

**SINEM DEMIRCI, Ph.D.**

## **PERSONAL INFORMATION**

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Orcid ID: <https://orcid.org/0000-0002-2095-0674>

Website: <https://sinemdemirci.github.io/>

Google Scholar: <https://tinyurl.com/3vam9js8>

## **WORK EXPERIENCE**

2022- Present	Dept. of Statistical Science, University College London	(Postdoctoral) Visiting Researcher / Lecturer
2021 - 2022	TEDMEM	Social and Educational Research Specialist (Policy Analyst)
2013 - 2020	Dept. of Math. & Sci. Education, Middle East Technical University	Teaching & Research Assistant

## **EDUCATION**

<b>Degree</b>	<b>University</b>	<b>Year of Graduation</b>
Ph.D.	Elementary (Science) Education, Middle East Technical University	2021
M.Sc.	Statistics, Middle East Technical University	2018
M.Sc.	Elementary Science and Mathematics Education, Middle East Technical University	2014
B.S.	Elementary Science Education, Middle East Technical University	2011

**RESEARCH INTERESTS:** Statistics & Data Science Education, Educational Statistics,  
Systems Thinking in Environmental and Sustainability Education

## **LANGUAGES**

	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
<b>English</b>	Advanced	Advanced	Advanced
<b>Turkish</b>	Advanced	Advanced	Advanced
<b>German</b>	Pre-intermediate	Intermediate	Intermediate

**COMPUTER SKILLS:** R Project for Statistical Computing, IBM SPSS Software, LISREL,  
Git /GitHub

## AWARDS

2021	Scientific and Technological Research Council of Turkey (TUBITAK)	2219-Postdoctoral Research Scholarship
2021	European Educational Research Association	Bursary Winner for ECER 2020
2015	Middle East Technical University	Thesis of the Year
2013	Scientific and Technological Research Council of Turkey (TUBITAK)	2224-A International Scientific Events Support Program

## PUBLICATIONS

### Peer Reviewed Articles

- Demirci, S., Şahin E., Teksöz, G. & Marcinkowski, T. J. (2021). Pre-Service teachers' beliefs on human population growth in the context of education for sustainable development: development and validation of an instrument. *Journal of Teacher Education for Sustainability*, 23(2), 121-142. <https://doi.org/10.2478/jtes-2021-0021>
- Demirci, S. & Şahin, E. (2018). An analysis of Turkish middle school science education program placing climate change issues in the context of education for sustainable development. *International Journal of Quality in Education*, 2(1), 13-21. URL: <https://dergipark.org.tr/en/pub/ijqe/issue/37135/427929>
- Demirci, S. (2018). The context of sustainable development in Turkish elementary science curriculum. *International Journal of Quality in Education*, 1(1), 54-61. URL: <https://dergipark.org.tr/en/pub/ijqe/issue/37117/427577>
- Demirci, S. & Teksöz, G. (2017). Self-Efficacy beliefs on integrating sustainability into profession and daily life: in the words of university students. *International Electronic Journal of Environmental Education*, 7(2), 116-133. URL: <https://files.eric.ed.gov/fulltext/EJ1180990.pdf>
- Demirci, S., Yılmaz, A., & Şahin, E. (2016). Lise ve üniversite öğrencilerinin atomun yapısı ile ilgili zihinsel modellerine genel bir bakış. [An Overview of High School and University Students' Mental Models of the Structure of the Atom]. *Türkiye Kimya Derneği Dergisi, Kısım C: Kimya Eğitimi*, 1(1), 87-106. URL: <https://dergipark.org.tr/en/pub/jotcsc/issue/30533/330312>

