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Academic Unit:

Faculty of Arts and Sciences
American University of Beirut

Department

Department of Education and
Science and Math Education Center

Rank:

Professor of Science Education

Education:

- Sept. 1988 * Doctor of Education in Curriculum and Instruction with emphasis in science education, research, and teacher training at the University of Cincinnati, Cincinnati, Ohio.
- May 1988 * Masters of Education, Curriculum and instruction with an emphasis on science education, University of Cincinnati, Ohio. Courses completed summer 1985, Thesis defended May 1988.
- June 1971 * Bachelor of Science in Biology/Chemistry (group major). American University of Beirut, Lebanon.

Experience :

- October 2003 – Present * Chairperson, Department of Education, American University of Beirut, Beirut, Lebanon
- October 1994 – 2002 and 2001-2003 * Director, Science and Math Education Center, American University of Beirut, Beirut, Lebanon
- 2000-2001 * Education Advisor, New School Program, Egypt. The New School Program is a research and development project in three Governorates in Egypt. The Program was funded by the USAID and managed by Education Development Center, Inc., Washington, DC.
- October 1993 - Present * Department of Education, Faculty of Arts and Sciences, American University of Beirut, Beirut, Lebanon. Responsibilities include teaching methods and research courses, supervising science student teachers, advising graduate and undergraduate students, supervising research of Masters students, and conducting and publishing research.
- September 1988-1991 and 1992-1993 * Assistant Professor of Science Education, Department of Science Teaching, Syracuse University, Syracuse, New York. Responsibilities include teaching curriculum, methods, and research courses, supervising science student teachers, advising graduate and undergraduate students, supervising research of doctoral students, and conducting and publishing research.
- 1991 - 1992 * Curriculum design Specialist, EDSP Project, Republic of Yemen. The Project was funded by USAID and managed By Education Development Center, INC., Washington, DC.

- 1975-1984
- * Assistant Principal, St. Joseph School, Cornet Chahwan, Lebanon.
 - * Chemistry Teacher Grades 11-13, St. Joseph School, Cornet Chahwan, Lebanon.
 - * Human Biology teacher, Grade 13, St. Joseph School, Cornet Chahwan, Lebanon.
- 1971-1975
- * General Science teacher, grades 7-10, St. Joseph School, Cornet Chahwan, Lebanon. Biology teacher, grades 10 & 13, St. Joseph School, Cornet Chahwan, Lebanon.
 - * Chemistry teacher, grades 10-12, St. Joseph School, Cornet Chahwan, Lebanon.

Professional Activities

- 2004
- * Member of the Executive Board of the National Association for Research in Science Teaching, USA.
- 2004
- * Consulting Editor for International Review of Education, Edited by the UNESCO Institute for Education, Hamburg, Germany
- 2004
- * Reviewer for Electronic Journal of Literacy Through Science
- 2003-present
- * Contributing International Editor, Science Education
- 2003-present
- * Consulting Editor, African Journal of Educational Studies in Mathematics and Science.
- 2003 – present
- * Board of Governors, Brummana High School, Brummana, Lebanon.
- 2001-present
- * Member International Committee of the National Association for Research in Science Teaching.
- 2000- 2003
- * NARST Strand 8 (History, Philosophy, and Epistemology) Co-coordinator.
- 2000-2001
- * Member of the scientific committee of First IOSTE Symposium in Southern Europe on Science and technology education: Preparing future citizens to be held in Paralimni, Cyprus, between April 18 and 21, 2001.
- 2000 - 2003
- * Member of the NARST Outstanding Master's Award Committee
 - * Member of the NARST Elections Committee
- 1999 - Present
- * Consultant for Kingdom Schools Project, Saudi Arabia, a Project managed by the American University of Beirut
- 1995- 2000
- * Member of the Interfaculty Committee on the Environment, AUB
- 1999-Present
- * Member of the Task Force on Undergraduate Teaching Excellence, AUB.
- 2001 – Present
- * Member of the Promotion Procedures Task Force, American University of Beirut
- 2001-Present
- * Member of the Accreditation Task Force, American University of Beirut
- 2001-Present
- * Co-coordinator of teaching effectiveness initiative, American University of Beirut
- 1996-Present
- * Chair or Co-Chair of the Organizing Committee of The Science and Math Teachers' Conference organized by the Science and Math Education Center, American University of Beirut.
- 1996 - 1998
- * Member of the Higher Science Curriculum Committee and of the Chemistry and Scientific Literacy Committees
- 1995-2000
- * Member of the Editorial Board of the Journal of Research in Science

- Teaching.
- 1995-present * Member of the Editorial Board of the Journal of Science Teacher Education.
- 1995- present * Reviewer for Journal of Science Teacher Education, Journal of Research in Science Teaching, School Science and Mathematics Journal, Science Education, Electronic Journal of Science Education, and Science books and films.
- 1995-present * Editor, *SMEC NEWSLETTER* a publication of the Science and Math Education Center, American University of Beirut, Beirut, Lebanon.
- 1993-Present * Consultant for a number of Lebanese, Jordanian, and Saudi schools in science curriculum and teaching methodology.
- 1985-present * Member in the National Association for Research in Science Teaching, National Science Teachers Associations, School Science and Mathematics Association, Association for the Education of Teachers in Science
- 2003-Present * Member of the European Science Education Research Association.

