, C. M., Lawrenz, F., & Moin, L. (2008, April). *Recruitment of science and mathematics teachers: National and international perspectives on issues and policies*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abd-El-Khalick, F. (2008, April). *Factors underling decisions to pursue alternative routes to secondary science certification*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2008, March). *Perceptions and assessment of arguments among freshmen college students, science teachers, and practicing scientists*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

- Harrison, A., Venville, G., Abd-El-Khalick, F., & Blakely, A. (2007, April). *Graduate student and junior faculty early career discussion*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2007, April). *Perceptions of argumentative discourse among freshmen college students, science teachers, and practicing scientists*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- BouJaoude, S., Abd-El-Khalick, F., Dillon, J., Fraser-Abder, P., Hofstein, A., Lederman, N., & Mamlok-Naaman, R. (2007, April). *Professional development of science teachers worldwide*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Rose, S. J., & Abd-El-Khalick, F. (2007, April). *The effect of discussion-intensive and on-line problem solving on freshmen students' understanding of force*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Wahbeh, N., & Abd-El-Khalick, F. (2007, April). *Modes of discourse in science classrooms: The failure of static models in capturing complex classroom dynamics*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Duschl, R., Brickhouse, N., Abd-El-Khalick, F., Bell, P., & Edelson, D. (2007, April). *Inquiry and the learning of science: Theories and practices*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Abd-El-Khalick, F., Champagne, A., Duit, R., Kahle, J., Lawson, A., & Lederman, N. (2007, April). *Research in science education: How well does our research build upon, and is guided by, existing research?* Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Salloum, S., & Abd-El-Khalick, F. (2007, April). *Practical knowledge in teaching: Case studies from physical science classrooms*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Abd-El-Khalick, F., Waters, M., & Le, A. (2007, April). *Images of nature of science in high school chemistry textbooks: A "longitudinal" study*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Abd-El-Khalick, F., Rachel, C., El-Dib, M., Assaf, S., & Boyle, H. (2007, February). *Professional development for educational quality in Egypt: The ERP experience*. Symposium conducted at the 51<sup>st</sup> annual meeting of the Comparative and International Education Society, Baltimore, MD.
- Abell, S., Abd-El-Khalick, F., Aikenhead, G., Fensham, P., Butler Kahle, J., Lazarowitz, R., & Yager, R. (2006, April). *Issues and trends in science education: An historical perspective*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Abd-El-Khalick, F., & Akerson, V. L. (2006, April). *The influence of training in metacognitive strategies on preservice elementary teachers' conceptions of nature of science*. Paper

presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.

- Waters, M., Le, A., & Abd-El-Khalick, F. (2006, April). *Representation of nature of science in high school chemistry textbooks over the past four decades*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Abd-El-Khalick, F., Akerson, V. L., Rudge, D., Howe, E., Khishfe, R., Lederman, N., Lederman, J., & Schwartz, R. (2006, April). *Setting an empirically supported and synergistic agenda for research on nature of science*. A symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Abd-El-Khalick, F. (2006, April). *Developmental patterns in secondary school students' epistemological views*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2006, April). *Argumentative discourse in a high-school chemistry classroom: An exploratory study*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Chinn, C., Abd-El-Khalick, F., Hofer, B., Leach, J., & Samarapungavan, A. (2006, April). *Research on epistemology: Bridging disciplinary boundaries and theoretical perspectives*. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Akerson, V. L., & Abd-El-Khalick, F. (2006, April). *Enhancing preservice elementary teachers' conceptions of nature of science through training in metacognitive strategies*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2006, January). *An exploratory study of argumentative discourse in a high school chemistry classroom*. Paper presented at the 4<sup>th</sup> Annual Hawaii International Conference on Education, Honolulu, HI.
- BouJaoude, S., & Abd-El-Khalick, F. (2005, August). *A decade of science education research in Lebanon (1992-2002): Trends and issues*. Paper presented at the meeting of the European Science Education Research Association, Barcelona, Spain.
- Abd-El-Khalick, F. (2005, July). *Developing deeper understandings of nature of science: The impact of a philosophy of science course on preservice science teachers' views and instructional planning*. Paper presented at the 8<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Leeds, England.
- Abd-El-Khalick, F., Abi-El-Mona, I., Gonzalez, E., Leuszler, H., Salloum, S., Waight, N., Weon, J., Wright, S., & Zeineddin, A. (2005, April). *A roadmap for trends and issues in research in science education (1991-2003): An empirical study*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas, TX.
- Feldman, A., Abd-El-Khalick, F., Berger, J., Kemp, A., & Zhao, Y. (2005, April). *Alternative certification for science teachers: Policy, practice, and research*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Dallas, TX.

- Salloum, S., & Abd-El-Khalick, F. (2005, April). *Blending the intellectual and the moral in pursuit of deeper understandings: The teaching and learning of physical sciences in Lebanese middle school classrooms*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas, TX.
- Zeineddin, A., & Abd-El-Khalick, F. (2005, April). *On coordinating theory with evidence: The role of epistemic commitments in scientific reasoning among college students*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas, TX.
- Abd-El-Khalick, F., & BouJaoude, S. (2005, April). *A decade of science education research in Lebanon (1992–2002): Issues and trends*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Feldman, A., Dani, D. E., Abd-El-Khalick, F., Zhao, Y., Mitchener, C. P., Herbert, B., & Prival, J. (2005, April). *Alternative certification/licensure for science teachers*. Symposium conducted at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Ho, H. H., He, M. F., Stacki, S. L., Swadener, E. B., Sunal, D. W., Sunal, C. S., Mutua, K., Stevens, D. D., Guven, I., Eilam, B., Dancy-Benjamin, G. V., Green, S. A., Kanga, A. W., Koutsoulis, M., Ganser, T., Abd-El-Khalick, F. S., BouJaoude, S. B., & Shen, Y. J. (2005, April). *International Studies Business Meeting invited panel: Research on education in Africa, the Caribbean, the Middle East, and the United States*. Interactive symposium conducted at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Sunal, C. S., Mutua, K., Ganser, T., Abd-El-Khalick, F. S., BouJaoude, S. B., Guven, I. B., Koutsoulis, M., Stevens, D. D., & Swadener, E. B. (2005, April). *Through the eyes of the insider: Topics in research in Africa, the Caribbean and the Middle East*. Interactive symposium conducted at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Abd-El-Khalick, F. (2005, February). *Modeling science classrooms after scientific laboratories: Sketching some affordances and constraints drawn from examining underlying assumptions*. Paper presented at the Inquiry Conference on Developing a Consensus Research Agenda, Rutgers University, New Brunswick, NJ.
- Abd-El-Khalick, F. (2004, April). *Gendered knowledge: Understanding the nature of science as a pathway to reflective practice*. Panel conducted at the University of Illinois Conference on Gender in the Pre-College Science, Mathematics, and Technology (SMT) Classroom, Champaign, IL.
- Sandoval, W., Abd-El-Khalick, F., Duschl, R., Hammer, D., Kelly, G., Leach, J., Millwood, K., Ryder, J. Scherr, R. (2004, April). *Advancing epistemological studies in science education*. Symposium conducted at the annual meeting of the American Educational Research Association, San Diego, CA.
- Abd-El-Khalick, F. (2004, April). *Assessing and influencing epistemological views: The moderate fallacies of inference to beliefs from action and influence of action on beliefs*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

