

Vita

Fouad Abd-El-Khalick
Department of Curriculum and Instruction
College of Education
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Education

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| 1998 | Ph.D. | Oregon State University, Corvallis, OR, USA
Science Education
Dissertation title: “The influence of history of science courses on students’ conceptions of the nature of science” [*]
Minor: History and Philosophy of Science |
| 1995 | M.A. | American University of Beirut, Beirut, Lebanon
Science Education
Thesis title: “A study of the pedagogical content knowledge of science teachers” |
| 1993 | T.D. | American University of Beirut, Beirut, Lebanon
Teaching Secondary Science |
| 1991 | B.Sc. | American University of Beirut, Beirut, Lebanon
Biology |

Professional Work Experience

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| 2014–present | Grayce Wicall Gauthier Professor of Education , College of Education, University of Illinois at Urbana-Champaign, IL. |
| 2014–present | Associate Dean for Research & Research Education , College of Education, University of Illinois at Urbana-Champaign, IL. |
| 2014–2017 | Distinguished Research Associate , Faculty of Education, University of Johannesburg, South Africa. |
| 2011–2015 | Head , Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, IL. |
| 2010–present | Professor of Science Education (with Tenure) , Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, IL. |

^{*} Awarded the *Outstanding Dissertation Award* by the National Association for Research in Science Teaching, March 29, 1999, Boston, MA.

- 2004–present **Faculty Member**, Center for South Asian & Middle Eastern Studies, University of Illinois at Urbana-Champaign, IL.
- 2009–2011 **Director, STEM Education Collaborative**, College of Education, University of Illinois at Urbana-Champaign, IL.
- 2004–2009 **Associate Professor of Science Education (with Tenure)**, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, IL.
- 2004–2006 **Division Chair, MST (Mathematics, Science, and Technology)**, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, IL.
- 2000–2004 **Assistant Professor of Science Education**, Department of Curriculum and Instruction, College of Education, University of Illinois at Urbana-Champaign, IL.
- 1998–2000 **Assistant Professor of Science Education**, American University of Beirut, Beirut, Lebanon.
- 1997–1998 **Teaching Assistant, General Chemistry, Chemistry Department**, Oregon State University, Corvallis, OR.
- 1996–1998 **Supervisor, Master of Arts in Teaching (MAT) Program, Department of Science & Mathematics Education**, Oregon State University, Corvallis, OR.
- 1995–1996 **Research Assistant, Department of Science & Mathematics Education**, Oregon State University, Corvallis, OR.
- 1994–1995 **Research Assistant, Science & Mathematics Education Center (SMEC)**, American University of Beirut, Beirut, Lebanon.
- 1994–1995 **Science Teacher, International College**, Beirut, Lebanon.

Grants

- 2015–2019 **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)
- 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)

- 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 & 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 G-rants).” Fouad Abd-El-Khalick: Principal Investigator. (\$35,000)
- 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)
- 2002–2003 **Hewlett Packard Mobile Computing K-12 Classroom Grant.** Fouad Abd-El-Khalick: Co-Principal Investigator (Mark Dressman: Principal Investigator). “Using technology to enhance achievement in math, science, and literacy: A middle school-university partnership.” (\$128,934)
- 2001–2002 **Faculty Fellows Program, Bureau of Educational Research, College of Education, UIUC.** 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 (DCU 1799 6077 401).** 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** (DCU 1799 6077 302). 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)

Awards and Professional Honors

Entrepreneurial Excellence: Social Venture Award (“Recognizes those who serve as change agents by creating and implementing sustainable solutions to reshape society, benefit humanity, address social concerns.”), Innovation Celebration, Champaign County Economic Development Corporation, Champaign, Illinois, February, 2014.

Fellow, Committee on Institutional Cooperation, Academic Leadership Program, 2013-2014.

Fellow, American Association for the Advancement of Science (elected, 2011).

Special recognition for the scope, quality, and impact of scholarship, teaching, and engagement. One of four faculty members selected for special recognition from nearly 100 cases of promotion and/or tenure (2009-2010). Awarded by the Vice Chancellor for Academic Affairs, University of Illinois at Urbana-Champaign; July, 2010. (\$3,000)

Research

The *2014 Robert Ferber Dissertation Award*, Survey Research Laboratory, University of Illinois at Urbana-Champaign. Awarded to Ryan Summers on June 23, 2014, Champaign, IL. Fouad Abd-El-Khalick: Advisor and Dissertation Director. (\$2,000)

College of Education Distinguished Senior Scholar Award, College of Education, University of Illinois at Urbana-Champaign (2011-2012). Awarded April 13, 2011. (\$2,500)

The National Association for Research in Science Teaching (NARST) *Outstanding Doctoral Dissertation Award: Second Place and Honorable Mention*. Awarded to Ava Zeineddin on April 19, 2009. Garden Grove, CA. Fouad Abd-El-Khalick: Advisor and Dissertation Director.

University Scholar, University Scholars Program, University of Illinois at Urbana-Champaign (2006-2009). Awarded February 20, 2006. (\$ 30,000)

College of Education Distinguished Scholar Award, College of Education, University of Illinois at Urbana-Champaign (2005-2006). Awarded June 28, 2005. (\$1,500)

The National Association for Research in Science Teaching (NARST) *The NARST Early Research Career Award*. Awarded March 25, 2003, Philadelphia, PA.

Faculty Fellow, Bureau of Educational Research, College of Education, University of Illinois at Urbana-Champaign (2001-2002).

The National Association for Research in Science Teaching (NARST) *Journal of Research in Science Teaching Award*. Awarded March 27, 2001, St. Louis, MO.

The National Association for Research in Science Teaching (NARST) *Outstanding Master’s Thesis Award*. Awarded to Rola Khishfe on April 30, 2000, New Orleans, LA. Fouad Abd-El-Khalick: Advisor and Thesis Director.

The National Association for Research in Science Teaching (NARST) *Outstanding Doctoral Dissertation Award*. Awarded March 29, 1999, Boston, MA.

Teaching

Listed in the “List of Teachers Ranked Excellent by Their Students,” University of Illinois at Urbana-Champaign:

Fall 2010: C&I 542
Fall 2009: C&I 507–PF
Spring 2008: C&I 590–PS
Fall 2007: C&I 542

Listed in the “Incomplete List of Teachers Ranked Excellent by Their Students,” University of Illinois at Urbana-Champaign:

Fall 2006: C&I 542
Spring 2005: C&I 402
Fall 2004: C&I 542
Spring 2004: C&I 302–S and C&I 490–RTS
Fall 2003: C&I 301–S and C&I 442
Spring 2003: C&I 302–S
Spring 2002: C&I 302–S and C&I 490–PFS
Fall 2001: C&I 301–S
Spring 2001: C&I 302–S and C&I 490–PFS

Outstanding Undergraduate Teaching Award for Faculty, College of Education, University of Illinois at Urbana-Champaign. Awarded May 6, 2004.

Teacher of the Year Award. Awarded by the Education Students Society, Department of Education, American University of Beirut, Beirut, Lebanon, June, 2000.

