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## Curriculum Vitae: 2010

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### MEHMET AYDENIZ, Ph.D.

Department of Theory and Practice in Teacher Education  
College of Education Health and Human Services  
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### EDUCATION HISTORY

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| 2002- 2007 | Ph.D.  | <b>Florida State University</b><br>Science Education,<br>Department of Middle and Secondary Education,<br>Tallahassee, FL. |
| 1999- 2001 | MS.    | <b>Florida State University</b><br>Science Education,<br>Department of Curriculum and Instruction,<br>Tallahassee, FL.     |
| 1993- 1997 | B. Sc. | <b>Gazi University</b><br>Science Education,<br>College of Education,<br>Ankara, Turkey.                                   |

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### PROFESSIONAL HISTORY

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| 2007- Present | <b>Assistant Professor of Science Education,</b><br>Program Coordinator, Secondary Science<br>University of Tennessee, Knoxville, Department<br>Theory and Practice in Teacher Education, Knoxville, TN |
| 2004- 2007    | <b>High School Chemistry Teacher,</b><br>Seminole County Public School System, Lake Mary, FL.   |
| 2001- 2004    | <b>Graduate Research Assistant,</b><br>Florida State University<br>Florida Collaborative in Teacher Excellence,<br>Tallahassee, FL  |
| 2002-         | <b>Program Evaluator,</b> Internship.<br>Office of Inspector General,<br>Florida Department of Education, Tallahassee, FL.  |

2002-2002	<b>Chemistry Instructor</b> Talent Identification Summer Program Duke University, Durham, NC.
2002- 2004	<b>Chemistry Instructor</b> Center for Academic Retention and Enhancement, Florida State University, Tallahassee, FL.
1998-	<b>High School English Teacher,</b> Kanuni High School, Ankara Turkey
1997-	<b>Middle School Science Teacher,</b> Gazi Middle School, Ankara Turkey.

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## PUBLICATIONS AND PRESENTATIONS

### Articles in Refereed Journals

- Aydeniz, M.** (2010)(in press). What do middle and high school students know about the particulate nature of matter after Instruction? Implications for practice. *School Science and Mathematics. (pp.1-23).*
- Aydeniz, M., & Hodge, L.** (2010). Is it dichotomy or tension: I am a scientist. No, wait! I am a teacher! *Cultural Studies of Science Education.* DOI:10.1007/s11422-009-9246-x.(pp 1-15).
- Aydeniz, M.** (2010, in press). Measuring the impact of electric circuits KitBook on elementary school children's understanding of simple electric circuits. *Electronic Journal of Science Education. (pp 1-22)*
- Aydeniz, M., & Brown, L. C.** (2010). Enhancing pre-service elementary school teacher's understanding of essential science concepts through a reflective conceptual change model. *International Electronic Journal of Elementary Education, 2(2), 305-326.*
- Cady, J., & Aydeniz, M., & Rearden, K.** (in press). Using technology to attract and retain teachers in high need areas. *Journal of Curriculum and Instruction.(pp 1-14).*
- Davis, N., Genc-Kumtepe, E., & Aydeniz, M.** (2007). Fostering continuous improvement and learning through peer assessment. *Educational Assessment, 12(2), 113-135.*

### Book Reviews:

- Aydeniz, M.** (2010). [Review of the book Teaching and Learning Biology through Scientific Argumentation: 30 Classroom Activities. NSTA Press.
- Aydeniz, M.** (2009). [Review of the book Formative Assessment: Improving Learning in Secondary Classrooms] Center for Educational Research and Innovation [CERI]. (2005). School Science and Mathematics.
- Aydeniz, M.** (2008). [Review of the book *Assessing Student Understanding in Science*] Corvin Press, March, 2008.

**Aydeniz, M.** (2007). [Review of the book *Teaching science to every child: Using culture as a starting point*] *Education Review*, October, 2007.

### Articles in Refereed Proceedings

**Aydeniz, M.,** Hagevik, R. A., & Roberson, J. H. (2009, September). *Fostering nature of science views through a situated learning model*. Proceedings of the Annual International Meeting of The European Science Education Research Association, Istanbul, Turkey.

**Aydeniz, M.** (2009, April). *Defining and measuring science teachers' conceptual ecology for assessment of students' learning in science*. Proceedings of the Annual International Meeting of The National Association for Research in Science Teaching, Garden Grove, CA.