## Conference Papers/Presentations

- Demirci, S., Reid, A., Teksoz, G. & Sahin E. (2023). *Systems Literacy as a Key Concept for Quality Education and Agenda 2030*. [Roundtable Discussion]. AERA 2023 Annual Meeting, Chicago, Illinois, U.S.A.
- Demirci, S., Şahin E. & Teksöz, G. (2021, September). *Eight-Graders' Understanding of Hidden Use of Water and Their Action Strategies for Sustainable Use of Water*. [Paper presentation]. European Conference on Educational Research, Geneva, Switzerland
- Demirci, S., Şahin E. & Teksöz, G. (2021, September). *Middle School Students' Perceptions on the Interactions among Water Cycle, Global Warming, and Climate Change*. [Paper presentation]. European Conference on Educational Research, Geneva, Switzerland
- Demirci, S., Şahin E. & Teksöz, G. (2020, September). *Redefining Urbanization: in the views of university students*. [Paper presentation]. 5<sup>th</sup> International Symposium on Environment and Morals, Turkey
- Demirci, S. & Teksöz, G. (2020, September). *Pre-service Teachers' Perceptions on the Interactions between COVID-19 Pandemic and the Environment*. [Paper presentation]. 5<sup>th</sup> International Symposium on Environment and Morals, Turkey
- Demirci, S. & Teksöz, G. (2018, June). *Pre-service Science Teachers' Skills on Problem/Issue Analysis in Environmental Education*. [Paper presentation]. ERPA International Congresses on Education, Istanbul, Turkey
- Demirci, S. (2018, June). *Middle School Students' Mental Models of the Water Cycle*. [Paper presentation]. ERPA International Congresses on Education, Istanbul, Turkey
- Teksöz, G. & **Demirci, S.** (2017, August). *About the Context of Climate Change Education for Sustainability: In the Words of University Students*. [Paper presentation]. 12<sup>th</sup> Biannual Conference of the European Science Research Association (ESERA), Dublin, Republic of Ireland.
- Demirci, S., Kaplan, G., Cengizoğlu, S., & Şen, M. (2017, April). *Pre-service teachers' Understandings of sustainability based on ontological entities*. [Paper presentation]. 26<sup>th</sup> International Conference on Educational Sciences, Antalya, Türkiye.
- Cengizoğlu, S & **Demirci, S.** (2016, September). *Türkiye'de Yaşayan Çocuklar ve Çevre-İnsan İlişkisi: Bir İçerik Analizi Çalışması*. [Paper presentation]. UFBMEK 2016, Trabzon, Türkiye.
- Demirci, S. & Cengizoğlu, S. (2016, September). *Türkiye'de Okul Öncesi Dönemde Fen Eğitimi'nde Yapılan Çalışmaların Bölgelere, Değişkenlere ve Örneklem Gruplarına Göre İçerik Analizi*. [Poster presentation]. UFBMEK 2016, Trabzon, Türkiye.
- Demirci, S. & Şahin E. (2016, May). *An Analysis of Turkish Middle School Science Education Program Placing Climate Change Issues in The Context of Education for Sustainable Development*. [Paper presentation]. the 14<sup>th</sup> International JTEFS/BBCC Conference

Sustainable Development, Culture, Education: Innovations and Challenges of Teacher Education for Sustainable Development, Konya, Turkey.

- Demirci, S. (2016, May). *The Context of Sustainable Development in Turkish Elementary Science Curriculum*. [Paper presentation]. the 14<sup>th</sup> International JTEFS/BBCC Conference Sustainable Development, Culture, Education: Innovations and Challenges of Teacher Education for Sustainable Development, Konya, Turkey.
- Demirci, S. & Şen, M. (2016, April). *Pre-Service Science Teachers' Misconceptions About Density and Buoyancy*. [Paper presentation]. The annual meeting of NARST International Conference toward Equity and Justice: Many Different Voices, Cultures, and Languages in Science Education Research for Quality Science Learning and Teaching, Baltimore, Maryland, U.S.A.
- Demirci, S., Şahin E. & Teksöz, G. (2015, October). *Is the Carrying Capacity Exceeded? Preservice Teachers' Beliefs on Human Population Growth*. [Paper presentation]. The annual meeting of North American Association in Environmental Education, San Diego, California, U.S.A.
- Demirci, S., Şahin, E. & Yılmaz, A. (2015, September). *The Effects of History of Science on Students' Mental Models Regarding Atomic Models*. [Poster presentation]. 11<sup>th</sup> biannual Conference of the European Science Research Association (ESERA), Helsinki, Finland.
- Yılmaz, A., Şahin, E. & **Demirci, S.** (2015, September). Lise ve Üniversite Öğrencilerinin Atomun Yapısı ile İlgili Zihinsel Modellerine Genel Bir Bakış. [Paper presentation]. 4. Ulusal Kimya Eğitimi Kongresi, Balıkesir, Turkey.
- Demirci, S. & Şen, M. (2015, September). *Fen Bilgisi Öğretmen Adaylarının Yoğunluk Konusunda Kavram Yanılgılarının Belirlenmesi*. [Paper presentation]. 2. Ulusal Fizik Eğitimi Kongresi, Ankara, Turkey.
- Demirci, S., Şahin E. & Teksöz, G. (2015, June). An Exploration of University Students' Beliefs on the Sustainable Growth of Human Population. [Paper presentation]. 8<sup>th</sup> World Environmental Education Congress (WEEC), Gothenburg, Sweden.
- Demirci, S. & Teksöz, G. (2015, April). *ESD in Higher Education: University students' perceptions of sustainability and its relation to their self-efficacy beliefs to integrate sustainability into their profession and daily lives*. [Poster presentation]. the Pathways to the Future: Education for Sustainable Development, Tallinn, Estonia.
- Şahin, E., Yılmaz, A. & **Demirci, S.** (2015, April). *A Review of Elementary Students' Conceptual Understandings of 'Atom'*. [Paper presentation]. International Organization for Science and Technology Education (IOSTE), İstanbul, Turkey.
- Demirci, S. & Teksöz, G. (2014, September). *Üniversite Öğrencilerinin Sürdürülebilir Kalkınma Kavramını Gelecekteki Meslekleri Ve Günlük Yaşamlarına Birleştirmek Konusundaki Öz-yeterlik İnanışları*. [Paper presentation]. UFBMEK 2014, Adana, Türkiye.