The Chemistry Department Laboratory TA Award, Chemistry Department, Oregon State University, Corvallis, OR, Winter 1998.

Editorships

2015–2019 Co-Editor, *Journal of Research in Science Teaching*.
2013–2017 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*.

Publications

Refereed Journal Articles

Abd-El-Khalick, F., Myers, J., Summers, R., Brunner, J., Waight, N., Belarmino, J., Wahbeh, N., & Zeineddin, A. (accepted). A longitudinal analysis of the prominence and representations of nature of science in U.S. high school biology and physics textbooks. *Journal of Research in Science Teaching*.

- Myers, J., & Abd-El-Khalick, F. (in press). "A ton of faith in science!": Ideas about science and epistemology generated upon watching a sci-fi film. *Journal of Research in Science Teaching*.
- Said, Z., Summers, R., Abd-El-Khalick, F., & Wang, S. (in press). Attitudes toward science among grades 3 through 12 Arab students in Qatar: Findings from a cross-sectional national study. *International Journal of Science Education*.
- 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.
- 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.
- 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.
- 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.
- Abd-El-Khalick, F. (2013). Teaching *with* and *about* nature of science, and science teacher knowledge domains. *Science & Education*, 22(9), 2087-2107.
- 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.
- 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.
- 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.
- 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.
- 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.
- Waight, N., & Abd-El-Khalick, F. (2011). From scientific practice to high school science classrooms: Transfer of scientific technologies and the realization of authentic inquiry. *Journal of Research in Science Teaching*, 48(1), 37-70.
- Zeineddin, A., & Abd-El-Khalick, F. (2010). Scientific reasoning and epistemological

- commitments: Coordination of theory and evidence among college science students. *Journal of Research in Science Teaching*, 47(9), 1064-1093.
- Salloum, S., & Abd-El-Khalick, F. (2010). A study of practical-moral knowledge in science teaching: Case studies in physical science classrooms. *Journal of Research in Science Teaching*, 47(8), 929-951.
- Abd-El-Khalick, F., & Akerson, V. L. (2009). The influence of metacognitive training on preservice elementary teachers' conceptions of nature of science. *International Journal of Science Education*, 31(16), 2161-2184.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2008). The influence of mind mapping on eighth graders' science achievement. *School Science and Mathematics*, 108(7), 298-312.
- Dogan, N., & Abd-El-Khalick, F. (2008). Turkish grade 10 students' and science teachers' conceptions of nature of science: A national study. *Journal of Research in Science Teaching*, 45(10), 1083-1112.
- Abd-El-Khalick, F., Waters, M., & Le, A. (2008). Representations of nature of science in high school chemistry textbooks over the past four decades. *Journal of Research in Science Teaching*, 45(7), 835-855.
- Zeineddin, A., & Abd-El-Khalick, F. (2008). On coordinating theory with evidence: The role of epistemic commitments in scientific reasoning among college students. *Eurasia Journal of Mathematics, Science & Technology Education*, 4(2), 159-174.
- Abd-El-Khalick, F., & Akerson, V. L. (2007). On the role and use of "theory" in science education research: A response to Johnston, Southerland, and Sowell. *Science Education*, 91(1), 187-194.
- Waight, N., & Abd-El-Khalick, F. (2007). The impact of technology on the enactment of "inquiry" in a technology enthusiast's sixth grade science classroom. *Journal of Research in Science Teaching*, 44(1), 154-182.
- Abi-El-Mona, I., & Abd-El-Khalick, F. (2006). Argumentative discourse in a high school chemistry classroom. *School Science and Mathematics*, 106(8), 349-361.
- Abd-El-Khalick, F. (2006). Preservice and experienced biology teachers' global and specific subject matter structures: Implications for conceptions of pedagogical content knowledge. *Eurasia Journal of Mathematics, Science & Technology Education*, 2(1), 1-29.
- Lee, H., Abd-El-Khalick, F., & Choi, K. (2006). Korean science teachers' perceptions of the introduction of socioscientific issues into the science curriculum. *Canadian Journal of Science, Mathematics and Technology Education*, 6(2), 97-117.
- Abd-El-Khalick, F. (2005). Developing deeper understandings of nature of science: The impact of a philosophy of science course on preservice science teachers' views and instructional planning. *International Journal of Science Education*, 27(1), 15-42.
- Akerson, V. L., & Abd-El-Khalick, F. (2005). "How should I know what scientists do—I am just a kid": Fourth-grade students' conceptions of nature of science! *Journal of Elementary Science Education*, 17(1), 1-11.

- Abd-El-Khalick, F., & Akerson, V. L. (2004). Learning as conceptual change: Factors that mediate the development of preservice elementary teachers' views of nature of science. *Science Education*, 88(5), 785-810.
- Abd-El-Khalick, F., BouJaoude, S., Duschl, R. A., Hofstein, A., Lederman, N. G., Mamlok, R., Niaz, M., Treagust, D., & Tuan, H. (2004). Inquiry in science education: International perspectives. *Science Education*, 88(3), 397-419.
- BouJaoude, S., Salloum, S., & Abd-El-Khalick, F. (2004). Relationships between selective cognitive variables and students' ability to solve chemistry problems. *International Journal of Science Education*, 26(1), 63-84.
- Akerson, V. L., & Abd-El-Khalick, F. (2003). Teaching elements of nature of science: A yearlong case study of a fourth grade teacher. *Journal of Research in Science Teaching*, 40(10), 1025-1049.
- Niaz, M., Abd-El-Khalick, F., Benarroch, A., Cardellini, L., Laburú, C. E., Marín, N., Montes, L. A., Nola, R., Orlik, Y., Scharmann, L. C., Tsai, C., & Tsaparis, G. (2003). Constructivism: Defense or a continual critical appraisal: A response to Gil-Pérez, et al. *Science & Education*, 12(8), 787-797.
- Abd-El-Khalick, F., & BouJaoude, S. (2003). Lebanese middle school students' views of nature of science. *Mediterranean Journal of Educational Studies*, 8(1), 61-79.
- Haidar-Makki, M., Abd-El-Khalick, F., & BouJaoude, S. (2003). Lebanese secondary school students' environmental knowledge and attitudes. *Environmental Education Research*, 9(1), 21-33.
- Khishfe, R., & Abd-El-Khalick, F. (2002). Influence of explicit reflective versus implicit inquiry-oriented instruction on sixth graders' views of nature of science. *Journal of Research in Science Teaching*, 39(7), 551-578.
- Abd-El-Khalick, F. (2002). Images of nature of science in middle grade science trade books. *The New Advocate*, 15(2), 121-127.
- Lederman, N. G., Abd-El-Khalick, F., Bell, R. L., & Schwartz, R. (2002). Views of nature of science questionnaire (VNOS): Toward valid and meaningful assessment of learners' conceptions of nature of science. *Journal of Research in Science Teaching*, 39(6), 497-521.
- Abd-El-Khalick, F. (2002). Rutherford's enlarged: A content-embedded activity to teach about nature of science. *Physics Education*, 37(1), 64-68.
- Zeineddin, A., & Abd-El-Khalick, F. (2001). Doing the right thing versus doing the right thing right: Concept mapping in a freshmen physics laboratory. *European Journal of Physics*, 22(5), 501-511.
- Abd-El-Khalick, F. (2001). Embedding nature of science instruction in preservice elementary science courses: Abandoning scientism, but . . . *Journal of Science Teacher Education*, 12(3), 215-233.
- Lederman, N. G., Schwartz, R., Abd-El-Khalick, F., & Bell, R. L. (2001). Preservice teachers'