Publications

Articles:

- Fowler, S., & BouJaoude, S. (1987). Using hierarchical concept / proposition maps to plan instruction that addresses existing and potential student misunderstandings in science. In Novak, J. (Ed.). Proceedings of the Second International Seminar on Misconceptions and Educational Strategies in Science and Mathematics, Volume I (pp. 182 - 186), Ithaca, NY: Cornell University, Department of Education.
- BouJaoude, S. (1989). Problem solving in science. Cincinnati: Science Education Faculty of the Department of Curriculum and Instruction, School of Education, University of Cincinnati¹.
- BouJaoude, S. (1991). A study of the nature of students' understandings about the concept of burning. Journal of Research in Science Teaching, 28, 689-704.
- BouJaoude, S. (1992). The relationship between students' learning strategies and the change in their misunderstandings during a high school chemistry course . Journal of Research in Science Teaching, 29, 687-699.
- BouJaoude, S. (1994b). Helping middle school pre-service teachers to address students' alternative conceptions. In L. Schafer (Ed.), Behind the methods door: Educating elementary and middle school science teachers (pp. 133-143). Columbus, OH: Association for the Education of Teachers in Science and ERIC Clearinghouse for Science and Mathematics.
- BouJaoude, S. & Giuliano, F. (1994). Relationships between achievement and selective variables in a chemistry course for nonmajors. School Science and Mathematics Journal, 96 (4), 296-302.
- BouJaoude, S. (1995). Environmental studies in the Lebanese curriculum (PP. 49- 60). Capacity building and environmental development in Lebanon (Political & Civic Studies series, issue 1). Beirut: Fondation Rene Moawad & Friedrich-Naumann-Stiftung Foundation (in Arabic).
- BouJaoude, S. (1995, April). Making sense of the nature of science through physical science demonstrations. The Science Teacher, 46-49.

¹This monograph is based on the Author's Masters Thesis presented to the Department of Curriculum and Instruction, College of Education, University of Cincinnati.

- Dagher, Z. & BouJaoude, S (1996). Tailoring science education graduate programs to the needs of all students (a commentary). Science Education, 80, 89-91.
- BouJaoude, S. (1996). Why an issue on science education? (Editorial). Scie-Quest, 6 (1), 4-5.
- Abd-El-Khalick, F. & BouJaoude, S. (1996). An exploratory study of the pedagogical content knowledge of science teachers. Proceedings of the Oregon Academy of Science, 32, 57-58.
- Abd-El Khalick, F. & BouJaoude, S. (1997). An exploratory study of the knowledge base for science teaching. Journal of Research in Science Teaching, 34, 673-699.
- Dagher, Z., & BouJaoude, S. (1997) Scientific views and religious beliefs of college students: the case of biological evolution. Journal of Research in Science Teaching, 34, 429-455.
- BouJaoude, S. (1997). Contemporary conceptions of the philosophy of science, learning, and teaching and their implications for science education. In The new trends and strategies in science education. Monograph published by the Lebanese Association for Education Studies. Beirut: Lebanon. (in Arabic).
- BouJaoude, S. (1999). Lebanese teachers and students' perceptions of the nature of science. In Debs, M. (ED.). Proceedings of the Second Scientific Conference on the Future of Science and Mathematics teaching and the needs of the Arab society, Tunisia, Tunis, 19-22 December, 1996 (pp. 283-293). Beirut, Lebanon: Arab development Institute.
- BouJaoude, S. (1999). Environmental education in Lebanese schools, SciQuest, 7 (1), 19-21.
- BouJaoude, S. (2000). Trends in science teacher preparation. In the Proceedings of the conference on Science Teaching: Content, Pedagogy, and Evaluation (L'enseignemnet des sciences: Contenu, didactique et evaluation) organized by the Center for Educational Research and Development and L'Institut Libanais d'Educateurs de l'Universite Saint Joseph (pp. 24-31). April 17-18, 2000.
- BouJaoude, S. & Sayah, F. (2000). Teaching science in Arabic: Directions and future prospects. In Language and Education in Lebanon, Edited by K. Shaaban and G. Ghaith (pp. 145-169). Beirut, Lebanon: The Lebanese Association for Educational Studies (In Arabic).
- BouJaoude, S. (2000). Conceptions of Science Teaching Revealed by Metaphors and by Answers to Open-Ended Questions. The Journal of Science Teacher Education, 11(2), 173-186.
- BouJaoude, S. (2000). What might happen if . . .?: Students use the futures wheel to analyze science-related social issues. The Science Teacher, 67 (4), 45-47.
- BouJaoude, S. & Barakat, H. (2000). Secondary school students' difficulties in stoichiometry. School Science Review, 81(296), 91-98.
- BouJaoude, S. and Tamim, R. (2000) Analogies generated by middle-school science students: types and usefulness. School Science Review, 82(299), 57-63.
- BouJaoude, S. (2000). Science teacher preparation in Lebanon: Reality and future directions (pp. 45-74). In S. Abell (Ed.), Science teacher Education: An International Perspective. Dordrecht: Kluwer.
- BouJaoude, S. (2001). The Status of Elementary Science Education in Lebanon. Science Education International, 12 (2), 7-9.
- BouJaoude, S. (2001). Conceptual Change in Two Middle School Science Students During Instruction about the Concept of Burning. Journal of Educational and Psychological Sciences, 2 (4), 8-31.
- BouJaoude, S. (2001). Developing science curricula to meet the challenges of the future. In El-Komos et al. (Eds) Proceedings of the symposium on new curriculum for a changing world (pp. 98-118). Manama: University of Bahrain, College of Education.