- Abd-El-Khalick, F. (2004, April). *The relationship between students' views of nature of science and their conceptual understanding of stoichiometry: An empirical assessment*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Abd-El-Khalick, F., & Akerson, V. L. (2004, April). *Enhancing preservice teachers' conceptions of nature of science: The impact of training in metacognitive strategies*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Waight, N., & Abd-El-Khalick, F. (2004, April). *The impact of technology on the enactment of inquiry in a sixth grade science classroom*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Akerson, V. L., & Abd-El-Khalick, F. (2004, April). *The influence of instruction in metacognitive strategies on preservice early childhood teachers' conceptions of nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Abd-El-Khalick, F., & BouJaoude, S. (2004, April). *Do student views of nature of science influence their conceptual understandings of science content?* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2004, April). *Argumentative discourse in science: Context and structure*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Waight, N., & Abd-El-Khalick, F. (2004, April). *Technology in a sixth grade science classroom: Promoting or impeding inquiry?* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada.
- Abd-El-Khalick, F. (2004, March). *Alternative pathways to teaching: Quality teachers versus warm bodies in classrooms*. Paper presented at the Teacher Preparation Principal Investigator Meeting, Washington, DC.
- BouJaoude, S., Sawwan, S., & Abd-El-Khalick, F. (2003, August). *The effect of using drama in science teaching on students' conceptions of nature of science*. Paper presented at the meeting of the European Science Education Research Association, Noordwijkerhout, The Netherlands.
- Abd-El-Khalick, F. (2003, April). *The development of students' scientific epistemologies during the middle and high school years*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Hyunju, L., Choi, K., & Abd-El-Khalick, F. (2003, March). *Korean science teachers' perceptions of the introduction of ethical issues into the science curriculum*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Abd-El-Khalick, F. (2003, March). *Socioscientific issues in pre-college science classrooms: The primacy of learners' epistemological orientations and views of nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.

- Abd-El-Khalick, F. (2003, January). *RECRUIT: Recruiting, educating, certifying, and retaining underrepresented populations in teaching science and mathematics*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, St. Louis, MO.
- Abd-El-Khalick, F., & BouJaoude, S. (2002, September). *Lebanese middle school students' views of nature of science: Definitions of science and perceptions of its purpose and usage*. Paper presented at the Seminar on Learning in Science in the Mediterranean Region, Nicosia, Cyprus.
- Zeidler, D., Loving, C., McGinnis, R., Abd-El-Khalick, F., Bell, R. L., & Sadler, T. (2002). *Moral and ethical issues in science education: Is there a voice for research, policy, and practice?* Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2002, April). *The Influence of mindmapping on the science achievement of grade 8 students*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Waight, N., Abd-El-Khalick, F., & Brown, D. (2002, April). *Technology in preservice science methods courses: Promises and hurdles*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Abd-El-Khalick, F. (2002, April). *The development of conceptions of the nature of scientific knowledge and knowing in the middle and high school years: A cross-sectional study*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Schwartz, R., Lederman, N. G., Dekkers, P., Shiang-Yao, L., Khishfe, R., Bell, R. L., & Abd-El-Khalick, F. (2002, April). *International perspectives on research in nature of science: Finding common ground?* Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- BouJaoude, S., Salloum, S., & Abd-El-Khalick, F. (2002, April). *Relationships between selective cognitive variables and students' ability to solve chemistry problems*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Akerson, V. L., Abd-El-Khalick, F., & Banning, T. (2002, April). *A fourth grade teacher's endeavors to teach nature of science: A year-long study*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Abd-El-Khalick, F. (2002, April). *Examining college students' views of nature of science*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Abd-El-Khalick, F. (2002, April). *Developing deeper understandings of nature of science: The impact of a philosophy of science course on preservice secondary science teachers' views*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Akerson, V. L., Abd-El-Khalick, F., & Banning, T. (2002, April). *Teaching elements of nature of science: A yearlong case study of a fourth grade teacher*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

- Abd-El-Khalick, F., & Khishfe, R. (2002, March). *How to teach nature of science? An explicit inquiry-oriented approach*. Paper presented at the annual meeting of the National Science Teachers Association, San Diego, CA.
- Abd-El-Khalick, F. (2002, January). *The influence of a philosophy of science course on preservice secondary science teachers' views of nature of science*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Charlotte, NC.
- Khishfe, R., & Abd-El-Khalick, F. (2002, January). *Teaching nature of science: A success story*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Charlotte, NC.
- Khishfe, R., & Abd-El-Khalick, F. (2001, November). *How to teach nature of science to elementary students? An explicit inquiry-oriented approach*. Paper presented at the 6<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Denver, CO.
- Abd-El-Khalick, F. (2001, November). *Do history of science courses influence college students' views of nature of science?* Paper presented at the 6<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Denver, CO.
- Lederman, N. G., Bell, R. L., Schwartz, R., Abd-El-Khalick, F., & Akerson, V. (2001, November). *Assessing understandings of the nature of science: Development and use of the views of nature of science questionnaire*. Paper presented at the 6<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Denver, CO.
- Abd-El-Khalick, F., Haidar-Makki, M., & BouJaoude, S. (2001, April). *Lebanese secondary school students' environmental knowledge and attitudes*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Abd-El-Khalick, F., & Zeineddin, A. (2001, April). *Doing the right thing versus doing the right thing right: Concept mapping in a Freshmen physics laboratory*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Abd-El-Khalick, F., BouJaoude, S., Duschl, R., Lederman, N. G., Mamlok, R., Niaz, M., Treagust, D., & Tuan, H. (2001, March). *Inquiry in science education: International perspectives*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Lederman, N. G., Abd-El-Khalick, F., Bell, R. L., & Schwartz, R., Akerson, V. L. (2001, March). *Assessing the un-assessable: Views of Nature of Science Questionnaire (VNOS)*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Abd-El-Khalick, F. (2001, March). *Over and over and over again: College students' views of nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Abd-El-Khalick, F., Lederman, N. G., Bell, R. L., & Schwartz, R. (2001, January). *Views of nature of science questionnaire (VNOS): Toward valid and meaningful assessment of learners' conceptions of nature of science*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Costa Mesa, CA.