Caner, F., Ogan-Bekiroglu, F., & **Aydeniz, M.** (2009, September). *Exploring the role of the microcomputer-based laboratory in facilitating the construction of knowledge in optics*. Proceedings of the Annual International Meeting of The European Science Education Research Association, Istanbul, Turkey.

**Aydeniz, M.** (2009, April). *Defining and measuring science teachers' conceptual ecology for assessment of students' learning in science*. Proceedings of the Annual International Meeting of The National Association for Research in Science Teaching, Garden Grove, CA.

**Aydeniz, M.** (2008, June). *A brief history of reform in science education and implications for understanding the role of assessment in science education reform (pp 139-144)*. Proceedings of the NSF US-Sino Workshop on Mathematics and Science Education: Common priorities that promote collaborative research, Murfreesboro, TN.

### Manuscripts Under Review

**Aydeniz, M.,** Baksa, K., & Skinner, J. (2010). (under review). Understanding the impact of an apprenticeship-based authentic scientific research program on high school students' understanding of scientific inquiry and identity development in relation to science: A legitimate peripheral participation perspective. *Science Education*.

Russell, T., & **Aydeniz, M.** (2010). (under review). Traversing the divide between high school science students and sophisticated nature of science understandings: A multi-pronged approach. *Journal of Research in Science Teaching*.

**Aydeniz, M.,** & Kotowski, M. (2010). (under review). Conceptual and methodological issues in the measurement of attitudes towards science. *School Science and Mathematics*.

**Aydeniz, M.,** Cihak, D, Graham, S. (2010). (under review). Using Inquiry-based instruction for teaching science to students with learning disabilities. *International Journal of Special Education*.

- Aydeniz, M., & Russell, T.** (2010). (under review). Exploring the challenges high school students experience with appropriating the epistemic and social norms of science while developing written arguments. *International Journal of Science Education*.
- Aydeniz, M., & Hodge, L.** (2010). (Invited, under review). Identity: A complex construct for researching students' academic behavior in science and mathematics. *Cultural Studies of Science Education*.
- Aydeniz, M., Pabuccu, A.** (2010). (under review). Understanding the impact of formative assessment strategies on first year university students' conceptual understanding of chemical concepts. *Chemical Education Research and Practice: Special Issue on Diagnostic Assessment*.
- Aydeniz, M., Southerland, S. A.** (2009). (under review). A national survey of secondary science teachers' attitudes towards standardized testing: How we devalue science in our schools. Submitted to *Journal of Research in Science Teaching*.
- Aydeniz, M., Murray, T., & Rearden, K.** (2010). (under review). Promoting scientific literacy through notebooks in the elementary classrooms. *Electronic Journal of Literacy through Science*.
- Aydeniz, M., & Cady, J.** (2010). (under review). What are the conditions for teaching reform-based science? An argument on science teachers' conceptual ecologies. *Science Educator*.
- Aydeniz, M., Southerland, S., & Davis, N.** (in preparation for resubmission). Understanding the nested relationships between science teachers' epistemic, pedagogical and assessment conceptions.
- Aydeniz, M., & Davis, N.** (In preparation for resubmission). Science teachers' conceptions of standardized testing: Implications for reform in science education.

### **Invited Presentations**

- Aydeniz, M.** (2009, August). *Students' conceptions in science: Investigating ideas, activities and interactions: How does learning really take place?* European Science Education Research Association & University of Wisconsin, Yeditepe University, Istanbul, Turkey.
- Cady, J. & Aydeniz, M.** (2009, February). *Understanding the role of epistemological beliefs in promoting reform-based instruction in mathematics and science classrooms.* Annual Tennessee Math and Science Education Research Conference, Murfreesboro, TN.
- Aydeniz, M.** (2008, February). *Ontology of science teachers' assessment beliefs.* Annual Math and Science Education Research Conference, Murfreesboro, TN.
- Aydeniz, M.** (2008). *Understanding the impact of science teachers' assessment beliefs and practices on the implementation of science education reform.* NSF US-Sino Workshop on Mathematics and Science Education: Common priorities that promote collaborative research, Murfreesboro, TN, June 22-27.