- BouJaoude, S. (2002). Balance of scientific literacy themes in science curricula: The Case of Lebanon. *International Journal of Science Education*, 24, 139-156.
- BouJaoude, S. (2002). Developing basic and secondary education in the Arab world to encompass advances in science (223-250). In A. Abulhaija (Ed.). *Science and Technology in the Arab World*. Amman: Shouman Association.
- Haidar, M., Abdel-Khalick, F., BouJaoude, S. (2003). Lebanese Secondary School Students' Environmental Knowledge and Attitudes. *Environmental Education Research*, 9, 21-33.
- BouJaoude, S. (2003). Science and Technology in Schools of the Twenty-First Century. In Jenkins, E. (ed.). *Innovations in science and technology education*, Volume VIII (pp. 43-68). Paris: UNESCO.
- Abd-El-Khalick, F. & BouJaoude, S. (2003). Lebanese Students' Views of Nature of Science, *Mediterranean Journal of Educational Studies*, 8, 61-79.
- BouJaoude, S. (2003). Scientific Literacy in the Lebanese curriculum². Proceedings of the conference "3e Millenaire: Quelle education pour quelle jeunesse (Third millennium: What education for what youth?). Kaslik, Lebanon: University of Holy Spirit, Kaslik. (A version of this paper appeared in the *International Journal of Science Education*, 24, 139-156.)
- BouJaoude, S. & Barakat, H. (2003). Students' Problem Solving Strategies in Stoichiometry and their Relationships to Conceptual Understanding and Learning Approaches. *Electronic Journal of Science Education*, 7 (3), March 2003.
<http://unr.edu/homepage/crowther/ejse/ejsev7n3.html>
- 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, 63-84.
- BouJaoude, S., & Abd-El-Khalick, F. (2004). A Decade of Science Education Research in Lebanon (1992-2002): Trends and Issues in Mutua, K & Sunal, C. S. (Eds.) (203-241). *Research on Education in Africa, the Caribbean, and the Middle East*, Volume 1. Greenwich CT: Info Age Press.
- 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* 397-419.
- BouJaoude, S., & Youssef, R. (2004). The Effect of Teaching an Environmentally Oriented Science Unit on Students' Attitude and Achievement. *Science Education International*, 15, 63-78.
- BouJaoude, S., Sowwan, S., & Abd-El-Khalick, F. (In press). *The effect of using drama in science teaching on students' conceptions of nature of science*, Proceedings of the ESERA Conference. Dordrecht, Netherlands: Kluwer.
- BouJaoude, S. & Attieh, M. (Submitted). The Effect of using Concept Maps as Study Tools on Achievement in Chemistry. *Journal of Research in Science Teaching*.
- Dagher, Z. & BouJaoude, S. (in press). Students' perceptions of the nature of evolutionary theory³. *Science Education*.
- BouJaoude, S. (in Press). Using Electronic and Information Technologies in Science Teacher Preparation: The Experience of a Teacher Educator.

² A version of the paper appeared in English in the *International Journal of Science Education*

³ An earlier version of this paper was presented at the annual meeting of the National Association for Research in Science Teaching held in Chicago-Illinois, March 21-24, 1997.

- BouJaoude, S., & Ghaith, G. (In Press). Educational Reform at a Time of Change: The Case of Lebanon in Education Reconstruction in Transitional Societies, (Ernest, J. & Treagust, D., Eds). Curtin, Australia: Black Swan Press
- BouJaoude, S. (Submitted). Improving Science Teaching Methodology at the University Level: Synchronizing the Teaching Approaches at the Secondary and University Levels
- Ayoubi, Z. & BouJaoude, S. (In Press). Teaching science by inquiry. Beirut, Lebanon: Lebanese Association for Education Studies (in Arabic).