- understanding and teaching of nature of science: An intervention study. *Canadian Journal of Science, Mathematics and Technology Education*, 1(2), 135-160.
- Bell, R. L., Abd-El-Khalick, F., Lederman, N. G., McComas, W. F., & Matthews, M. R. (2001). The nature of science and science education: A bibliography. *Science & Education*, 10(1/2), 187-204.
- Abd-El-Khalick, F., & Lederman, N. G. (2000). The influence of history of science courses on students' views of nature of science. *Journal of Research in Science Teaching*, 37(10), 1057-1095.*
- Bell, R. L., Lederman, N. G., & Abd-El-Khalick, F. (2000). Developing and acting upon one's conceptions of the nature of science: A follow-up study. *Journal of Research in Science Teaching*, 37(6), 563-581.
- Abd-El-Khalick, F., & Lederman, N. G. (2000). Improving science teachers' conceptions of the nature of science: A critical review of the literature. *International Journal of Science Education*, 22(7), 665-701.
- Schwartz, R., Abd-El-Khalick, F., & Lederman, N. G. (2000). Achieving the reforms vision: The effectiveness of a specialists-led elementary science program. *School Science and Mathematics*, 100(4), 181-193.
- Akerson, V. L., Abd-El-Khalick, F., & Lederman, N. G. (2000). Influence of a reflective explicit activity-based approach on elementary teachers' conceptions of nature of science. *Journal of Research in Science Teaching*, 37(4), 295-317.
- Abd-El-Khalick, F. (1999). Teaching science with history: Using Mars and Saturn to teach about the relationship between theory and observation. *The Science Teacher*, 66(9), 18-22.
- Abd-El-Khalick, F., Bell, R. L., & Lederman, N. G. (1998). The nature of science and instructional practice: Making the unnatural natural. *Science Education*, 82(4), 417-436.
- Bell, R. L., Lederman, N. G., & Abd-El-Khalick, F. (1998). Implicit and explicit approaches to teaching the nature of science: An explicit response to Palmquist and Finley. *Journal of Research in Science Teaching*, 35(9), 1057-1061.
- Abd-El-Khalick, F., & BouJaoude, S. (1997). An exploratory study of the knowledge base for science teaching. *Journal of Research in Science Teaching*, 34(7), 673-699.

Book Chapters

- Waight, N., & Abd-El-Khalick, F. (in press). Technology, culture, and values: Implications for enactment of technological tools in precollege science classrooms. In Y. J. Dori, Z. Mevareach, & D. Baker (Eds.), *Cognition, metacognition and culture in STEM education*. New York: Springer.
- Abd-El-Khalick, F., Lederman, N. G., & Schwartz, R. (2015). Inquiry, as a curriculum strand. In R. Gunstone (Ed.), *Encyclopedia of science education* (510-514). Dordrecht, The

* Awarded the *Journal of Research in Science Teaching Award* by the National Association for Research in Science Teaching, March 27, 2001, St. Louis, MO.

Netherlands: Springer.

Lederman, N. G., Schwartz, R., & Abd-El-Khalick, F. (2015). Nature of science, assessing of. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 694-698). Dordrecht, The Netherlands: Springer.

Lederman, N., Abd-El-Khalick, F., & Schwartz, R., (2015). Nature of science, measurement of. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 704-708). Dordrecht, The Netherlands: Springer.

Lederman, N. G., Schwartz, R., & Abd-El-Khalick (2015). History of science, assessing knowledge of. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 462-465). Dordrecht, The Netherlands: Springer.

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 (2nd ed.)* (pp. 621-650). Mahwah, NJ: Lawrence Erlbaum.

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.

Abd-El-Khalick, F. (2009). Professional development through applied engagement: Egyptian Teacher Opportunities for Professional Growth Grants. In S. BouJaoude & Z. Dagher (Eds.), *The world of science education: Arab States* (pp. 83-106). Rotterdam, The Netherlands: Sense.

BouJaoude, S., Abd-El-Khalick, F., & El-Hage, F. (2009). Science education research in Lebanon (2003–2008): Trends and issues. In S. BouJaoude & Z. Dagher (Eds.), *The world of science education: Arab States* (pp. 221-256). Rotterdam, The Netherlands: Sense.

Abd-El-Khalick, F. (2008). Modeling science classrooms after scientific laboratories. In R. A. Duschl & R. E. Grandy (Eds.), *Teaching scientific inquiry: Recommendations for research and application* (pp. 80-85). Rotterdam, The Netherlands: Sense.

Abd-El-Khalick, F. (2007). The impact of a systemic reform initiative on primary Nigerian teachers' instructional practices: A longitudinal study. In C. Szymanski-Sunal & K. Mutua (Eds.), *Research on education in Africa, the Caribbean, and the Middle East: Book IV: The enterprise of education* (pp. 165-191). Greenwich, CT: Information Age Press.

Lederman, N. G., Lederman, J., & Abd-El-Khalick, F. (2006). Alternative certification: Aspirations and realities. In J. Rhoton & P. Shane (Eds.), *Teaching science in the 21st century* (pp. 257-272). Arlington, VA: National Science Teachers Association.

Abd-El-Khalick, F. (2005). Instructional technology in secondary science teaching. In I. Osta (Ed.), *Education and information technology in the Arab countries: Issues and trends* (pp. 329-355). Beirut, Lebanon: Lebanese Association for Educational Sciences. (In Arabic)