- Abd-El-Khalick, F. (2000, November). *Action research in school-based reform: A viable paradigm for informed site-based decision-making*. Paper presented at the Conference on School-based Educational Reform in Arab Countries, American University of Beirut, Beirut, Lebanon.
- Karam, E., & Abd-El-Khalick, F. (2000, May). *Students' private science: Examining their misconceptions . . . and ours!* Paper and workshop presented at the Fourth Annual Science and Math Teachers Conference (SMEC IV), American University of Beirut, Beirut, Lebanon.
- Khishfe, R., & Abd-El-Khalick, F. (2000, May). *Teaching about nature of science: An explicit inquiry-oriented approach*. Paper presented at the Fourth Annual Science and Math Teachers Conference (SMEC IV), American University of Beirut, Beirut, Lebanon.
- Abd-El-Khalick, F. (2000, April). *Explicit reflective content-embedded nature of science instruction: Abandoning scientism, but . . .* Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Akerson, V., & Abd-El-Khalick, F. (2000, April). *The influence of conceptual change teaching in improving preservice teachers' conceptions of nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Khishfe, R., & Abd-El-Khalick, F. (2000, April). *The influence of explicit reflective versus implicit inquiry-oriented instruction on sixth graders' views of nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Akerson, V., & Abd-El-Khalick, F. (2000, April). *Improving preservice elementary teachers' conceptions of nature of science with a conceptual change teaching strategy*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Schwartz, R., Lederman, N. G., Abd-El-Khalick, F., & Bell, R. L. (2000, April). *Teaching the nature of science: Another case of knowledge is essential, but not sufficient*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Abd-El-Khalick, F. (2000, April). *Using an explicit reflective content-embedded approach to improve elementary teachers' conceptions of nature of science*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Abd-El-Khalick, F. (2000, April). *Inquiry instruction and learning about nature of science: The need for an explicit reflective component*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Abd-El-Khalick, F. (2000, January). *Improving elementary teachers' conceptions of nature of science in the context of a science content course*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Akron, OH.
- Akerson, V., & Abd-El-Khalick, F. (2000, January). *Improving preservice elementary teachers' conceptions of nature of science using a conceptual change teaching approach*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Akron, OH.

- Abd-El-Khalick, F., & Lederman, N. (1999, September). *Success of the attempts to improve science teachers' conceptions of nature of science: A review of the literature*. Paper presented at the 5<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Lake Como, Italy.
- Lederman, N., Bell, R., & Abd-El-Khalick, F. (1999, September). *Developing and acting upon one's conceptions of the nature of science*. Paper presented at the 5<sup>th</sup> International History, Philosophy, and Science Teaching Conference, Lake Como, Italy.
- Abd-El-Khalick, F. (1999, May). *Nature of science: What is it? Why is it important? And what attention is it accorded in the new Lebanese science curriculum?* Paper presented at the meeting of the Lebanese Association for Educational Sciences, Beirut, Lebanon.
- Abd-El-Khalick, F., & BouJaoude, S. (1999, May). *Don't just throw those kids in groups: Cooperative learning activities in science*. Paper presented at the Third Annual Science and Math Teachers Conference (SMEC III), American University of Beirut, Beirut, Lebanon.
- Dickinson, V., Abd-El-Khalick, F., & Lederman, N. G. (1999, March). *The influence of a reflective activity-based approach on elementary teachers' conceptions of the nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Abd-El-Khalick, F., & Lederman, N. G. (1999, March). *The influence of history of science courses on students' nature of science views*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Lederman, N. G., Schwartz, R., Abd-El-Khalick, F., & Bell, R. L. (1999, March). *Preservice teachers and their nature of science instruction: Factors that facilitate success*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Dickinson, V., Abd-El-Khalick, F., & Lederman, N. G. (1999, January). *Changing elementary teachers' views of the nature of science: Effective strategies for science methods courses*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Austin, TX.
- Schwartz, R., Abd-El-Khalick, F., & Lederman, N. G. (1999, January). *An exploratory study of the "effectiveness" of elementary science specialists*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Austin, TX.
- Abd-El-Khalick, F., & Lederman, N. G. (1998, April). *Improving science teachers' conceptions of the nature of science: A critical review of the literature*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Bell, R. L., Lederman, N. G., & Abd-El-Khalick, F. (1998, April). *Preservice teachers' beliefs and practices regarding the teaching of the nature of science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Abd-El-Khalick, F., Lederman, N. G., & Bell, R. L. (1998, January). *Developing and acting upon ones' conception of the nature of science: A follow-up study*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Minneapolis, MN.

- Abd-El-Khalick, F., & Lederman, N. G. (1998, January). *Avoiding de-natured science: Activities that promote understandings of the nature of science*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Minneapolis, MN.
- Lederman, N. G., Abd-El-Khalick, F., & Bell, R. (1997, March). *Knowing and doing: The flight of the nature of science from the classrooms*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Abd-El-Khalick, F., Lederman, N. G., & Bell, R. (1997, March). *The nature of science and instructional practice: Making the unnatural natural*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL.
- Abd-El-Khalick, F. (1997, January). *An exploratory study of the disciplinary knowledge of science teachers*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Cincinnati, OH.
- Bell, R., Lederman, N. G., & Abd-El-Khalick, F. (1997, January). *Developing and acting upon one's conception of science: The reality of teacher preparation*. Paper presented at the annual meeting of the Association for the Education of Teachers in Science, Cincinnati, OH.
- Lederman, N. G., Abd-El-Khalick, F., & Bell, R. (1996, October). *Integrating national standards into your curriculum*. Paper and workshop presented at the annual meeting of the Oregon Science Teachers Association, Hillsboro, OR.
- BouJaoude, S., & Abd-El-Khalick, F. (1995, April). *Lebanese middle school students' definitions of science and perceptions of its purpose and usage*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.

## **Invited Keynote Addresses, Plenary Sessions, Seminars, and Lectures**

### **International**

- Abd-El-Khalick, F. (2022, May). *The COVID-19 pandemic: Is it time to reorient 70 years of research into teaching and learning about nature of science?* Invited talk presented at the Interdisciplinary Research Colloquium, Department of Education, Faculty of Philosophy and Education, University of Vienna, Austria.
- Abd-El-Khalick, F. (2017, December). *Peer review in international research journals*. Invited session presented at the Workshop on Educational Knowledge Production in Arab Countries. Arab Educational Information Network (shamaa), Beirut, Lebanon.
- Abd-El-Khalick, F. (2017, October). *Revisiting the processes and standards for peer review: Lifting the rigor, stature, and impact of scholarly Arab periodicals*. Invited session presented at the Workshop on Publications Rules. Association of Arab Universities (AARU), Kuwait Foundation for the Advancement of Science (KFAS), and Kuwaiti Society for the Advancement of Arab Children (KSAAC), Amman, Jordan.
- Abd-El-Khalick, F. (2015, October). *Integration, intersection, disjunction: Toward an empirical research programme on the question(s) of Islam and science*. Invited talk presented at the Workshop on Science Teaching in Contemporary Islamic Societies. Center for Islam and Science, McGill University, Montreal, Canada.
- Abd-El-Khalick, F. (2014, September). *Testing to teach and teaching to the test: Student*