## National/International Conference Presentations

- Aydeniz, M., & Pabuccu, A.** (2010, May). *Enhancing minority students' agency for science learning through argumentation: Case for culturally responsive science instruction.* Paper Presented at The Annual International Meeting of The American Educational Research Association, Denver, CO.
- Aydeniz, M., & Hagevik, R. A.** (2010, May). *Learning to deliver or reflecting to learn: What do preservice science teachers learn through action research?* Paper Presented at The Annual International Meeting of The American Educational Research Association, May 1-4, Denver, CO.
- Aydeniz, M., & Southerland, S. A.** (2010, March). *A national survey of secondary science teachers' attitudes towards standardized testing: How we devalue science in our schools.* Paper Presented at The Annual International Meeting of The National Association for Research in Science Teaching, Philadelphia, PA.
- Baker, D. R., Purzer, S., & Aydeniz, M.** (2010, March). *A place for engineering education.* Paper Presented at The Annual International Meeting of The National Association for Research in Science Teaching, Philadelphia, PA.
- Hagevik, R. A., & Aydeniz, M.** (2010, January). *Using action research to strengthen middle and high school science interns' reflective practitioners' skills.* Paper presented at the Annual **International Meeting** of The Association for Science Teacher Education, Sacramento, CA.
- Aydeniz, M., Hagevik, R. A., & Roberson, J. H.** (2009, September). *Fostering nature of science views through a situated learning model.* Paper presented at the Annual **International Meeting** of The European Science Education Research Association, Istanbul, Turkey.
- Aydeniz, M., & Ogan-Bekiroglu, F.** (2009, September). *Enhancing Pre-Service elementary school teachers' understanding of essential science concepts through a reflective conceptual change model.* Paper presented at the Annual **International Meeting** of The European Science Education Research Association, Istanbul, Turkey.
- Caner, F., Ogan-Bekiroglu, F., & Aydeniz, M.** (2009, September). *Exploring the role of the microcomputer-based laboratory in facilitating the construction of knowledge in optics.* Paper presented at the Annual **International Meeting** of The European Science Education Research Association, Istanbul, Turkey.
- Aydeniz, M.** (2009, April). *Defining and measuring science teachers' conceptual ecology for assessment of students' learning in science.* Paper presented at the Annual **International Meeting** of The National Association for Research in Science Teaching, Garden Grove, CA.
- Aydeniz, M.** (2009, January). *Conceptualization of a framework for the measurement of science teachers' assessment literacy.* Paper presented at the Annual **International Meeting** of The Association for Science Teacher Education, Hartford, Connecticut.
- Aydeniz, M.** (2009, January). *Measuring the impact of electric circuits KitBook on elementary school children's understanding of simple electric circuits.* Paper presented at the

- Annual **International Meeting** of The Association for Science Teacher Education, Hartford, Connecticut.
- Aydeniz, M.** (2009, January). *In search of the right attitude: Clarifying the attitude construct in science education studies*. Paper presented at the Annual **International Meeting** of The Association for Science Teacher Education, Hartford, Connecticut.
- Aydeniz, M., Baksa, K., & Skinner, J.** (2009, October). *Understanding the role of an authentic scientific research model on the culture of STEM education in a high school*. Paper presented at the Annual Meeting of The Southeastern Association for Science Teacher Education, Atlanta, GA.
- Aydeniz, M., & Kotowski, E.** (2009, October). *What happens to middle and high school students' understanding of the particulate nature of matter after instruction? Implications for practice*. Paper presented at the Annual Meeting of The Southeastern Association for Science Teacher Education, Atlanta, GA.
- Aydeniz, M., & Minton, J. C.** (2009, October). *What do pre-service teachers learn about teaching photosynthesis and cellular respiration during their internships?* Paper presented at the Annual Meeting of The Southeastern Association for Science Teacher Education, Atlanta, GA.
- Aydeniz, M., & Russell, T.** (2009, October). *What does research say about teachers' beliefs? A meta-analysis of science teachers' beliefs studies*. Paper presented at the Annual Meeting of The Southeastern Association for Science Teacher Education, Atlanta, GA.
- Aydeniz, M.** (2009, November). *Using formative assessment prompts to promote students' cognitive and affective engagement in science content: Understanding the role of formative assessment in science learning*. Paper presented at The Annual Meeting of the Tennessee Science Teacher Association Nashville,, TN.
- Aydeniz, M.** (2008, October). *Assessment of students' Learning through argumentation: Case for Inclusive science instruction*. Paper presented at The Annual Meeting of the Southeastern Association for Science Teacher Education (SASTE), Columbia, SC.
- Aydeniz, M.** (2008, April). *What is hindering reform-based teaching: Cultural constraints or professional limitations?* Paper presented at the Annual **International Meeting** of The National Association for Research in Science Teaching, Baltimore, MD.
- Aydeniz, M.** (2008, January). *Can Technology do the job? Facilitating inquiry learning using dynamic content management systems*. Paper presented at The Annual **International Meeting** of Association for Science Teacher Education, St. Louis, MO.
- Aydeniz, M., Davis, N., Southerland, S., & Gilmer, P. J.** (2007, March). *Understanding the nested relationship between science teachers' epistemic views of science, their pedagogical and assessment conceptions*. Paper presented at the Annual **International Meeting** of the National Association for Research in Science Teaching, New Orleans, LA.
- Aydeniz, M.** (2006, October). *Understanding high school science teachers' conceptions of standardized tests; What are the implications for science education reform?* Paper