- Abd-El-Khalick, F., & Lederman, N. G. (2005). Improving science teachers' conceptions of nature of science: A critical review of the literature. In J. K. Gilbert (Ed.), *Science education: Major themes in education* (pp. 339-384). New York: Routledge. (Reprinted from *International Journal of Science Education*, 22, pp. 665-701, 2000)
- BouJaoude, S., Sawwan, S., & Abd-El-Khalick, F. (2005). The effect of using drama in science teaching on students' conceptions of nature of science. In K. Boersma, H., Goedhart, M., de Jong, O., & Eijkelhof, H. (Eds.), *Research and the quality of science education* (pp. 259-267). Dordrecht, The Netherlands: Kluwer.
- Abd-El-Khalick, F. (2005). History and nature of science: Active transport might work but osmosis does not! In N. Sanitt (Ed.), *Motivating science: Science communication from a philosophical, educational, and cultural perspective* (pp. 123-130). Luton, UK: Pantaneto.
- BouJaoude, S., & Abd-El-Khalick, F. (2004). A decade of science education research in Lebanon (1992-2002): Trends and issues. In K. Mutua & C. Szymanski-Sunal (Eds.), *Research on education in Africa, the Caribbean, and the Middle East: An historic overview* (pp. 203-241). Greenwich, CT: Information Age Press.
- Abd-El-Khalick, F. (2004). Over and over and over again: College students' views of nature of science. In L. B. Flick & N. G. Lederman (Eds.), *Scientific inquiry and nature of science: Implications for teaching, learning, and teacher education* (pp. 389-425). Dordrecht, The Netherlands: Kluwer.
- Abd-El-Khalick, F. (2003). Socioscientific issues in pre-college science classrooms: The primacy of learners' epistemological orientations and views of nature of science. In D. L. Zeidler (Ed.), *The role of moral reasoning in socioscientific issues and discourse in science education* (pp. 41-61). Dordrecht, The Netherlands: Kluwer.
- Lederman, N. G., Abd-El-Khalick, F., & Bell, R. L. (2001). If we want to talk the talk we must also walk the walk: The nature of science, professional development and educational reform. In J. Rhoton & P. S. Bowers (Eds.), *Professional development: Planning and design* (pp. 25-42). Arlington, VA: National Science Teachers Association Press.
- Abd-El-Khalick, F. (1999). Nature of science: What is it? Why is it important? And what attention is it accorded in the new Lebanese science curriculum? In F. Ayoub (Ed.), *The new school curricula in Lebanon: An evaluative perspective* (pp. 117-136). Beirut, Lebanon: Lebanese Association for Educational Sciences. (In Arabic)
- Lederman, N. G., & Abd-El-Khalick, F. (1998). Avoiding de-natured science: Activities that promote understandings of the nature of science. In W. McComas (Ed.), *The nature of science in science education: Rationales and strategies* (pp. 83-126). Dordrecht, The Netherlands: Kluwer.

Editorials

- Abd-El-Khalick, F., & Zeidler, D. L. (2016). On the 'fabric' of our global science education research community: The art and science of writing for the *Journal of Research in Science Teaching*. *Journal of Research in Science Teaching*, 53(1), 3-6.

Abd-El-Khalick, F., & Zeidler, D. L. (2015). New horizons for the Journal of Research in Science Teaching. *Journal of Research in Science Teaching*, 52(3), 263-267.

Invited / Non-Refereed Articles

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

Abd-El-Khalick, F. (2013). Commentary: Students' and teachers' understandings of the nature of science: A review of the research [Lederman, N. G. (1992)]. *Journal of Research in Science Teaching*, 50th Anniversary Virtual Issue. Available http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291098-2736/homepage/50th_anniversary_virtual_issue.htm

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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.

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Manuscripts Under Review

Brunner, J. L., & Abd-El-Khalick, F. (submitted). Representations of nature of science in U.S.

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Manuscripts in Preparation

McDonald, C., & Abd-El-Khalick, F. (Eds.) (under contract). *Representations of nature of science in school science textbooks: Global perspectives*. New York: Routledge.

Abd-El-Khalick, F. (in preparation). The development of students' science and global epistemologies in the middle and high school years: Results from a cross-sectional study. *Journal of Research in Science Teaching*.

Abd-El-Khalick, F., & Schroyer, M. (in preparation). Examining transformations in district-wide teacher learning networks through social network analysis. *International Journal of Science Education*.

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.

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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.

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- 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.
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- 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.
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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 47th 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.
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- 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*

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- 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)
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- 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)
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- 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.
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Research Papers and Presentations

- Abd-El-Khalick, F., & Zeidler, D. L. (2016, April, accepted). *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.
- Akyol, G., Oztekin, C., Sungur, S., & Abd-El-Khalick, F. (2016, April, accepted). *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, accepted). *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.
- Alameh, S., Abd-El-Khalick, F., & Waskan, J. (2016, April, accepted). *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, accepted). *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, accepted). *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, accepted). *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, accepted). *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, accepted). *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 20th 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 20th 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 54th 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 53rd 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 53rd 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 53rd 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 51st 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 4th 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 8th 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 6th 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 6th 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 6th 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 5th 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 5th 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 Sessions: Keynote addresses / Plenary sessions / Seminars / Lectures

International

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 21st 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.

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 (KiP²) 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. (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. (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 21st 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 24th 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

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

Invited / Occasional Reviewer

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| 2010–present | Invited Reviewer, <i>Research in Science & Technological Education</i> (May, 2010; March, 2014). |
| 2011–present | Invited Reviewer, <i>American Educational Research Journal</i> (February, 2011). |
| 2009–2009 | Invited Reviewer, <i>Research in the Teaching of English</i> (November, 2008). |
| 2004–2005 | Invited Reviewer, <i>Educational Researcher</i> (February, 2004). |

2003–present	Reviewer, <i>International Journal of Science and Mathematics Education</i> .
2002–present	Reviewer, <i>Review of Educational Research</i> .
2002–present	Reviewer, <i>Science Books & Films</i> , Directorate for Education and Human Resource Programs, American Association for the Advancement of Science.
2002–2004	Reviewer, <i>Science & Education</i> .
2001–present	Reviewer, <i>Journal of Elementary Science Education</i> .
2001–2002	Invited Reviewer, <i>Social Studies of Science</i> (April, 2001).
2001–2002	Invited Reviewer: <i>Journal of Curriculum Studies</i> (February, 2001).
1999–2000	Senior Reviewer, <i>Journal of Research in Science Teaching</i> .
1997–1999	Reviewer, <i>Science and Children</i> .
1995–2001	Reviewer, <i>School Science and Mathematics</i> .

Consultations

March 2014: Texas Higher Education Coordinating Board, The State of Texas, Austin, TX.

Worked in a three-member team to review a proposed Doctor of Education (EdD) in Curriculum and Instruction program at the University of Houston–Clear Lake.

July 2012: United States Agency for International Development (USAID)-funded *Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI)* Project, Lebanon. Led a seven-member team of university professors train 90 civil servants from across public education agencies in Lebanon responsible for preservice teacher education, inservice teacher professional development, and teacher monitoring and evaluation on using the ProGReSS SCaLe. Initiated the development of National Professional Teaching Standards to be adopted by the Lebanese Ministry of Education and Higher Education.

December 2011: United States Agency for International Development (USAID)-funded *Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI)* Project, Lebanon. Led a seven-member team of university professors to train 75 civil servants from across public education agencies in Lebanon responsible for preservice teacher education, inservice teacher professional development, and teacher monitoring and evaluation on using the ProGReSS SCaLe.

July 2011: United States Agency for International Development (USAID)-funded *Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI)* Project, Lebanon. Coordinated among various stakeholders in Lebanon engaged with delivering, monitoring, and evaluating the education of public school teachers to develop a plan for a national pilot study to assess public school teachers' instructional practice.

May 2011: United States Agency for International Development (USAID)-funded *Developing Rehabilitation Assistance to Schools And Teacher Improvement (D-RASATI)* Project, Lebanon. Analyzed extant Lebanese Ministry of Education and Higher Education instructional practice classroom observation tools and developed a consolidated tool for

use across public education agencies responsible for preservice teacher education, inservice teacher professional development, and teacher monitoring and evaluation. The tool is the **Professional Growth and Reforms Support System: Standards-based Classroom observation for Lebanon (ProGReSS SCaLe)**.