- learning and 21<sup>st</sup> century priorities for school science education*. Invited public lecture delivered at the University of Johannesburg, South Africa.
- Abd-El-Khalick, F. (2014, September). *The 'next generation' science standards: Implications of authentic scientific practices for precollege science teaching and learning*. Invited seminar conducted at the Department of Science and Technology Education, the University of Johannesburg, South Africa.
- Abd-El-Khalick, F. (2014, May). *Assessing understandings of nature of science in science education: Past, present, and future*. Invited colloquium, German Chemical Society, University of Cologne, Cologne, Germany.
- Abd-El-Khalick, F. (2013, June). *On context and teaching about NOS: What history and inquiry tell us about using history of science and inquiry instruction to teach about NOS*. Invited keynote presented at the International Workshop on Sociocultural Approaches to Socioscientific Issues and Nature of Science, Ewha Women University, Seoul, South Korea.
- Abd-El-Khalick, F., & Myers, J. (2013, February). *The evolving landscape related to assessment of nature of science understandings: The development and validation of a scoring rubric for the Views of Nature of Science (VNOS) Questionnaire*. Invited seminar conducted at the Department of Mathematics and Science Education, Stockholm University, Sweden.
- Abd-El-Khalick, F. (2012, November). *Nature of science in science education: The why, the what, and the how*. Invited presentation to the Unit of Teacher Education, Department of Chemistry, Faculty of Science, University of Helsinki, Finland.
- Abd-El-Khalick, F. (2012, September). *What History and inquiry tell us about using history of science and inquiry-oriented instruction to teach about nature of science*. Invited keynote address presented at the Conference on Learning to Teach Nature of Science: A Question of Context? University of Cologne, Cologne, Germany.
- Abd-El-Khalick, F. (2012, June). *Framing research and development on nature of science in science education: Enduring confluences, critical issues, and fruitful pathways*. Invited keynote address presented at the Nature of Science Conference, Pamukkale University, Denizli, Turkey.
- Abd-El-Khalick, F. (2012, May). *Nature of science in precollege science classrooms: Preparing the 'next generation' science students*. Invited keynote address presented at the Nature of Science Conference, Pamukkale University, Denizli, Turkey.
- Abd-El-Khalick, F. (2012, May). *Nature of science and citizenship: Why do understandings of nature of science matter in everyday life?* Invited keynote address to the Kids Participation in Educational Research (KiP<sup>2</sup>) Project, University of Vienna, Vienna, Austria.
- Abd-El-Khalick, F. (2012, May). *Teaching with and about nature of science: Inquiry, nature of science, and science teachers' pedagogical content knowledge*. Invited seminar presented at the Austrian Educational Competence Center—Biology, University of Vienna, Vienna, Austria.
- Abd-El-Khalick, F. (2012, March). *Preparing the 'next generation' science students: Implications of authentic scientific practices for precollege science teaching and learning*. Invited plenary session presented at the Fourteenth Annual Science and Math Teachers Conference (SMEC XIV), American University of Beirut, Beirut, Lebanon.

Abd-El-Khalick, F. (2011, June). *Teaching with and about nature of science: Teacher knowledge domains and explicit-reflective nature of science instruction*. Invited keynote address to the International Workshop on Science Teaching and History and Philosophy of Science: “Science Studies and Science Education: How Science Works and How to Teach about It,” organized by the European Society for the History of Science, Aarhus University, Århus, Denmark.

Abd-El-Khalick, F. (2010, October). *Nature of science in science education: Enduring confluences and critical issues*. Invited seminar conducted at the Department of Mathematics and Science Education, Stockholm University, Sweden.

Abd-El-Khalick, F. (2010, August). *Assessment and evaluation in teacher professional development*. Invited plenary session presented at the policy institute on “Embedding Excellence: Transforming Professional Development for Educators” organized by the Technology Tools for Teaching & Training Project, Bangalore, India.

Abd-El-Khalick, F. (2010, August). *Key elements of a high quality professional development system*. Invited session presented at the policy institute on “Embedding Excellence: Transforming Professional Development for Educators” organized by the Technology Tools for Teaching & Training Project, Bangalore, India.

Abd-El-Khalick, F. (2009, November). *Nature of science in science teaching and learning: The what, the why, and the how*. Invited keynote address delivered at the international conference on “Science Education: Shared Issues, Common Future” organized by the National Institute of Education, Singapore.

Abd-El-Khalick, F. (2007, March). *Teaching and learning science with information and communication technologies*. Invited plenary session presented at the “Looking Forward Summit: Harnessing Information and Communication Technologies to Build the Future of Yemeni Education,” Tai’z, Yemen.

Abd-El-Khalick, F. (2005, June). *Wonderland*. Invited keynote speech delivered at the Department of Education Commencement Ceremony, American University of Beirut, Beirut, Lebanon.

Abd-El-Khalick, F. (2001, May). *Teaching about nature of science: Truth, objectivity, the scientific method, and other lies my teacher told me*. Invited plenary session presented at the Fifth Annual Science and Math Teachers Conference (SMEC V), American University of Beirut, Beirut, Lebanon.

### **National**

Abd-El-Khalick, F., & Graham, A. (2021, November). *Reassessing and rebuilding our educator workforce*. Chief State School Officers Unfinished Learning Retreat, The Hunt Institute and SAS, Cary, NC.

Abd-El-Khalick, F., Anderson, C. J., Anderson, R. C., Cope, W., & Feinberg, W. (2019, September). *Celebrating 100 years of educational research*. Panel conducted at the 100<sup>th</sup> Anniversary Celebration of the Bureau of Education Research, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.

Abd-El-Khalick, F. (2016, October). *Toward an empirical research programme on the question(s) of Islam and science*. Keynote address presented at the Fourth Annual

International Symposium: Mathematics and Science Education in the Muslim World,  
Teachers College Columbia University, New York, NY.

- Abd-El-Khalick, F. (2016, February). *How I learned to stop worrying about producing little scientists, and/or little historians and philosophers of science and love persuasion: Toward K-12 science literacy that matters*. Invited talk presented at the Colloquium on How Can History and Philosophy of Science Contribute to Science Literacy and Citizenship? Center for Philosophy and History of Science, Boston University, MA.
- Abd-El-Khalick, F. (2012, December). *What history teaches us about using history of science to teach about nature of science*. Invited talk presented at the Conference on Teaching Science through History and Philosophy of Science: How can the HPS Contribute to Contemporary U.S. Science Teaching. Center for Philosophy and History of Science, Boston University, MA.
- Abd-El-Khalick, F. (2009, October). *A 'longitudinal' study of the representations of nature of science in high school science textbooks*. Invited seminar presented at the Center for Excellence in Science, Mathematics, and Engineering Education, Iowa State University, Ames, IA.
- Abd-El-Khalick, F. (2009, October). *Science literacy: What are we trying to teaching with online courses?* Invited seminar presented at the Conference on Designing Effective Online Science Courses, Parkland College, Champaign, IL.
- Abd-El-Khalick, F. (2007, April). *Setting an empirically supported and synergistic agenda for research on nature of science*. Invited seminar presented at the Center for Science and Mathematics Education, College of Education, University of Texas at Austin, TX.
- Abd-El-Khalick, F. (2003, November). *The development of students' science epistemologies in the middle and high school years: A cross-sectional study*. Invited seminar presented to the Department of Curriculum & Instruction, Purdue University, West Lafayette, IN.
- Abd-El-Khalick, F. (2003, September). *The development and schooling of views of nature of science in secondary school: An exploratory study*. Invited seminar presented at the Institute for Science Education, Western Michigan University, Kalamazoo, MI.
- Abd-El-Khalick, F. (2002, January). *The development of students' science epistemologies in the middle and high school years*. Invited seminar presented at the Department of Curriculum & Instruction, School of Education, Indiana University Bloomington, Bloomington, IN.
- McComas, W., Abd-El-Khalick, F., Chiapetta, G., Lawson, A. E., Good, R. (2001, November). *What research says about nature of science and science teaching: An instant update*. Invited plenary session conducted at the 6th International History, Philosophy, and Science Teaching Conference, Denver, CO.
- Abd-El-Khalick, F., Brown, D., & Gutiérrez, R. (2001, September). *Involving faculty and their research in the preparation of teacher educators*. Talk given at the "Invitational Forum on Exemplary Practices and Challenges in Teacher Preparation" organized by the American Association of Universities and the American Academy of Arts and Sciences, Cambridge, MA.