Reports

- BouJaoude, S. (2002). The evaluation system of chemistry in the Lebanese curriculum and science at the elementary level in the Lebanese Curriculum. Project funded by UNESCO and implemented by the Lebanese Association for Educational Studies. Beirut, Lebanon
- Billeh, V., BouJaoude, S., & Sulieman, S. (2002). Regional synthesis on development of secondary education in the Arab States. Report prepared for the International Conference on Secondary education for a better future: trends, challenges, and priorities. Muscat, Sultanate of Oman, December 21-23, 2002. Organized By UNESCO and the Ministry of Education, Sultanate of Oman.
- BouJaoude, S., & Al-Amin, A. (2003). Co-primary investigator of the project to evaluate the Lebanese Curricula. Project funded by UNESCO and implemented by the Lebanese Association for Educational Studies. Beirut, Lebanon.
- BouJaoude, S. (2003). Achievement levels of new school project students in grades 1 to 5 in Arabic, math, and science. Project funded by the Education Development Center Inc., Newton, MA, USA.
- BouJaoude, S. (2003). Teaching and learning by inquiry: Role of the teacher and technology. Report prepared for the Regional Workshop on Evaluating Science and Technology Curricula, UNESCO, Beirut (In Arabic).
- BouJaoude, S. (2003). Status of science teaching in the Syrian Arab Republic. Research funded by UNESCO Cairo Office.

Book reviews

- BouJaoude, S. **Review of the book:** Discovering by R.S. Root-Bernstein. School Science and Mathematics, 91, 226.
- BouJaoude, S. **Review of the book:** Gardner, Robert. Heavy-Duty Science Projects with Weight: How Much Does it Weigh? (Illus.; from the Sensational Science Experiments Series.) Springfield, NJ: Enslow, 2003. Science Books and Films, Volume 39 (4), July/August 2003.
- BouJaoude, S. **Review of the film:** Brandolini, Anita. Fizz, Bubble, & Flash! Element exploration & Atom adventures for hand-on science fun! (Illus. by Michael Kline; from the Williamson's Kids Can Series.) Charlotte, VT: Williamson, 2003.

Textbooks

- October 1998 Consultant for: El-Khatib, F., Farah, E., Khishen, R. Kordab, E., & Zeitunlian, M. (1998). Chemistry, Basic Education, Grade 7. Dikwaneh, Lebanon: National Center for Educational Research and Development.
- October, 1998 Rifai, M., BouJaoude, S., El-Masri, M., & Nemra-Baydoun, G. (1999). Chemistry, Secondary Education, Second Year, Humanities Section.

Dikwaneh, Lebanon: National Center for Educational Research and Development.

ERIC Documents

- BouJaoude, S. & Abdel-Khalick, F. (1996). 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., April 22-25, 1995 (ERIC Document Reproduction Service No. ED 387328).
- BouJaoude, S. (1994a). Students' systematic errors when solving kinetic and chemical equilibrium problems. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA., April 15-19, 1993 (ERIC Document Reproduction Service No. ED 361 196).
- BouJaoude, S. (1996). Epistemology and Sociology of Science according to Lebanese Educators and students. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, Ca., April 3-5. (ERIC Document Reproduction Service No. ED 394848).
- Abd-El-Khalick F, & BouJaoude, S. (1997). An exploratory study of the disciplinary knowledge of science teachers. I. P. Rubba, P. Keig, & J. Reys (Eds.), Proceedings of the 1997 Annual International Conference of the Association for the Education of Science Teachers (pp. 89-133). Pensacola, FL: Association for the Education of Teachers in science (ERIC Document Reproduction Service NO. ED 405 220).
- BouJaoude, S. & Tamim, R. (1998). Analogies, Summaries, and Question Answering in Middle School Life Science: Effect on Achievement and Perceptions of Instructional Value. Paper presented at the annual conference of the National Association for Research in Science Teaching, San Diego, California, April 19 -22, 1998 (ERIC Document Reproduction Service, ED 420503)

Abstracts in Conference proceedings:

- BouJaoude, S. (1987). Emerging trends from a decade of science education research, 1976-1986. Science Education Information Report, abstracts of presented papers at the annual conference of the National Association of Research in Science Teaching (P. 139). Columbus, OH: The ERIC Science, Mathematics, and Environmental Education Clearinghouse.
- BouJaoude, S. (1988). Identifying, categorizing, and correcting students' misconceptions about burning. Science Education Information Report, abstracts of presented papers at the annual conference of the National Association of Research in Science Teaching (P. 75). Columbus, OH: The ERIC Science, Mathematics, and Environmental Education Clearinghouse.

Presentations and Panels:

- January 2005 Innovative methods for teaching science at the university level. Workshop presented in Sana'a, Republic of Yemen between January 15 and 17, 2005. The workshop was sponsored by the UNESCO Cairo Office, National UNESCO Commission of Yemen, Islamic Educational, Scientific and Cultural Organization, and the University of Sana'a.
- 2005 AERA International Studies Business Meeting (Invited Panel: Research on Education in Africa, the Caribbean, and the Middle East).