Demirci, S., Şahin E. & Teksöz, G. (2014, April). *What does a Survey Study on Beliefs towards Human Population Growth Imply for Teacher Education?* [Paper presentation]. EJER 2014 Congress, İstanbul, Türkiye.

Demirci, S., Şahin E. & Teksöz, G. (2013, October). *Determining Pre-service Teachers' Beliefs towards Human Population Growth*. [Paper presentation]. The annual meeting of North American Association in Environmental Education, Baltimore, Maryland, U.S.A.

Çokoğlu, S. & Şahin, E. (2012, May). *Beliefs toward Population Growth in Turkey*. [Paper presentation]. 1. Ulusal Disiplinlerarası Çevre Kongresi, Sakarya, Türkiye.

## Theses

Demirci S. (2021). Exploring middle school students' systems literacy within the context of water system. [Doctoral dissertation, Middle East Technical University].  
<https://open.metu.edu.tr/handle/11511/89645>

Demirci S. (2018). *A Closer look to Turkish students' scientific literacy: What do PISA 2015 results tell us?* [Master's thesis, Middle East Technical University].  
<https://open.metu.edu.tr/handle/11511/27834>

Demirci S. (2014). *Development and validation of human population growth scale in the context of sustainability*. [Master's thesis, Middle East Technical University].  
<https://open.metu.edu.tr/handle/11511/23331>

## Book Chapters about Education Policies

TEDMEM. (2022). *Seçimlerde eğitimin yeri: siyasi partilerin vaatleri, seçmenlerin beklentileri* [The role of education in elections: promises of political parties, expectations of voters] (TEDMEM Güncel Yayınlar Dizisi 7). Türk Eğitim Derneği. ISBN: 978-605-74377-3-0. <https://tinyurl.com/42dm6pk8>

Demirci S. (2022). Öğretmenlik ve mesleki süreç [Teaching and teacher education]. In TEDMEM (Ed.). *2021 eğitim değerlendirme raporu* [2021 education assessment report]. (TEDMEM Değerlendirme Dizisi 8) (pp.147-159). Türk Eğitim Derneği. ISBN: 978-605-74377-2-3. <https://tinyurl.com/3xz9unnn>

TEDMEM (2021). *20. Millî Eğitim Şûrası konularına ilişkin görüş ve öneriler* [Remarks and Recommendations on the themes of the 20<sup>th</sup> National Education Council] (TEDMEM Güncel Yayınlar Dizisi 6). Türk Eğitim Derneği. ISBN: 978-605-74377-1-6. <https://tinyurl.com/bdsub3xt>

Demirci S. (2021). Salgın sürecinde dünyada ve türkiye’de eğitimin bir yılı [One year in education in the world and in Turkey during the pandemic]. In TEDMEM (Ed.). *Türkiye’nin telaflı eğitimi yol haritası* [Turkey's education recovery roadmap] (TEDMEM Analiz Dizisi 9) (pp.7-22). Türk Eğitim Derneği. ISBN: 978-605-74377-0-9. <https://tinyurl.com/2p9y2ctr>

## Other Publications

Demirci S. (2021). Öğretmenler, öğrenme ortamları ve okullar [Teachers, learning environments, and schools]. In TEDMEM (Ed.). *Bir bakışta eğitim 2021* [Education at

a Glance 2021]. <https://tedmem.org/mem-notlari/degerlendirme/bir-bakista-egitim-2021>