**University**

- Abd-El-Khalick, F., White, C., Lewis, B. C., & Reid, L. V. (2021, March). “Dean’s equity panel,” *Level the Playing Field*, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Abd-El-Khalick, F. (2021, December). Opening remarks: Studying the impact of COVID-19 on educational equity. Third Interinstitutional Graduate Student Conference on Education, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Abd-El-Khalick, F. (2021, October). Moderator, “Teaching in a pandemic: Panel discussion with teachers around the world,” *Global Education in a New World*, UNC World View, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Barbour, S., Stephenson, B., Rhodes, T., Marchionini, G., Abd-El-Khalick, F., Costant, I., Johns, A., Farrow, R., Mills, A., Wyrick, B., Dockham, K., & Villarreal, N. (2020, October). *International graduate education panel*. The Graduate School, University of North Carolina at Chapel Hill, Chapel Hill, NC.
- Abd-El-Khalick, F. (2015, September). *Education in the Middle East*. Invited lecture presented at the “New Middle East” course (SAME/ PS/ SOC 512). Center for South Asian and Middle Eastern Studies, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F., Anderson, J., & Rounds, J. (2014, May). *Panel on the promotion and tenure process*. Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F., & Summers, R. (2013, November). *The assessment of precollege Qatari students’ attitudes toward science*. Invited brown bag lecture, Center for South Asian and Middle Eastern Studies, University of Illinois at Urbana-Champaign, Champaign, IL.
- Wiegand, J. (Superintendent), Fuller, A., & Abd-El-Khalick, F. (2013, November). *Community conversation with the Superintendent of the Champaign Unit 4 School District*. EnterpriseWorks Incubator, Research Park, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2012, October). *Entrepreneurial leadership in STEM education: It takes the whole pipeline to nurture STEM people!* Invited keynote remarks presented at the North Central Region Conference of the American Association of Agricultural Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F., Gaffney, J. S., & Price, R. L. (2012, June). *Teachers as entrepreneurial leaders for students’ engagement and learning in STEM*. Interactive session presented at the University of Illinois Chancellor’s Academy 2012, Champaign, IL.
- Abd-El-Khalick, F. (2012, March). *Nature of science in science teaching and learning*. Invited seminar presented as part of the Illinois Researchers in partnership with K-12 Science Educators (iRiSE) Project, Department of Physics, University of Illinois at Urbana-Champaign, Champaign, IL.
- Gaffney, J. S., Abd-El-Khalick, F., & Price, R. (2012, February). *An evolving model of entrepreneurial leadership in science teaching and learning*. Seminar presented as part of the Cognitive Science of Teaching and Learning (CSTL) Brown Bag Series, Department of Educational Psychology, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.

- Abd-El-Khalick, F., & McFarquhar, G. M. (2011, March). *Nuts and bolts of a successful mid-career*. Panel conducted as part of the symposium on “Mid-Career Faculty Development” organized by the Provost Office, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2011, February). *Nature of science in science teaching and learning*. Invited seminar presented as part of the Illinois Researchers in partnership with K-12 Science Educators (iRiSE) Project, Department of Physics, University of Illinois at Urbana-Champaign, Champaign, IL.
- DeStefano, L., Goggin, N., Mortensen, P., & Abd-El-Khalick, F. (2010, August). *Beyond survival: Thriving in your career*. Panel conducted as part of the symposium on “Mid-Career Faculty Development” organized by the Provost Office, University of Illinois at Urbana-Champaign, Champaign, IL.
- Chancellor Herman, R., Senator Frerichs, M., Governor Edgar, J., DeStefano, L., & Abd-El-Khalick, F. (2009, April). *Financial and structural issues in elementary and secondary education: A human development perspective*. Roundtable discussion and public forum conducted at the 2009 Cline Symposium on “Higher education and human capital development: A Morrill Act for the 21<sup>st</sup> century,” Cline Center for Democracy, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2009, March). *The nature of science and high school chemistry textbooks*. Invited session presented at the 24<sup>th</sup> Annual Conference for Enhancing Chemistry Teaching sponsored by the Chemistry Department, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2007, October). *Conceptualizing, executing, and seeing your research through publication*. Invited seminar presented as part of the Math, Science, and Technology (MST) Division Pro-seminar, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2007, October). *Students’ and science teachers’ conceptions of nature of science: A national study of grade 10 in Turkey*. Invited seminar presented as part of the Cognitive Science of Teaching and Learning (CSTL) Division seminar series, Department of Educational Psychology, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2005, December). *The influence of training in metacognitive strategies on preservice elementary teachers conceptions of nature of science*. Invited seminar presented as part of the College Scholars Program, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2005, November). *Impacting preservice elementary teachers’ views of nature of science: A continuing journey*. Invited seminar presented as part of the seminar series at the Department of Curriculum and Instruction, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2004, November). *Philosophy of science and college students’ views of nature of science*. Invited seminar presented at the department of Natural Sciences seminar series, Parkland College, Champaign, IL.

- Abd-El-Khalick, F. (2004, September). *The development of students' science epistemologies in the middle and high school years*. Invited seminar presented at the Physics Education Group seminar series, Physics Department, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2004, May). *Learning about the nature of science as conceptual change: Factors that mediate the development of pre-service elementary teachers' views of nature of science*. Invited seminar presented as part of the CATE (Curriculum and Teacher Education) seminar series, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- McCarthy, S., Bresler, L., & Abd-El-Khalick, F. (2004, April). *Preparing your work for publication*. Panel conducted at the Curriculum and Instruction Graduate Student Symposium, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- DeStefano, L., Abd-El-Khalick, F., Greene, J., Anderson, C., Baroody, A., & Grosshandler, E. (2004, March). *NSF proposal strategies*. Seminar organized by the Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2003, November). *The development and schooling of views of nature of science in secondary school: Some preliminary findings*. Invited seminar presented at the Developmental Division Brown Bag, Department of Psychology, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2002, April). *Publishing in refereed journals for graduate students and beyond*. Colloquium conducted as part of the Mathematics, Science, and Technology Division Colloquium Series, Department of Curriculum and Instruction, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2002, January). *The development of conceptions of nature of scientific knowledge and knowing in the middle and high school years: A cross-sectional study*. Seminar presented as part of the Faculty Fellows program, Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2001, October). *Dissertation research as a "hoop" versus "springboard": My story!* Colloquium conducted as part of the Mathematics, Science, and Technology Division Colloquium Series, Department of Curriculum and Instruction, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (2001, October). *History and nature of science: Active transport might work but osmosis does not!* Invited talk given at the Department of Educational Psychology, University of Illinois at Urbana-Champaign, Champaign, IL.
- Abd-El-Khalick, F. (1998, November). *History of science and views of the nature of science: Assumed connection and gloomy reality*. Seminar presented as part of the Science and Mathematics Education Center seminar series in science education for 1998/99, American University of Beirut, Beirut, Lebanon.