Annual Conference of the American Educational Research Association, April 11-15, Montréal, Canada.

Participants:

Fouad Abd-El-khalick, University of Illinois at Urbana-Champaign ; Saouma BouJaoude, American University of Beirut - Cynthia Sunal, University of Alabama ; Kagendo Mutua and Dannelle Stevens, Portland State University, ; Ismail Guven, Univ. of Ankara, Turkey ; Billie Eilam, University of Haifa; Gayle Dancy-Benjamin, University of The Virgin Islands ; Suzy Green, University of The Virgin Islands; Anne Kanga, University of Alabama ; Michalis Koutsoulis, Intercollege, cyprus ; Tom Ganser, University of Wisconsin – Whitewater.

- October 2004 Improving science teaching methodology at the university level: Synchronizing the teaching approaches at the secondary and university levels. Paper presented at the International Conference on Teaching at Universities: Present and future challenges (Theme 5 -- Policies and methodologies of teaching science within universities and the preparatory measures to that end at school level) organized by the Lebanese National Commission for UNESCO, Beirut, Lebanon, October 5-6.
- April 2004 Lebanese Parents' Perceptions of Science and Science Teaching. Paper presented at the annual conference of the National Association for Research in Science Teaching (NARST) (Vancouver, Canada, March 31-April 3, 2004) (Co-Authored with Lina Hajj).
- April 2004 Do Student Views of Nature of Science Influence Their Conceptual Understandings of Science Content? (Co-Authored with Dr. Fouad Abd-El-Khalick, University of Illinois at Urbana-Champaign). Presented at the annual conference of the National Association for Research in Science Teaching (NARST) (Vancouver, Canada, March 31-April 3, 2004).
- April 2004 Science education in the Arab States: Current status and future directions. Paper presented in the Symposium on International Science Education: Applications and Opportunities for Research, Scholarship, and Service during the annual conference of the National Association for Research in Science Teaching (NARST) (Vancouver, Canada, March 31-April 3, 2004)
- January 2004 Participated in a panel on the “Application of New Information Technology in the Arab States to Achieve the Goals of Education for All” during the Arab Regional Conference on Education for All (EFA) National Plans: What’s Next January 20-23, 2004.
- December 2003 Presented a public lecture on Active Learning. Kingdom Schools, Saudi Arabia.
- August 2003 The Effect of Using Drama in Science Teaching on Students' Conceptions of Nature of Science (Suha Sowwan and Fouad Abd-El-Khalick, Co-authors). Presented at the 2003 meeting of the European Science Education Research Association (ESERA), Nordwick, Netherlands, August 19-23, 2003.
- May 2003 Teaching and learning by inquiry: Role of the teacher and technology. Paper presented at the regional workshop on evaluating science and technology curricula, UNESCO, Beirut, May 20-22 (In Arabic).

- March 2003 Careful! It is H₂O: Teachers' Conceptions of Chemicals (Co-author: Sara Salloum). Paper presented at the annual conference of the National Association for Research in Science Teaching, Philadelphia, PA, March 23-26, 2003.
- March 2003 The Effect of using Concept Maps as Study Tools on Achievement in Chemistry (Co-author: May Attieh). Paper presented at the annual conference of the National Association for Research in Science Teaching, Philadelphia, PA, March 23-26, 2003.
- November 2002 Scientific literacy in the Lebanese curriculum, Paper presented at the Conference on The Third Millennium: What education for What youths held at the University of the Holy Spirit, Kaslik, Lebanon. November 16, 2002.
- September 2002 Lebanese middle school students' definitions of science and perceptions of its purpose and usage. Paper presented at the Droschai Seminar on Science Learning in the Mediterranean by the University of Cyprus, Nicosia, Cyprus, September 11-15, 2002.
- April 2002 Relationships between selective cognitive variables and students' ability to solve chemistry problems. Paper presented at the annual conference of the National Association for Research in Science teaching, New Orleans, LA, April 6-10, 2002.
- April 2002 supply and demand of science teachers in the Arab states (sponsored by ICASE and the NARST International Committee). Presented at the annual conference of the National Association for Research in Science teaching, New Orleans, LA, April 6-10, 2002.
- April 2002 The New School Program: An educational Development activity. Seminar presented at the Faculty of Health Science, American University of Beirut
- March 2002 Using computers in the science laboratory. Brummana High School, Brummana, Lebanon.
- January 2002 Principles of teaching and learning. Lecture presented at Saint Joseph School, Cornet Chahwan, January 11, 2002.
- October 2001 Developing basic and secondary education in the Arab world to incorporate innovations in science and technology. Invited paper presented at the specialized Symposium on Science and technology in the Arab World: Present status and future prospects, organized by Shouman Foundation, Amman, Jordan, October 20 and 21, 2001.
- May 2001 Developing science curricula to prepare students for the future. Invited paper presented at the Symposium on curricula in the Arab World organized by the University of Bahrain, May 1-2, 2001.
- April 2001 Lebanese Secondary School Students' Environmental Knowledge and Attitudes. Fouad Abd-El-Khalick, University of Illinois at Urbana-Champaign; Maha Haidar-Makki, American University of Beirut; Saouma BouJaoude, American University of Beirut. Paper presented at the annual meeting of the American Educational Research Association, April 10 –14, Seattle, Washington
- March 2001 The Use of Drama in Science Teaching: Its Influence on Students' Attitudes and Conceptions of Nature of Science (Co-Author: Suha Sowwan). Paper presented at the annual conference of the National Association for Research in Science teaching, St. Louis, MI, March 25 – 28, 2001.