- June, 2010: United States Agency for International Development (USAID)-funded *Education Quality and Access for Learning and Livelihood Skills (EQuALLS)* Project, Philippines. Analyzed data and reported on findings from the baseline *Standards-based Classroom Observation Protocol for Educators (SCOPE)* study.
- March–April, 2010: Nile Egyptian Schools (NES), A Project with the Education Development Fund of Egypt, Cairo, Egypt. Analyzed the NES science curriculum framework (grades 1–10) for alignment with international curricular standards and trends.
- September, 2009: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Modified the *Standards-based Classroom Observation Protocol for Egypt (SCOPE)*, developed an associated scoring system, and advised on institutionalizing the tool and scoring system to assess K-12 teachers’ progress toward professional promotion under the new Ministry of Education Professional Academy for Teachers (PAT).
- August–October, 2008: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Analyzed data and reported on findings from the Year IV SCOPE educational quality study.
- December, 2007–January, 2008: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Developed a week-long Training for Trainers (TOT) professional development workshop focused on: “Teaching for Problem Solving and Critical Thinking in Preparatory Science Grades.”
- August–October, 2007: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Analyzed data and reported on findings from the Year III SCOPE educational quality study.
- March, 2007: Middle East Partnership Initiative (MEPI)-funded, “Looking Forward Summit: Harnessing Instructional and Communication Technologies to Build the Future of Yemeni Education,” Yemen. Helped conceptualize, plan, and conduct the summit.
- September–December, 2006: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Analyzed data and reported on findings from the Year II SCOPE educational quality study.
- July, 2006: Middle East Partnership Initiative (MEPI)-funded, *Instructional Leadership and Supervision Initiative Project*, Yemen. Conducted a review of the quality of teacher training materials and monitoring and evaluation plans.
- June–July, 2005: United States Agency for International Development (USAID)-funded *Education Reform Project*, Egypt. Analyzed data and reported on findings from the Year I SCOPE educational quality study.
- March, 2005: United States Agency for International Development (USAID)-funded *Education*

- Reform Project*, Egypt. Designed a 6-day workshop and led a team to train 160 Egyptian school supervisors to use the *Standards-based Classroom Observation Protocol for Egypt* (SCOPE) to collect data for a continuing 5-year educational quality study.
- December, 2004: USAID-funded *Education Reform Project*, Egypt. Developed an instrument, the *Standards-based Classroom Observation Protocol for Egypt* (SCOPE), and associated plans for a continuing 5-year educational quality study of instructional practices as part of the overall Monitoring and Evaluation program for the project.
- July, 2003: USAID-funded *New Schools Program*, Egypt. Contributed to developing an interactive video training tool for use by the Education Development Center (Washington, DC) in training Egyptian supervisors develop concrete understandings of the enactment of active, student-centered teaching in Egyptian classrooms.
- January–February, 2003: USAID-funded *New Schools Program*, Egypt. Conducted a four-day training titled “Instructional Leadership Clusters: Education Quality Supervisory Support Teams” for senior staff of the Cairo-based Education Development Center (Washington, DC), Cairo, Egypt.
- January, 2003: USAID-funded *New Schools Program*, Egypt. Participated in coordinating and delivering a teacher-training module on “Student Centered Teaching” developed by the Education Development Center (Washington, DC).
- November, 2002: USAID-funded *New Schools Program*, Egypt. Developed a strategic plan (“Instructional Leadership Clusters: Education Quality Supervisory Support Teams”) and associated training materials to ensure the effective implementation and sustainability of the central trainings offered by the Education Development Center (Washington, DC) through building local educational leaders, supervisors, and teachers’ capacity for ongoing school-based training, support, and supervision of classroom teachers.
- June, 2001: USAID-funded *New Schools Program*, Cairo, Egypt. Developed and delivered a six-day training titled “Collecting and interpreting qualitative data: Interviews and focus groups,” for the Cairo-based staff of the Education Development Center (Washington, DC).
- April–May, 2001: United Nations Educational, Scientific and Cultural Organization (UNESCO), Cairo Office. Conducted a comprehensive literature review and prepared a report on: “Integrating Technology in Teaching Secondary Science and Mathematics: Effectiveness, Models of Integration, and Illustrative Examples.”
- 1996–1998: North Bend School District, North Bend, OR. Evaluated the district’s K-5 science program with a focus on assessing elementary teachers’ classroom practices in relation to the achievement of the program goals.
- 1997–1998: American Association for the Advancement of Science Project 2061. Conducted a critical evaluation of selected published curricula for their content match with Project 2061 Benchmarks for teaching nature of science at the elementary and secondary school levels.
- 1995–1996: Lawrence Livermore National Laboratory, Livermore, CA. Evaluated a 9-12 curriculum spiral titled “Biotechnology Education Program.” Evaluation activities

included designing instruments, and collecting and analyzing data to assess student achievement and teacher performance in relation to the program objectives.

Professional Activities

Professional Organizations

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

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

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

Occasional Reviewer (National and International)

Ad hoc Reviewer, *Discovery Research PreK-12 Program*, Directorate for Education & Human Resources, Research on Learning in Formal and Informal Settings, the National Science Foundation, Washington, DC, May, 2004.

Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Science Teacher Education for Responsible Citizenship: Towards a Pedagogy for Relevance through Socio-Scientific Issues,” November, 2015.

Senior Reviewer, 11th International Conference of the Learning Sciences, Boulder, CO, 2014.

Invited Reviewer, National Science Teachers Association (NSTA) Press. Book proposal title: “Strengthening the foundation: Correcting misconceptions about the nature of science,” July, 2013.

Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Science journalism: Theory and practice,” August, 2012.

Invited Reviewer, Routledge, New York. Book proposal title: “Teaching the Nature of Science: Perspectives & Resources,” June, 2011.

Reviewer, Strand 5: Nature of science, History, Philosophy, Sociology of Science. Biannual conference of the European Science Education Research Association, Lyon, France, September, 2011.

Section Chair, Section 4: Science, Division C: Learning and Instruction. Annual meeting of the American Educational Research Association, New Orleans, LA, 2011.

Invited Reviewer: Springer, Dordrecht, The Netherlands. Book proposal title: “Advances in the nature of science research: Concepts and methodologies,” February, 2011.

Panel Reviewer, *Review Panel for the 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, Washington, DC, January, 2010.

Reviewer, Strand 13: History, Philosophy, and Epistemology. Annual meeting of the National

Association for Research in Science Teaching:

Chicago, IL, 2015
Pittsburgh, PA, 2014
Indianapolis, IN, 2012
Garden Grove, CA, 2009
Baltimore, MD, 2008
New Orleans, LA, 2007

Reviewer, Strand 8: History, Philosophy, and Epistemology. Annual meeting of the National Association for Research in Science Teaching:

San Diego, CA, 2006
Dallas, TX, 2005
Vancouver, Canada, 2004
Philadelphia, PA, 2003
New Orleans, LA, 2000
Boston, MA, 1999
San Diego, CA, 1998

Reviewer, Division C: Learning and Instruction; Section 4: Science. Annual meeting of the American Educational Research Association:

San Diego, 2009
New York, NY, 2008
Chicago, IL, 2007
San Francisco, CA, 2006
Montreal, Canada, 2005
San Diego, CA, 2004.