## **Editorial Responsibilities**

### **Editorial Review Boards**

- 2014–present Editorial Board, *Science: Philosophy, History and Education* (book series). Dordrecht, The Netherlands: Springer.
- 2008–present Editorial Board, *International Journal of Science Education*.
- 2006–present Editorial Board, *Science and Technology Education Library* (book series). Dordrecht, The Netherlands: Springer.
- 2007–2015 Editorial Review Board, *Educational Sciences: Theory & Practice*.
- 2006–2016 Editorial Review Board, *Journal of Science Education and Technology*.
- 2005–present Editorial Board, *Euroasia Journal of Mathematics, Science, and Technology Education*.
- 2004–2015 Editorial Committee, *Science & Education*.
- 2002–2006 Board of Reviewers, *Science Education*.
- 2000–2004 Editorial Board, *Journal of Research in Science Teaching*.
- 1999–2004 Editorial Review Board, *Journal of Science Teacher Education*.

#### **Invited and Occasional Reviewer – Professional Journals**

- 2010–2014 Invited Reviewer, *Research in Science & Technological Education* (May, 2010; March, 2014).
- 2011–2012 Invited Reviewer, *American Educational Research Journal* (February, 2011).
- 2009–2009 Invited Reviewer, *Research in the Teaching of English* (November, 2008).
- 2004–2005 Invited Reviewer, *Educational Researcher* (February, 2004).
- 2003–2012 Reviewer, *International Journal of Science and Mathematics Education*.
- 2002–2004 Reviewer, *Review of Educational Research*.
- 2002–2006 Reviewer, *Science Books & Films*, Directorate for Education and Human Resource Programs, American Association for the Advancement of Science.
- 2002–2004 Reviewer, *Science & Education*.
- 2001–2002 Reviewer, *Journal of Elementary Science Education*.
- 2001–2002 Invited Reviewer, *Social Studies of Science* (April, 2001).
- 2001–2002 Invited Reviewer, *Special Issue, School Science and Mathematics* (February, 2002)
- 2001–2002 Invited Reviewer: *Journal of Curriculum Studies* (February, 2001).
- 1999–2000 Senior Reviewer, *Journal of Research in Science Teaching*.
- 1997–1999 Reviewer, *Science and Children*.
- 1995–2001 Reviewer, *School Science and Mathematics*.

#### **Invited and Occasional Reviewer – Professional Organizations and Publishers**

- 2019, July Invited Reviewer: *Contemporary Trends and Issues in Science Education*, Springer, Dordrecht, The Netherlands. Book proposal title: “Feyerabend’s

Epistemological Anarchism: How Science Works and its Importance for Science Education.”

- 2015, Nov Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Science Teacher Education for Responsible Citizenship: Towards a Pedagogy for Relevance through Socio-Scientific Issues.”
- 2013, July Invited Reviewer, National Science Teachers Association (NSTA) Press. Book proposal title: “Strengthening the foundation: Correcting misconceptions about the nature of science.”
- 2012, Aug Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Science journalism: Theory and practice.”
- 2011, June Invited Reviewer, Routledge, New York. Book proposal title: “Teaching the Nature of Science: Perspectives & Resources.”
- 2011, Feb Invited Reviewer: Springer, Dordrecht, The Netherlands. Book proposal title: “Advances in the nature of science research: Concepts and methodologies.”
- 2018, Sep Invited Reviewer, Routledge, New York. Book proposal title: “Making sense of science teaching.”
- 2008, May Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Critical appraisal of science as a human enterprise: Dynamics of scientific progress.”
- 2004, Feb Invited Reviewer: Abell, S., & Lederman, N. G. (Eds.). *The handbook of research on science education*. Mahwah, NJ: Erlbaum. Chapter title: “Perspectives on science learning”
- 2003, Apr Invited Reviewer, Sage Publications, Thousand Oaks, CA. Book proposal title: “History of science for teachers: The construction and reconstruction of scientific concepts”
- 2002, Feb Invited Reviewer: Appleton, K. (Ed.). *Elementary science teacher education: Contemporary issues and practices*. Mahwah, NJ: Erlbaum. Chapter title: “The elementary science teacher as researcher.”
- 2001, Mar Invited Reviewer: Science & Technology Education Library, Kluwer Academic Publishers, Dordrecht, The Netherlands. Book proposal title: “Science education in philosophical and cultural perspective.”

## **Doctoral and Postdoctoral Supervision**

### **Doctoral Advisees**

Sahar Alameh, Assistant Professor, Department of STEM Education, College of Education, University of Kentucky, Lexington. (Graduated: May, 2020)

Jeanne Brunner, Assistant Professor, Department of Teacher Education and Curriculum Studies, College of Education, University of Massachusetts, Amherst. (Graduated: August 2016)

Ryan Summers, Assistant Professor, Department of Teaching and Learning, College of Education & Human Development, University of North Dakota, Grand Forks. (Graduated:

April, 2016; M.A. – Graduated: May, 2012)

Sara Rose, Faculty Member, Physics Education, The Evergreen State College, Olympia, WA. (Graduated: December, 2013)

Sallie Greenberg, Associate Director, Energy & Minerals, Prairie Research Institute, Illinois State Geological Survey, University of Illinois at Urbana-Champaign. (Graduated: May, 2013)

Ana Houseal, Associate Professor (with tenure), School of Teacher Education, University of Wyoming, Laramie. (Graduated: May, 2010)

Nader Wahbeh, Director, Science Studio, Al-Qattan Center for Educational Research and Development/Al-Qattan Foundation, Ramallah, West Bank, Palestine. (Graduated: August, 2009)

Noemi Waight, Associate Professor (with tenure), Department of Learning and Instruction, Graduate School of Education, State University of New York, Buffalo, NY. (Graduated: August, 2008; M.A. – Graduated: May, 2004)

Ava Zeineddin, Assistant Professor, Department of Teacher Education, College of Education, Wayne State University, Detroit, MI. (2009–2013). (Graduated: June, 2008; M.A. – Graduated: May, 1999)

Issam Abi-El-Mona, Associate Professor (with tenure) and Chairperson, Department of Teacher Education, Rowan University, Glassboro, NJ. (Graduated: June, 2007)

Sara Salloum, Professor, Department Education, University of Balamand, Lebanon. (Graduated: March, 2006)

Rola Khishfe, Associate Professor, Department of Education, American University of Beirut, Lebanon. (M.A. – Graduated: May, 1999)

### **Invited International Service on Dissertation Committees and as Opponent**

External Dissertation Examiner, University of Cologne, Germany. Dissertation title, “Paving the way towards ‘authentic chemistry teaching’—A contribution to teachers’ professional development,” September, 2014.

External Dissertation Examiner, Mara University of Technology, Malaysia. Dissertation title, “The views of the nature of science across different educational levels,” April, 2014.

Opponent, Dissertation Public Examination, Department of Chemistry, Faculty of Science, University of Helsinki, Finland. Dissertation title, “Nature of science chemistry education: Design of chemistry teacher education course,” November, 2012.

External Dissertation Examiner, The University of Cape Town, South Africa. Dissertation title, “Exploring the coherence of grade six students’ views of the nature of science (NOS) and of the natural world: A South African study,” August, 2011.

Opponent, Dissertation Disputation, Department of Mathematics and Science Education, Stockholm University, Sweden. Dissertation title, “Teachers’ language of inquiry: The conflation between methods and teaching and scientific inquiry in science education,” October, 2010.

External Dissertation Examiner, Queensland University of Technology, Brisbane, Australia.

Dissertation title, “Exploring the influence of an argumentation-based science content course on preservice primary teachers’ views of nature of science,” May, 2008.