presented at The Annual Meeting of the Southeastern Association for Science Teacher Education (SASTE), Macon, GA.

**Aydeniz, M.** (2006, March). *Understanding the challenges of implementing assessment reform in secondary school science classrooms: A sociocultural perspective*. Paper presented at the Annual **International** Meeting of The National Association for Research in Science Teaching San Francisco, CA.

**Aydeniz, M.** (2006, January). *Redefining the standards of assessment in science learning: Development of a survey on teacher beliefs and practices of assessment*. Paper presented at The Annual **International** Meeting of the Association for Science Teacher Educators, Portland, Oregon.

**Aydeniz, M.** (2005, October). *Reflections on the influence of a hands-on space science workshop on science and math teachers' knowledge of space science and their inclination to integrate space science in their curriculum*. Paper presented at the Annual Meeting of the Southeastern Association for Science Teacher Education. Athens, GA.

**Aydeniz, M., & Gilmer, P. J.** (2003, April). *Promoting active learning in college science teaching*. Paper presented at the Biannual **International** Meeting of College Teaching and Learning, Jacksonville, FL.

**Aydeniz, M., & Gilmer, P. J.** (2003, March). *Mapping Florida's higher education learning environment*. Paper presented at the Annual **International** Meeting of The National Association for Research in Science Teaching, Philadelphia, PA.

Gilmer, P. J., Gallagher, J, & **Aydeniz, M.** (2003, January). *Transforming teaching practices in college science classes through reflection*. Paper presented at The Annual International Meeting of Association for Science Teacher Education, St. Louis, MO.

**Aydeniz, M.** (2002, October). *Reflecting on professional development of science teachers*. Paper presented at the Annual Meeting of The Southeastern Association for Science Teacher Education (SASTE), Kennesaw, GA.

**Aydeniz, M.** (2002, June). *Why should I learn chemistry? Obligation or motivation*. Gordon Research Conference on Innovations in College Chemistry Teaching. Connecticut College, CT.

**Aydeniz, M.** (2002, April). *High schools students' perceptions of their learning science through computer-based visualizations: A case study*. Paper presented at the International Conference on College Teaching and Learning, Jacksonville, FL.

**Aydeniz, M.** (2001, June). Poster session: *How do students make sense of science through web-based visual resources?* Gordon Research Conference on Science Education and Visualization, International, Mount Holyoke College, MA

### **Reports and Manuscripts**

**Aydeniz, M.** (2009). *Exploring the impact of electric circuits KitBook on elementary school children's understanding of simple electric circuits*. Submitted to the State of Tennessee Center for Industrial Services.

## TEACHING

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### Courses Taught

2010-Fall	SCE 496	Teaching Science Grades 7-12 (3)
2010-Fall	SCE 574	Action-Research: Analysis of Teaching/Professional Development (3)
2010-Summer	SCE 565	Instructional Trends in Science Education (3)
2010-Summer	SCE 596	Curriculum Trends in Science Education (3)
2010-Spring	ED 591	Clinical Studies
2009-Fall	SCE 496	Teaching Science Grades 7-12 (3)
2009-Fall	SCE 574	Action-Research: Analysis of Teaching/Professional Development (3)
2009-Spring	SCE 591	Action-Research: Clinical Studies in Science Education (3)
2009-Summer	SCE 565	Instructional Trends in Science Education (3)
2009-Summer	SCE 596	Curriculum Trends in Science Education (3)
2008-Spring	SCE 422	Elementary School Science Teaching Methods (3)
2008-Summer	SCE 565	Instructional Trends in Science Education (3)
2008-Summer	SCE 596	Curriculum Trends in Science Education (3)
2008-Fall	SCE 496	Teaching Science Grades 7-12 (3)
2008-Fall	SCE 574	Action-Research: Analysis of Teaching/Professional Development (3)
2007-Fall	SCE 543	Teaching Science in Middle Grades (3)
2007-Summer	SCE 596	Curriculum Trends in Science Education (3)