Invited Reviewer, Routledge, New York. Book proposal title: “Making sense of science teaching,” September, 2008.

Invited Reviewer, Springer, Dordrecht, The Netherlands. Book proposal title: “Critical appraisal of science as a human enterprise: Dynamics of scientific progress,” May, 2008.

Proposal Reviewer, the Tenth Annual Science and Mathematics Teachers Conference (SMEC X), American University of Beirut, November 11–12, 2007.

Reviewer, proposal title, “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), November, 2005.

Chair, *Review Panel for the Noyce Scholarship Program*, Directorate for Education & Human Resources, Division of Undergraduate Education, the National Science Foundation, Washington, DC, May, 2005.

Panel Reviewer, *Review Panel for the Noyce Scholarship Program*, Directorate for Education & Human Resources, Division of Undergraduate Education, the National Science Foundation, Washington, DC, May, 2004.

Invited Reviewer: Abell, S., & Lederman, N. G. (Eds.). *The handbook of research on science education*. Mahwah, NJ: Erlbaum. Chapter title: “Perspectives on science learning,” February, 2004.

Invited Reviewer, Sage Publications, Thousand Oaks, CA. Book proposal title: “History of science for teachers: The construction and reconstruction of scientific concepts,” April, 2003.

Reviewer, annual international meeting of the Association for the Education of Teachers in Science, St. Louis, MO, 2003.

Reviewer, Division C: Learning and Instruction; Section 3: Science. Annual meeting of the American Educational Research Association:

Chicago, IL, 2003
New Orleans, LA, 2002
Seattle, WA, 2001
New Orleans, LA, 2000

Invited Reviewer: Appleton, K. (Ed.). *Elementary science teacher education: Contemporary issues and practices*. Mahwah, NJ: Erlbaum. Chapter title: “The elementary science teacher as researcher,” February, 2002.

Invited Reviewer: Special issue of *School Science and Mathematics*. Manuscript title: “Collaborative efforts designed to immerse future teachers in learner-centered environments,” February, 2002.

Reviewer, Division K: Teaching and Teacher Education; Section 1a: Teaching, Teacher Education, and Teacher Learning in Math and Science. Annual meeting of the American Educational Research Association:

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

Invited Reviewer: Science & Technology Education Library, Kluwer Academic Publishers, Dordrecht, The Netherlands. Book proposal title: “Science education in philosophical and cultural perspective,” March, 2001.

Panel Reviewer, *Review Panel for Teacher Enhancement*, Directorate for Education & Human Resources, Division of Elementary, Secondary, and Informal Education, the National Science Foundation, Washington, DC, November, 2001.

Reviewer, SIG-Subject Matter Knowledge & Conceptual Change. Annual meeting of the American Educational Research Association, Seattle, WA, 2001.

Reviewer, Strand 4: Teacher Education. Annual meeting of the National Association for Research in Science Teaching, New Orleans, LA, 2000.

National

Program Chair, “Toward an Illinois Learning Sciences Design Laboratory: A Lightning

Symposium,” February 27, 2015. University of Illinois at Urbana-Champaign, Champaign, IL.

Presider, Session on *Epistemic Aspects of Science Teaching and Learning*. Strand 1: Science Learning, Understanding and Conceptual Change. Annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico, 2013.

Chair, Division C: Learning and Instruction; Section 4: Science. Roundtable session on *Perceptions in Science*. Annual meeting of the American Educational Research Association, San Francisco, CA, 2013.

Reviewer, second draft of the “Next Generation Science Standards” developed by Achieve in partnership with the National Academies of Science’s National Research Council (NRC), National Science Teachers Association (NSTA), and the American Association for the Advancement of Science (AAAS). Champaign, IL; September, 2012.

Member, Group to review the first draft of the “Next Generation Science Standards” developed by Achieve in partnership with the National Academies of Science’s National Research Council (NRC), National Science Teachers Association (NSTA), and the American Association for the Advancement of Science (AAAS). NSTA, Chicago, IL; February, 3, 2012.

Presider, Session on *Nature of Science*. Strand 8: In-service Science Teacher Education. Annual meeting of the National Association for Research in Science Teaching, Orlando, FL, 2011.

Presider, Session on *Preservice Teachers’ Understandings and Perceptions of the Nature of Science*. Strand 7: Pre-service Science Teacher Education. Annual meeting of the National Association for Research in Science Teaching, Orlando, FL, 2011.

Presider, Session on *History and the Science Curriculum*. Strand 13: History, Philosophy, and Sociology of Science. Annual meeting of the National Association for Research in Science Teaching, Orlando, FL, 2011.

Presider, Session on *Argumentation and Knowledge Construction*. Strand 1: Science Learning, Understanding and Conceptual Change. Annual meeting of the National Association for Research in Science Teaching, Orlando, FL, 2011.

Member, The Early Career Research Award Committee, National Association for Research in Science Teaching, 2011–2014.

Member, Group to review the draft of the “Conceptual Framework for Science Education” by the National Research Council intended to guide the development of the Next Generation Science Standards. National Science Teachers Association, Chicago, IL; June, 26, 2010.

Presider, Paper set on *Curricula and Nature of Science*. Strand 13: History, Philosophy, and Sociology of Science. Annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA, 2010.

Chair, Session on *Developing Teachers: Cross-National Studies in Effective Teacher Practice, Training, and Development*. The 53rd annual conference of the Comparative and International Education Society, Charleston, SC, 2009.

- Member, The Early Career Research Award Committee, National Association for Research in Science Teaching, 2008–2010.
- Discussant, Division C: Learning and Instruction; Section 4: Science. Session on *Argumentation in K-16 Science Education*. Annual meeting of the American Educational Research Association, New York, NY, 2008.
- Member, Advisory Board for the 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 the National Science Foundation Division of Undergraduate Education, 2008–2010.
- External Reviewer, “Research on the teaching and learning of the scientific enterprise” developed by the Research Agenda in Science Education (RAISE) Project. (RAISE is sponsored through the National Science Teachers Association and funded by the National Science Foundation.) May, 2007.
- Member, Advisory Board for the Conference on “Science, Technology, Engineering and Mathematics—Alternative Certification for Teachers” (STEM–ACT) funded by the National Science Foundation Directorate for Education & Human Resources, Washington, DC: May 5–7, 2006.
- Member, Advisory Board for the Chicago Public Schools “Transitions into Teaching” grant funded by the United States Department of Education, 2005–2009.
- Discussant, Division C: Learning and Instruction; Section 4: Science. Session on *Understanding Cognitive Processes in Science Learning*. Annual meeting of the American Educational Research Association, Montreal, Canada, 2005.
- Presider/Discussant, Strand 8: History, Philosophy, and Epistemology. Session on *Teaching Nature of Science*. Annual meeting of the National Association for Research in Science Teaching, Dallas, TX, 2005.
- Chair, the NARST Awards Committee, National Association for Research in Science Teaching, 2004–2007.
- Chair, Ad hoc Committee on the History of Science Education, National Association for Research in Science Teaching, 2004–2010.
- Discussant, Symposium on *Socioscientific Issues in Science Education: Research to Inform Practice and Policy*. Annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada, 2004.
- Member, Campus Advisory Team for the National Science Foundation Grant, “Advancing the State-of-the-Art in Evaluation: Developing a Comprehensive, Value-Engaged Approach to Evaluating STEM Educational Programs,” 2004–2005.
- Coordinator, Strand 1: Learning: Students’ Conceptions. Annual meeting of the National Association for Research in Science Teaching, Vancouver, Canada, 2004.
- Member, Advisory Board for the National Science Foundation Grant, “Induction and Mentoring in a Middle Grades Science and Mathematics Accelerated Teacher Preparation Program,”

2003–2006. (Part of the University of Illinois-Chicago and Chicago Public Schools Advisory Board for the Middle Grades Science and Mathematics Programs.)