- March 2001 Scientific inquiry in the Lebanese science curriculum in the seminar on Inquiry in Science education: International perspectives (sponsored by ICASE and the NARST International Committee). Presented at the annual conference of the National Association for Research in Science teaching, St. Louis, MI, March 25 – 28, 2001.
- June 2000 Science assessment framework in the new Lebanese Curriculum: Background, hurdles to implementation, and solutions. Panel organized by the Faculty of Education, Lebanese University, Beirut, Lebanon.
- April 2000 Students' and teachers' conceptions of chemicals. Paper presented at the annual conference of the National Association for Research in Science teaching, New Orleans, LA, April 28-31, 2000.
- April 2000 The Lebanese Science Curriculum as a vehicle to achieve scientific literacy for all. Paper presented at the Symposium on Connecting communities through research in science and technology education for all organized by the International Committee of the National Association for Research in Science Teaching and ICASE, New Orleans, LA, April 28-31, 2000.
- April 2000 Trends in science teacher education. Keynote address in the Conference on teaching science: Content, methodologies, and evaluation. Universite Saint Joseph, Beirut, Lebanon.
- Sept. 1999 Cooperative learning and the teaching of science, Lecture presented at Antonin Sisters School, Khaldiyyeh, Zghorta, Lebanon.
- July 1999 Constructivism in science education and problem solving and creativity in teaching chemistry: Two Seminar Presented at the Department of Chemical Engineering, University of Rovira i Virgili, Tarragona Spain.
- April 1999 Environmental knowledge: Transforming knowledge into action. Paper presented at the sixth Annual Conference on Global Education: For a child-friendly school. Lebanese American University, Beirut, Lebanon.
- March 1999 Students' problem solving strategies in stoichiometry and their relationships to conceptual understanding and learning approaches. Paper presented at the annual conference of the National Association for Research in Science teaching, Boston, Massachusetts, March 28-31, 1999 (Hala Barakat Co-author)
- February 1999 Cooperative learning in teaching science. Lecture presented at Saint Joseph School, Cornet Chahwan, Lebanon.
- November 1998 Representation of scientific literacy themes in the Lebanese curriculum. Paper presented at the Conference on Science, Technology, and Society organized by Center for Behavioral Research, American University of Beirut, Beirut, Lebanon, Nov. 26 -28, 1998
- November 1998 Introduction to constructivism and its implications to classroom practice with emphasis on the role of teachers and students in a constructivist classroom. Workshop presented to IC teachers during a professional development day.
- July 1998 Teaching critical thinking skills. Lecture presented at the retreat of the AUB School of Nursing. Bois de Bologne, Lebanon
- June 1998 Considerations necessary for implementing the New Lebanese Science curriculum. Meeting with science coordinators and teachers in catholic

- schools in Lebanon organized by the General Secretariat of the Lebanese Catholic Schools. Beirut, June 24.
- June 1998 Practice teaching as professional development. Invited lecture delivered during the Professional Day for Cooperating Teachers organized by the Department of Education, American University of Beirut.
- April 1998 Creativity in science teaching. Invited lectures (two) at the annual meeting of the Private Schools Council, Amman, Jordan, April 29-30, 1998.
- April 1998 Helping students confront difficulties with solving stoichiometry problems. Paper Presented at the annual convention of the National Science Teachers Association, Las Vegas, Nevada, April 16-19, 1998 (Hala Barakat, Co-Author).
- April 1998 Analogies, Summaries, and Question Answering in Middle School Life Science: Effect on Achievement and Perceptions of Instructional Value. Paper presented at the annual conference of the National Association for Research in Science Teaching, San Diego, California, April 19 -22, 1998
- March 1998 New trends in teaching Chemistry at the pre-college level. Invited lecture presented at the meeting of the Syrian Chemical Association. March 28, 1998, Homs, Syria.
- February 1998 New trends in teaching chemistry. Lecture presented at the Symposium on the New Pre-College Chemistry Curricula organized by the Syndicate of Chemists in Lebanon, February 21, 1998. (In Arabic)
- February 1998 Scope, sequence and coordination in the new Lebanese Science Curriculum. Lecture presented at Saint Joseph School, Cornet Chahwan, Lebanon.
- January 1998 Alternative concepts in science education and their remediation. Lecture presented at the Department of Education, University of Balamand.
- September 1997 Framework of the new Lebanese Science Curriculum. Lecture presented at Jesus and Mary School, Rabweh, Lebanon
- June 1997 Framework of the new Lebanese Science Curriculum. Lecture presented at Hovakimian-Manoukian School, Sin-El-Fil.
- May 1997 Framework of the new Lebanese chemistry curriculum. Lecture presented at the First Science teachers Conference, American University of Beirut, Beirut, Lebanon, May 3.
- April 1997 Contemporary conceptions of the philosophy of science, learning, and teaching and their impact on science education. Paper presented at the seminar organized by the Lebanese Association for Education Studies, Beirut, Lebanon, April 11.
- March 1997 Integrating environmental issues in the teaching of science. Lecture presented at the Lebanese American University, March 10.
- March 1997 College students' generic and specific conceptions of theories. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL, March 21-24, 1997.
- February 1997 An overview of the New (Lebanese) Intermediate Science Curriculum. Lecture presented at IC Middle School, Wednesday, Feb. 26, 1997.
- December 1996 Lebanese Teachers' and Students' Perceptions of the Nature of Science. Paper presented at the Second Conference on the future of science and