### Independent Study Courses Taught

SCE 595	Science Teachers' NOS Beliefs and Practices, <b>Tammi Russell.</b>
SCE 595	Current Trends in Chemical Education Research, <b>Erin Kotowski.</b>
SCE 595	Teaching Science for THE Epistemological Development of Young Learners, <b>Matthew Ayres.</b>
SCE 595	Teaching Science Through Argumentation: The Metacognitive Aspect, <b>Bennett Atkinson.</b>
SCE 595	Laboratory investigations in Secondary School Science Classrooms, <b>Cori Galefnhein.</b>

## Professional Development Activities

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- 2009 Enhancing Introductory College Science Teaching, Tennessee Teaching and Learning Center, July, 16, 2009, Knoxville, TN.
- 2009 Teaching Evolution in The Middle and High School Classrooms, part of UT Darwin Day Activities, February, 09, 2009, Knoxville, TN.
- 2009 Understanding National and State Science Standards, Roane County School System, February, 13, 2009. Roane County High School.
- 2007 Integrating Mathematics and Science Workshop, for Anderson County Public School Elementary Teachers. (Workshop Facilitator)
- 2007 TN Teacher Excellence in High School Science. (A workshop designed to improve high school science teachers' content and pedagogical content knowledge).
- Session1: The Scientific method & Cell Biology.  
Session2: Biodiversity.  
Session3: Genetics

## FUNDED RESEARCH

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1. *A Meta-analysis of Teacher Belief Studies in Science Education* \$3,600  
**University of Tennessee, Summer Research Funds,**  
Principal Investigator,  
05/01/09-09/30/09.
2. *Enhancing African-American Students' Learning of Science through Argumentation,*  
\$4,792,  
**University of Tennessee, Knoxville, Faculty Professional Development Grant,**  
Principal Investigator, 12/05/07-06/30/09.
3. *Exploring the Impact of Kitbook on Elementary School Students' Conceptual Understanding of Electricity,* \$7,942  
**Center for Industrial Services, State of Tennessee,** Principal Investigator,  
8/25/07-06/30/08.

### Other Grant Affiliation:

**VolsTeach:** \$1.8 million initiative from the National Math and Science Initiative to launch VolsTeach.

**Role:** Core faculty

**Teach Here:** Urban Teacher Residency Program

**Role:** Core faculty

## PROFESSIONAL SERVICE

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### Editorship and Editorial Board

Electronic Journal of Science and Mathematics Education.

#### Journal Reviewer

Journal of Research in Science Teaching (JRST)  
International Journal of Science Education (IJRSE)  
Electronic Journal of Literacy through Science  
Cultural Studies of Science Education

### Conference Proposal Reviewer

American Educational Research Association annual meeting (AERA)  
Association for Science Teacher Educators (ASTE)  
National Association for Research in Science Teaching annual meeting (NARST)

### Grant Reviewer:

National Science Foundation

#### Committees

Outstanding Dissertation Award Committee 2007-2011, National Association for Research in Science Teaching.

National Council for Accreditation of Teacher Education/Program Reviewer, 2007-Present.

Natural Sciences Curriculum Committee, The University Tennessee, Knoxville, 2007-Present

### Memberships

American Educational Research Association annual meeting (AERA)  
Association for Science Teacher Educators (ASTE)  
National Association for Research in Science Teaching annual meeting (NARST)  
School Science and Mathematics Association

## SCHOLARSHIPS AND AWARDS

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2006	FSU College of Education Conference Presentation Grant (2)
2003	National Science Foundation Graduate Student Presentation Grant
2003	FSU College of Education Conference Presentation Grant.
2002	National Science Foundation Graduate Student Presentation Grant
2001	FSU College of Education Conference Presentation Grant
1993-1997	Turkish Educational Foundation
1999-2006	Ministry of Education Study Abroad Program
1994-97	Anatolian Contemporary Educational Foundation
1995-97	Ankara Turkish Educational Association