Coordinator, Strand 1: Learning: Students' Conceptions. Annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA, 2003.

Member, Ad hoc Committee to Examine Issues in the History of Science Education, National Association for Research in Science Teaching, 2002–2004.

Member, The Distinguished Contributions to Science Education through Research Award committee, National Association for Research in Science Teaching, 2002–2004.

Coordinator, Strand 8: History, Philosophy, and Epistemology. Annual meeting of the National Association for Research in Science Teaching, New Orleans, LA, 2002.

Chair, ICASE symposium on *Inquiry in Science Education: International Perspectives*. Annual meeting of the National Association for Research in Science Teaching, St. Louis, MO, 2001.

Coordinator, Strand 8: History, Philosophy, and Epistemology. Annual meeting of the National Association for Research in Science Teaching, St. Louis, MO, 2001.

Presider, Symposium on *Teachers Learning about Nature of Science in Authentic Science Contexts: Models of Inquiry and Reflection*. Annual meeting of the National Association for Research in Science Teaching, St. Louis, MO, 2001.

Chair, Division C: Learning and Instruction; Section 3: Science. Session on *Students' Scientific Reasoning in Learning Science*. Annual meeting of the American Educational Research Association, Seattle, WA, 2001.

Discussant, Division K: Teaching and Teacher Education; Section 1a: Teaching, Teacher Education, and Teacher Learning in Math and Science. Session on *Analysis of Teacher Support and Resistance in a Multi-District Elementary Science Reform Project*. Annual meeting of the American Educational Research Association, New Orleans, LA, 2000.

Presider/Discussant, Strand 8: History, Philosophy, and Epistemology. Session on *Science Education Research: Relevance to Practice*. Annual meeting of the National Association for Research in Science Teaching, Boston, MA, 1999.

Presider/Discussant, Strand 8: History, Philosophy, and Epistemology. Session on *Science Studies and Sociological Perspectives*. Annual meeting of the National Association for Research in Science Teaching, San Diego, CA, 1998.

Presider/Discussant, Strand 8: History, Philosophy, and Epistemology. Session on *Thinking and Learning in Science*. Annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL, 1997.

Presider, Session on *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, 1997.

International

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

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

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

Member, International Scientific Committee, The 2014 Conference of The International Society of Educational Research, Cappadocia, Turkey, October 30–November 2, 2014.

Proposal reviewer, National Priorities Research Program (NPRP), Qatar National Research Fund, Qatar Foundation, 2009, 2011, 2014.

Proposal reviewer, Undergraduate Research Experience Program, Qatar National Research Fund, Qatar Foundation, 2007, 2008, 2012, 2013.

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

Member, International Advisory Committee, Walid and Helen Kattan Science Education Center (WHKSE), Qatan Center for Educational Research and Development, Ramallah, Palestine, 2012–present.

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.

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, January, 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.

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,” August, 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.
- Evaluator of Faculty Research Output (School of Science and Mathematics Education, University of the Western Cape), National Research Foundation, South Africa, June, 2007.
- Member, Advisory Committee of the Kuwait Foundation for the Advancement of Science (KFAS), 2002–2006.
- Program Co-Chair, the Sixth International History, Philosophy, and Science Teaching Conference, Denver, CO, 2002.
- Executive Secretary, Conference on School-Based Educational Reform in Arab Countries, American University of Beirut, Beirut, Lebanon, November 10–12, 2000. Organized by the Department of Education, Division of Education Programs, American University of Beirut, Beirut, Lebanon.
- Co-chair, the Fourth Annual Science and Mathematics Teachers Conference (SMEC IV), May 12–13, 2000. SMEC is a regional conference organized by the Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Beirut, Lebanon.
- Principal Organizer, the Seventh Annual National Science Fair, April 7–9, 2000. Organized by the Education Student Society and Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Beirut, Lebanon.
- Co-chair, the Third Annual Science and Mathematics Teachers Conference (SMEC III), May 15, 1999. SMEC is a regional conference organized by the Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Beirut, Lebanon.
- Principal Organizer, the Sixth Annual National Science Fair, May 28–30, 1999. Organized by the Education Student Society and Science and Mathematics Education Center, Division of Education Programs, American University of Beirut, Beirut, Lebanon.

University Service

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

- Member, Faculty Advisory Committee, 2009–2011.
- Member, Supplementary Promotion and Tenure Committee, 2008–2009.
- Member, Promotion and Tenure Committee, Dr. Sharon Tettegah, 2008–2009.
- Chair, Clinical Assistant Professor in Science Education Search Committee, 2008–2009.
- Member, Promotion and Tenure Committee, Dr. Sharon Tettegah, 2007–2008.
- Member, Faculty Advisory Committee, 2006–2008.
- Member, Ad hoc Committee on Faculty Loads, 2006–2007.

Member, Department Leadership Team, 2006–2007.

Member, Mathematics Education Faculty Member Search Committee, 2005–2006.

Member, Ad hoc Committee on Evaluating Graduate Student Progress, 2004–2005.

Member, Faculty Advisory Committee, 2001–2004.

Member, Science Education Faculty Member Search Committee, 2001–2002.

Member, Illinois State Board of Education Science Area Review Committee, 2001–2002.

Member, NCATE Science Area Review Committee, 2001–2002.

Member, Department Team on *Exemplary Practices and Challenges in Teacher Preparation*, forum organized by the American Association of Universities and the American Academy of Arts and Sciences, 2000–2001.

Member, Educational Technology Faculty Member Search Committee, 2000–2001.

Member, Office of Clinical Experiences Assistant and Associate Directors Search Committee, 2001–2002.

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

Chair, O’Leary Learning Center Design Committee, 2015–present.

Conflict of Interest Contact, 2014–present.

Member, Governmental Relations Ad hoc Task Force, 2014–present.

Ex-officio, College Research Committee, 2014–present.

Ex-officio, Academic Programs Committee, 2014–present.

Co-Chair, Science Education Faculty Member Search Committee, 2014–2015.

Chair, Taskforce on Teacher Education Redesign: Final Phase, 2013–2014.

Member, Ad-hoc Task Force on Undergraduate Recruitment, Enrollment, and Admission, 2013.

Chair, Ad-hoc Committee on Faculty Recruitment, 2013–2015.