- mathematics and the needs of the Arab Society, Tunis, Tunisia
December 19-22, 1996.
- April 1996 Encouraging students to think scientifically using hands-on activities. Workshop conducted at the Annual meeting of the Private school Council, Amman, Jordan, April 18-19, 1996
- April 1996 Epistemology and sociology of science according to Lebanese Educators and Students. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Saint Louis, Missouri, March 31- April 3, 1996.
- Oct. 1995 Analysis of environmental issues in the teaching of science. Presented in the workshop organized by the Green Forum for Lebanese elementary and middle school teachers. American University of Beirut Alumni Club, October 7, 1995.
- Oct. 1995 Scientific views and religious beliefs of college students: The case of biological evolution. Paper presented at the International History and Philosophy in Science Teaching Conference, Minneapolis, Minnesota, October 29-Nov. 2, 1995 (With Dr. Zoubeida Dagher).
- May 1995 Constructivist teaching in science. Lecture presented at the Antonin School in Zahle, Lebanon (With Dr. Zoubeida Dagher).
- April 1995 Presider in a session on Informal Science Education during the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA, April 22-25, 1995.
- April 1994 Position Paper on the Environment in Lebanon (Environmental Education Component). Regional Conference on the Environment: Jordanian University of Science and Technology, Irbid, Jordan, April 28- May 1, 1994.
- March 1994 Making sense of the nature of science through demonstrations. Paper presented at the annual Conference of the National Science Teachers Association, Anaheim, California, March 30 - April 2, 1994.
- March 1994 Environmental Education in Lebanon. Paper presented at the conference on Environmental problems at the national and the international levels organized by R. Mawad Foundation and Friedrich Newman Foundation. Carlton Hotel: Beirut Lebanon.
- Apr. 1993 Education in the Republic of Yemen: present status and future prospects. Paper presented at the conference of the Northeastern Educational Research Association, Portsmouth, NH April 1993.
- Apr. 1993 Students systematic errors when solving kinetic and equilibrium problems. Paper presented at the Annual Conference of the National Science Teachers Association, Atlanta, Georgia.
- June 1991 New directions for science education. Lecture presented at West Genesse School District, Syracuse, New York, June 24, 1991.
- May 1991 Teaching and learning science in Lebanon: a presentation to honors students at Liverpool High School, Liverpool, New York, May 21, 1991.
- Apr. 1991 The relationship between students formal reasoning ability, prior knowledge, approaches to studying, and their performance in chemistry -- Part I. Paper presented at the annual meeting of the New England Educational Research Organization Portsmouth, NH, April 24-26, 1991.