### **Supervision of Postdoctoral Fellows and Visiting Scholars**

Ferah Ozer, Fulbright Visiting Scholar, Department of Mathematics and Science Education, Faculty of Education, Bogazici University, Istanbul, Turkey; February–December, 2021.

Aybuke Pabuccu, Department of Science Education, Abant Izzet Baysal University, Bolu, Turkey; The Scientific and Technological Research Council of Turkey (TUBITAK); August, 2014–March, 2015.

Gülsüm Akyol, Department of Technical University, Middle East Technical University, Ankara, Turkey; August, 2014–July, 2015.

Nihal Dogan, Department of Science Education, Abant Izzet Baysal University, Bolu, Turkey; The Scientific and Technological Research Council of Turkey (TUBITAK); July–September, 2013.

Suat Celik, Department of Science and Mathematics Education, Atatürk University, Erzurum, Turkey; The Scientific and Technological Research Council of Turkey (TUBITAK); August, 2007–May, 2008.

Nihal Dogan Bora, Gazi University, Ankara, Turkey; The Scientific and Technological Research Council of Turkey (TUBITAK); September, 2005–June, 2006.

### **Professional Service**

#### **Leadership in Professional Organizations**

2018–2021 Executive Committee Member, AERA-CURI: Consortium of University and Research Institutions, American Educational Research Association. (Elected)

2015–2019 Executive Board Member, National Association for Research in Science Teaching. (Ex-officio)

2004–2007 Executive Board Member, National Association for Research in Science Teaching. (Elected)

2001–2005 Member, Advisory Council, International History, Philosophy, and Science Teaching Group. (Appointed)

#### **Professional Organizations – National Association for Research in Science Teaching (NARST)**

2022–2023 Member, The Distinguished Contributions to Science Education Through Research Award Committee.

2021–2023 Member, Publications Advisory Committee.

2021–2022 Member, The Early Career Research Award Committee.

2007–2022 Reviewer, Strand 13: History, Philosophy, and Epistemology. Annual meetings: Chicago, IL, 2023; Vancouver, Canada, 2022; Portland, OR, 2020; Chicago, IL, 2015; Pittsburgh, PA, 2014; Indianapolis, IN, 2012; Garden Grove, CA, 2009;

- Baltimore, MD, 2008; New Orleans, LA, 2007.
- 2021 Member, Investment Policy Ad Hoc Committee.
- 1998–2006 Reviewer, Strand 8: History, Philosophy, and Epistemology. Annual meetings: San Diego, CA, 2006; Dallas, TX, 2005; Vancouver, Canada, 2004; Philadelphia, PA, 2003; New Orleans, LA, 2000; Boston, MA, 1999; San Diego, CA, 1998.
- 2013 Presider, Session: *Epistemic aspects of science teaching and learning*. Strand 1: Science Learning, Understanding and Conceptual Change. Annual meeting, Rio Grande, Puerto Rico.
- 2011 Presider, Session: *Nature of science*. Strand 8: In-service Science Teacher Education. Annual meeting, Orlando, FL.
- 2011 Presider, Session: *Preservice teachers' understandings and perceptions of the nature of science*. Strand 7: Pre-service Science Teacher Education. Annual meeting, Orlando, FL.
- 2011 Presider, Session: *History and the science curriculum*. Strand 13: History, Philosophy, and Sociology of Science. Annual meeting, Orlando, FL.
- 2011 Presider, Session: *Argumentation and knowledge construction*. Strand 1: Science Learning, Understanding and Conceptual Change. Annual meeting, Orlando, FL.
- 2011–2014 Member, The Early Career Research Award Committee.
- 2010 Presider, Paper set: *Curricula and Nature of Science*. Strand 13: History, Philosophy, and Sociology of Science. Annual meeting, Philadelphia, PA.
- 2008–2010 Member, The Early Career Research Award Committee.
- 2005 Presider/Discussant, Session: *Teaching nature of science*. Strand 8: History, Philosophy, and Epistemology. Annual meeting, Dallas, TX.
- 2004–2010 Chair, Ad hoc Committee on the History of Science Education.
- 2004–2007 Chair, the NARST Awards Committee.
- 2004 Discussant, Symposium: *Socioscientific Issues in science education: Research to inform practice and policy*. Annual meeting, Vancouver, Canada.
- 2004 Coordinator, Strand 1: Learning: Students' Conceptions. Annual meeting, Vancouver, Canada.
- 2003 Coordinator, Strand 1: Learning: Students' Conceptions. Annual meeting, Philadelphia, PA.
- 2002–2004 Member, Ad hoc Committee to Examine the History of Science Education.
- 2002–2004 Member, the Distinguished Contributions to Science Education through Research Award committee.
- 2002 Coordinator, Strand 8: History, Philosophy, and Epistemology. Annual meeting, New Orleans, LA.
- 2001 Chair, ICASE symposium: *Inquiry in science education: International perspectives*. Annual meeting, St. Louis, MO.

- 2001 Coordinator, Strand 8: History, Philosophy, and Epistemology. Annual meeting, St. Louis, MO.
- 2001 Presider, Symposium: *Teachers learning about nature of science in authentic science contexts: Models of inquiry and reflection*. Annual meeting, St. Louis, MO.
- 2000 Reviewer, Strand 4: Teacher Education. Annual meeting, New Orleans, LA,.
- 1999 Presider/Discussant, Strand 8: History, Philosophy, and Epistemology. Session on *Science Education Research: Relevance to Practice*. Annual meeting, Boston, MA.
- 1998 Presider/Discussant, Session: *Science studies and sociological perspectives*. Strand 8: History, Philosophy, and Epistemology. Annual meeting, San Diego, CA.
- 1997 Presider/Discussant, Session: *Thinking and learning in science*. Strand 8: History, Philosophy, and Epistemology. Annual meeting, Oak Brook, IL.

**Professional Organizations – American Educational Research Association (AERA)**

- 2013 Chair, Roundtable: *Perceptions in science*. Division C: Learning and Instruction; Section 4: Science. Annual meeting, San Francisco, CA.
- 2011 Section Chair, Section 4: Science, Division C: Learning and Instruction. Annual meeting, New Orleans, LA.
- 2008 Discussant, Session: *Argumentation in K-16 science education*. Division C: Learning and Instruction; Section 4: Science. Annual meeting, New York, NY.
- 2005 Discussant, Session: *Understanding cognitive processes in science learning*. Division C: Learning and Instruction; Section 4: Science. Annual meeting, Montreal, Canada.
- 2004–2009 Reviewer, Division C: Learning and Instruction; Section 4: Science. Annual meetings: San Diego, 2009; New York, NY, 2008; Chicago, IL, 2007; San Francisco, CA, 2006; Montreal, Canada, 2005; San Diego, CA, 2004.
- 2001 Reviewer, SIG-Subject Matter Knowledge & Conceptual Change. Annual meeting, Seattle, WA.
- 2001 Chair, Session: *Students' scientific reasoning in learning science*. Division C: Learning and Instruction; Section 3: Science. Annual meeting, Seattle, WA.
- 2000–2003 Reviewer, Division C: Learning and Instruction; Section 3: Science. Annual meetings: Chicago, IL, 2003; New Orleans, LA, 2002; Seattle, WA, 2001; New Orleans, LA, 2000.
- 2000 Discussant, Session: *Analysis of teacher support and resistance in a multi-district elementary science reform project*. Division K: Teaching and Teacher Education; Section 1a: Teaching, Teacher Education, and Teacher Learning in Math and Science. Annual meeting, New Orleans, LA.
- 2000–2002 Reviewer, Division K: Teaching and Teacher Education; Section 1a: Teaching, Teacher Education, and Teacher Learning in Math and Science. Annual meetings:

New Orleans, LA, 2002; Seattle, WA, 2001; New Orleans, LA, 2000.