Member, Taskforce on Re-envisioning Teacher Education: Stage II, 2010–2013.

Member, Council of Department Executives, 2011–present.

Member, Human Resource Development Faculty Member Search Committee, 2011–2012.

Chair, Taskforce on the College of Education Rankings with the *US News & World Report*, 2010.

Member, College Executive Committee, 2009–2011.

Chair, “Entrepreneurial Leadership in STEM Teaching & learning” (EnLiST) Project Coordinator Search Committee, 2008–2009.

Member, STEM (Science, Technology, Engineering, and Mathematics) and Ubiquitous Learning Faculty Excellence Nomination Committee, 2008–2009.

Member, Research and Policy Analyst Search Committee, Illinois New Teachers Collaborative, 2007–2008.

Member, Intercollegiate Transfer Application Review Committee (Secondary Science), 2007–2008.

Presenter, “Technology, Engineering, and Mathematics Education Initiative,” Board of Visitors Meeting, September, 2007.

Member, Human Subjects Committee, 2006–2008.

Member, Graduate Awards Committee, 2006–2008.

Chair, STEM (Science, Technology, Engineering, and Mathematics) Education Task Force, Fall 2006.

Member, Intercollegiate Transfer Application Review Committee (Secondary Science), 2006–2007.

Co-Chair, Strengths-Weaknesses-Opportunities-and-Threats (SWOT) Subcommittee of the College of Education Process Planning Committee, 2005–2006.

Member, Combined Leadership Committee for Strategic Planning, 2005–2006.

Member, Committee on Evaluating the Dean of the College of Education, 2005.

Member, College Executive Committee, 2004–2006.

Member, Hach Foundation Ad hoc Scholarship Committee, 2004–2005.

Member, Curriculum and Instruction Department Head Search Committee, 2004–2005.

Member, College of Education Website Redesign Extended Team, 2003–2005.

Member, College of Education Internationalization Committee, 2003–2004.

Member, Science Area of Specialization Committee, 2001–2005.

Advisor, Student Education Association (SEA), 2001–2004.

University of Illinois at Urbana-Champaign, Champaign, IL

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

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

Member, Design Center Executive Committee, 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, Campus Budget Advisory Task Force, Office of the Provost and Vice Chancellor for Academic Affairs, 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, 2015-2016.

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, 2014-2015.

Reviewer, Campus Research Board:

2014-2015: One review
2012-2013: One review
2005-2006: Four reviews
2004-2005: Two reviews
2002-2003: Five reviews

Member, Planning Committee for Joint Area Centers Symposium, Center for South Asian and Middle Eastern Studies, 2013.

Member, University of Illinois Fulbright Interview Committee, 2010-2011.

Member, Faculty Senate, 2009–2011.

Member, Academic Freedom and Tenure Committee, Faculty Senate, 2009-2011.

Member, Annual Review Committee for the Director of the Illinois STEM Education Initiative, 2009–2010.

Advisor, Lebanese Cultural Club, 2008–2011.

College of Education Liaison, National Science Olympiad Planning Committee, 2003–2005.

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

Member, Curriculum and Examination Committee, 1998–2000.

Member, Practice Teaching Committee, 1998–2000.

Member, Sub-Committee on Revising Graduate Programs, 1998–1999.

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

Acting Chairperson, Academic Affairs Committee, 1999–2000.

Member, Committee for Revising Promotion Criteria, 1998–2000.

Member, Admissions and Student Affairs Committee, 1998–1999.

Advisor, Education Students Society, 1998–1999.

Leadership Development Activities

Fellow, CIC Academic Leadership Program, Committee on Institutional Cooperation (CIC), 2013-2014.

Department Executive Officers Seminar, Committee on Institutional Cooperation (CIC), Chicago, IL, October 11–13, 2012.

Senior Leadership Retreat, University of Illinois at Urbana-Champaign, Champaign, IL, August 16–17, 2012.

Supervision of Postdoctoral Fellows

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.

PhD Advisees

Graduates

Jeanne Bruner, Dissertation title, “*Enriching science trade books with explicit-reflective nature of science instruction: Impacting elementary teachers’ practice and improving students’ learning.*” (Graduated: May 2016)

Ryan Summers, Dissertation title, “*A statewide examination of attitudes toward science among Illinois students in grades 5-12.*” (Graduated: April, 2015)

Sara Rose, Faculty Member, Physics Education, The Evergreen State College, Olympia, Washington. Dissertation title, “*The effectiveness of pre-course and concurrent course interventions on at-risk college students’ performance in an introductory mechanics course.*” (Graduated: December, 2013)

Sallie Greenberg, Assistant Director, Advanced Energy Technology Initiative, Illinois State Geological Survey, Prairie Research Institute, University of Illinois at Urbana-Champaign, Champaign, IL. Dissertation title, “*Impact of social media as an instructional component on content knowledge, attitudes, and public engagement related*

to global climate change.” (Graduated: May, 2013)

Ana Houseal, Outreach Science Educator, Science and Math Teaching Center, and Assistant Professor, College of Education, University of Wyoming, Laramie, Wyoming. Dissertation title, *“The impact of a student-teacher-scientist partnership (STSP) on students’ and teachers’ content knowledge and attitudes toward science.”* (Graduated: May, 2010)

Nader Wahbeh, Director, Scientific Literacy Program, Al-Qatan Center for Educational Research and Development/Al-Qatan Foundation, Ramallah, West Bank, Palestine. Dissertation title, *“The effect of a content-embedded explicit-reflective approach on inservice teachers’ views and practices related to nature of science.”* (Graduated: August, 2009)

Noemi Waight, Associate Professor, Department of Learning and Instruction, Graduate School of Education, State University of New York, Buffalo, New York. Dissertation title, *“From scientific practice to science classrooms: Impact of technological tools on the enactment of ‘authentic’ inquiry in high school science classrooms.”* (Graduated: August, 2008)

Ava Zeineddin, Assistant Professor, Department of Teacher Education, College of Education, Wayne State University, Detroit, Michigan. (2009–2013). Dissertation title, *“Scientific reasoning and epistemological commitments: Coordination of theory and evidence among college science students.”* (Graduated: June, 2008)

Issam Abi-El-Mona, Associate Professor and Chairperson, Department of Teacher Education, Rowan University, Glassboro, New Jersey. Dissertation title, *“Perceptions of argumentative discourse among freshmen college students, science teachers and practicing scientists.”* (Graduated: June, 2007)

Sara Salloum, Assistant Professor, Department of Teaching and Learning, Long Island University, New York. (2006–2014). Dissertation title, *“Teaching as ‘practice’: Blending the intellectual and the moral in pursuit of science teachers’ practical knowledge.”* (Graduated: March, 2006)

Current

Darin Henigman
John Myers
Sahar Alameh
Christina Silliman

Professional Organizations

Association for the Education of Teachers in Science (AETS)
American Association for the Advancement of Science (AAAS)
American Educational Research Association (AERA)
Lebanese Association for Educational Sciences (LAES)
National Association for Research in Science Teaching (NARST)
National Science Teachers Association (NSTA)
School Science and Mathematics Association (SSMA)
The Philosophy of Science Association (PSS)