- Apr. 1991 The relationship between students' formal reasoning ability, prior knowledge, approaches to studying, and their performance in chemistry -- Part II. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Fontanna, WI April 7-10, 1991.
- Mar. 1991 Identifying high school students' erroneous problem solving strategies in chemistry. Paper presented at the Annual conference of the National Science Teachers Association, Houston, Texas, March 27-30.
- Mar. 1991 Similarities and differences between the science curriculum and teaching in Lebanon and the United States. Lecture presented at Liverpool High School, Liverpool New York.
- Jan. 1991 New initiatives in teacher education in the United States: Panel member during the first meeting of the Syracuse University School of Education Forum on Teacher Education.
- Oct. 1990 Careers in Chemistry Teaching. Paper presented during the regional career day conducted by the American Chemical Society, Syracuse University, Syracuse, NY. Oct. 26, 1990.
- Apr. 1990 Teaching for conceptual change. Paper presented at the annual conference of the National Science Teachers Association, Atlanta, GA, April 5-8, 1990.
- Apr. 1990 The relationship between high school students' learning style and their chemical misconceptions. Paper presented at the annual conference of the National Association for Research in Science teaching, Atlanta, GA April 8-11, 1990.
- Mar. 1990 Panel: the Teaching Assistant Program: the academic job hunt with Dean Robert Jensen and Chuck Reutlinger, Personnel Office.
- May 1989 The grant-in-aid program: an innovative program for training science teachers. Paper presented at the regional conference of the Association for the Education of Teachers in Science Syracuse NY, May 5-6, 1989.
- Mar. 1989 A study of conceptual change in junior high school students during instruction about the concept of burning. Paper presented at the annual conference of the National Association for Research in Science Teaching, San Francisco, California. Abstract Appeared in Science Education Information Report prepared by the ERIC Science and Mathematics Education Clearinghouse. Full document appeared as a Microfiche in ERIC.
- Apr. 1988 Identifying, categorizing, and correcting students' misconceptions about burning. Poster paper presented at the annual conference of the National Association for Research in Science Teaching, Lake of the Ozarks, Missouri. Abstract Appeared in Science Education Information Report prepared by the ERIC Science and Mathematics Education Clearinghouse.
- July 1987 Developing a teacher training technique using concept maps. Co-presenter of paper at the International Seminar on Misconceptions in Science and Mathematics, Cornell University, Ithaca, NY. The paper is published in the proceedings of the seminar.
- Apr. 1987 Emerging trends from ten years of science education research, 1976-1986. Paper presented at the annual conference of the National Association for Research in Science Teaching, Washington DC

- Apr. 1987 Abstract Appeared in Science Education Information Report prepared by the ERIC Science and Mathematics Education Clearinghouse. Needs of Teachers regarding the teaching of science. Paper presented at the National Convention of the National Science Teachers Association, Washington DC The paper was prepared and presented in collaboration with Dr. Glean Markle, Associate Dean, College of Education, University of Cincinnati and Dr. Robert Townsend, Science Supervisor, Cincinnati Public Schools.
- Mar. 1986 Problem Solving for Secondary Science Teachers. Paper presented at the National convention of the National Science Teachers Association, San Francisco.
- Apr. 1986 Using hands-on activities in elementary science. Co-presenter of workshop at the regional convention of the National Science Teachers Association, Indianapolis, Indiana.

Workshops and Conferences

- September 1993 Participated in the environmental education tour organized by the American University of Beirut to visit environmental education programs in institutions of higher learning and Government Agencies (EPA) in the United States.
- October 1994 Participated in a workshop on environmental assessment organized by R. Mawad Foundation and Friedrich Newman Foundation. Ehden, Lebanon.
- September 1995 Coordinated a three-day workshop entitled Environmental activities in science teaching at the Division of Education Programs, American University of Beirut.
- July 1996 Participated in two workshops at Duke University, Durham, North Carolina and the School of Environmental Science and Forestry at Syracuse, New York. The workshops focused on developing and implementing environmental programs and activities at the K-12 levels.
- September 1996 Coordinated a three-day workshop on Designing Science Laboratory Activities at the Division of Education Programs, American University of Beirut.
- September 1997 Coordinated a three-day workshop on Misconception in Science at the Division of Education Programs, American University of Beirut.
- May 1997 Chairman of the Organizing Committee of the First Science and Math Teachers' Conference on The role of science and math teachers in developing and Implementing school curricula held on May 3, 1997 at the American University of Beirut and Editor of the Conference proceedings.
- December 1999 Presented lectures in the Workshop for Science and Technology Supervisors on Environmental Education for secondary classes in the Arab World organized by the UNESCO Regional Office for Education to participate as a consultant in a training workshop for supervisors of science at the secondary level in the Arab countries. Muscat, Oman, December 12 - 17, 1998.
- July 1999 Participated in the activities of the Science Education for Public Understanding Project (SEPUP) National Fellows Conference that focused on the use of issue-oriented science education SEPUP materials. These programs included CHEM-2, SEPUP Modules,

Issues, Evidence and You, Science and Sustainability, and Science and Life Issues. Also, participated in the SEPUP Leadership Institute whose purpose was to provide an intensive, interactive experience devoted to developing and enhancing participants' ability to act as consultants and leaders of professional development experiences for schools adopting SEPUP materials. The National fellows Conference and the Leadership Institute were part of the SEPUP Conference held between July 19 and July 23, 1999 at the Lawrence Hall of Science, University of California at Berkeley

January 2002

Workshop on Active learning in science at the elementary level. Egypt New School Program, Fayoum and Cairo, Egypt.

Gave workshops and provided consultations for Al-Qualaa School, Sidon, Al-Manar School, Kobaih, Broummana High School, Broummana, Jesus and Mary School, Rabweh, North Lebanon College, Zghorta, Lebanon, Islamic Institute for Learning and Instruction, Tripoli, and Schools of Al-Beka's (in AUB Farm), Kingdom School, Saudi Arabia, Al-Maharat Schools, Saudi Arabia, News School program, Egypt.