### **Professional Organizations – National – Other**

- 2018, Nov Program Co-Chair, annual conference of the American Association of Universities (AAU) Education Deans, Washington, DC.
- 2014 Senior Reviewer, 11<sup>th</sup> International Conference of the Learning Sciences, Boulder, CO.
- 2012, Sep Reviewer, second draft of the “Next Generation Science Standards,” National Science Teachers Association, Champaign, IL.
- 2012, Feb Reviewer, first draft of the “Next Generation Science Standards,” National Science Teachers Association, Chicago, IL.
- 2010, June Reviewer, National Research Council draft “Conceptual Framework for Science Education” to guide the development of the Next Generation Science Standards. National Science Teachers Association, Chicago, IL.
- 2009 Chair, Session: *Developing teachers: Cross-national studies in effective teacher practice, training, and development*. The 53<sup>rd</sup> annual conference of the Comparative and International Education Society, Charleston, SC.
- 2003 Reviewer, annual international meeting of the Association for the Education of Teachers in Science, St. Louis, MO.
- 1997 Presider, Session: *Socialization influences on elementary teachers prepared in an innovative teacher education program: A longitudinal study*. Annual meeting of the Association for the Education of Teachers in Science, Cincinnati, OH.

### **Professional Organizations – International**

- 2016, Nov Member, Program Committee, The First Inter-regional Conference on Science and Mathematics Education Research, American University of Beirut, Lebanon.
- 2014, Oct Member, International Scientific Committee, The 2014 Conference of The International Society of Educational Research, Cappadocia, Turkey.
- 2011, Sep Reviewer, Strand 5: Nature of Science, History, Philosophy, Sociology of Science. Biannual conference of the European Science Education Research Association, Lyon, France.
- 2010, Aug Proposal reviewer, Indo-US Science and Technology Forum, New Delhi, India. Proposal title, “A collaborative workshop in the use of specialized scientific visual media for teachers and university instructors.”
- 2007, Nov Proposal Reviewer, the Tenth Annual Science and Mathematics Teachers Conference (SMEC X), American University of Beirut, Lebanon.
- 2002 Program Co-Chair, the Sixth International History, Philosophy, and Science Teaching Conference, Denver, CO.
- 2000, Nov Executive Secretary, Conference on School-Based Educational Reform in Arab Countries, American University of Beirut, Lebanon.
- 2000, May Co-chair, the Fourth Annual Science and Mathematics Teachers Conference

- (SMEC IV), Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Lebanon.
- 2000, April Principal Organizer, the Seventh Annual National Science Fair, Education Student Society and Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Lebanon.
- 1999, May Co-chair, the Third Annual Science and Mathematics Teachers Conference (SMEC III), Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Lebanon.
- 1999, May Principal Organizer, the Sixth Annual National Science Fair, Education Student Society and Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Lebanon.

### **Professional Agencies – National**

- 2017–2021 Member, Advisory Board, Woodrow Wilson Academy for Teaching and Learning, The Woodrow Wilson National Fellowship Foundation and MIT.
- 2010, Jan Panel Reviewer, Research on Evaluation on Education in Science and Engineering (REESE) Program, Directorate for Education & Human Resources, Division of Research on Learning in Formal and Informal Settings, the National Science Foundation [NSF], Washington, DC.
- 2008–2010 Member, Advisory Board, Course, Curriculum, and Laboratory Improvement (CCLI) Phase I grant, “Integrated Pedagogy to Promote Understanding of Nature of Science and Scientific Inquiry in a College Biology Laboratory,” funded by NSF, Division of Undergraduate Education.
- 2007, May External Reviewer, “Research on the teaching and learning of the scientific enterprise,” Research Agenda in Science Education (RAISE) Project. (RAISE is sponsored by the National Science Teachers Association and funded by NSF).
- 2006, May Member, Advisory Board for the Conference on “Science, Technology, Engineering and Mathematics—Alternative Certification for Teachers” (STEM–ACT), NSF, Directorate for Education & Human Resources, Washington, DC.
- 2005–2009 Member, Advisory Board for the Chicago Public Schools “Transitions into Teaching” grant funded by the United States Department of Education.
- 2005, May Chair, Review Panel for the Noyce Scholarship Program, Directorate for Education & Human Resources, Division of Undergraduate Education, NSF, Washington, DC.
- 2004, May Panel Reviewer, the Noyce Scholarship Program, Directorate for Education & Human Resources, Division of Undergraduate Education, NSF, Washington, DC, May.
- 2004, May Ad hoc Reviewer, Discovery Research PreK-12 Program, Directorate for Education & Human Resources, Research on Learning in Formal and Informal Settings, NSF, Washington, DC.
- 2003–2006 Member, Advisory Board, NSF Grant, “Induction and Mentoring in a Middle

Grades Science and Mathematics Accelerated Teacher Preparation Program,” University of Illinois-Chicago and Chicago Public Schools Advisory Board for the Middle Grades Science and Mathematics Programs.

2001, Nov Panel Reviewer, Teacher Enhancement, Directorate for Education & Human Resources, Division of Elementary, Secondary, and Informal Education, NSF, Washington, DC.

### **Professional Agencies – International**

2017, May Member, Evaluation Committee, Kuwait Prize in Economics and Social Sciences (Subject: Education), Kuwait Foundation for the Advancement of Science.

2014, June Evaluator, Faculty Research Output (Science and Technology Education, University of Johannesburg), National Research Foundation, South Africa.

2012–2016 Member, International Advisory Committee, Walid and Helen Qattan Science Education Center (WHKSE), Qattan Center for Educational Research and Development, Ramallah.

2012, Nov Proposal reviewer, Vice Provost Office for Research & Graduate Studies, United Arab Emirates University, Al-Ain, United Arab Emirates.

2009–2014 Proposal reviewer, National Priorities Research Program (NPRP), Qatar National Research Fund, Qatar Foundation.

2007–2013 Proposal reviewer, Undergraduate Research Experience Program, Qatar National Research Fund, Qatar Foundation.

2012 Proposal reviewer, National Priorities Research Program—Exceptional Proposals (NPRP-EP), Qatar National Research Fund, Qatar Foundation.

2012 Proposal reviewer, The ARISTEIA Research Programme, National Council for Science and Technology of Greece, General Secretariat for Research and Technology of Greece.

2007 Evaluator, Faculty Research Output (Science and Mathematics Education, University of the Western Cape), National Research Foundation, South Africa.

2005, Nov Proposal reviewer, “Science teachers’ beliefs and practice, and their impact on students’ perceptions of science teaching.” Programming Council for Educational Research (PROO), Social Sciences Research Council, Netherlands Organization for Scientific Research (NOW).

2002–2006 Member, Advisory Committee of the Kuwait Foundation for the Advancement of Science (KFAS).