Demirci S. (2021). Öğretmenlerin dijital yeterlikleri [Teacher Digital Competencies]. <https://tedmem.org/mem-notlari/degerlendirme/ogretmen-dijital-yeterlikleri>

Demirci, S. (2021). COVID-19 ve dünyada okulların durumu [COVID-19 and The Status of the Schools Worldwide]. <https://tedmem.org/covid-19/covid-19-ve-dunyada-okullarin-durumu>

## **PROJECT EXPERIENCE**

*Project title:* Pedagogical Content Knowledge in Data Science Education: An Assessment of Readiness to Teach Data Science in Higher Education

*PI:* Dr. Sinem Demirci

*Partners/Collaborators:* Dr Mine Dogucu – UCL,  
Assist. Prof. Dr Joshua M. Rosenberg – University of Tennessee, Knoxville,  
Teaching Assoc. Prof. Dr Andrew Zieffler – University of Minnesota

*Funded by:* The Scientific and Technological Research Council of Turkey, TÜBİTAK

*Sponsored by:* University College London

*Role & time spent:* Principal Investigator, 01.08.2022 - 31.07.2023

*Project title:* From Waste to Fertilizer 3 - Composting

*PI:* Dr. Serap Bilen (METU, Society and Science Application and Research Center)

*Supported by:* The Scientific and Technological Research Council of Turkey, TÜBİTAK

*Role & time spent:* Trainer, 08.04.2019 - 19.04.2019

*Project No:* 218B226

*Project title:* From Waste to Fertilizer 1 - Composting

*PI:* Dr. Serap Bilen (METU, Society and Science Application and Research Center)

*Supported by:* The Scientific and Technological Research Council of Turkey, TÜBİTAK

*Role & time spent:* Trainer, 09.10.2017 -30.10.2017

*Project No:* 117B056

*Project title:* In-service Science Teachers' Teaching Experiences on Atomic Models within the context of History of Science

*PI:* Assoc. Prof. Dr. Elvan Şahin (METU, Dept. of Science and Mathematics Education)

*Supported by:* Scientific Research Projects Coordination Unit, Middle East Technical University

*Role & time spent:* Researcher, 1.1.2015 -31.12.2015

*Project No:* BAP-05-06-2015-001

*Project title:* University Students' Beliefs on Human Population Growth

*PI:* Assoc. Prof. Dr. Elvan ŞAHİN (METU, Dept. of Science and Mathematics Education)

*Supported by:* Scientific Research Projects Coordination Unit, Middle East Technical University

*Role & time spent:* Researcher, 1.1.2013 -31.12.2013

*Project No:* BAP-07-03-2013-010

## COURSES ASSISTED

Course Code	Course Name	Number of Semesters
STAT0004	Introduction to Practical Statistics	Term 2 – (Winter 2023)
MSE 501	Educational Statistics	8 Semesters (2014 – 2020)
MSE 409 & 410	Practice Teaching, I & II	6 Semesters (2016 – 2020)
MSE 487	Environmental Science	5 Semesters (2014 – 2020)
MSE 474	Education and Awareness for Sustainability	3 Semesters (2014 – 2020)
MSE 309	Statistical Applications in Education	3 Semesters (2016 - 2020)
ELE 477	Laboratory Applications in Environmental Education	2 Semesters (Spring 2012 & 2017)
MSE 305	Assessment of Learning in Science and Mathematics	2 Semesters (2014 – 2015)
MSE 288	Community Service	2 Semesters (2017 – 2019)
MSE 502	Research Methods and Ethics	1 Semester (Spring 2019)
MSE 602	Advanced Educational Research	1 Semester (Fall 2016)
MSE 301	Methods of Science Teaching in Middle Schools I	1 Semester (Spring 2017)
MSE 302	Methods of Science Teaching in Middle Schools II	1 Semester (Spring 2018)
MSE 531	Readings in Science Education	1 Semester (Fall 2017)
MSE 475	Climate Change Education for Sustainability	1 Semester (Spring 2014)
MSE 536	Skills on Environmental Issue Investigation	1 Semester (Fall 2014)

## JOURNAL/CONFERENCE PROPOSAL REVIEWING

Journal/Event	Year
Environmental Education Research	2022 & 2023 (x3)
Van Yüzüncü Yıl University Journal of Education	2022 & 2023
E-International Journal of Educational Research	2020
NAAEE Proposal Review Team	2014 & 2015

## WORKSHOPS & INVITED TALKS

Dogucu, M. & Demirci, S. [\*Disseminating Collaborative and Reproducible Research\*](#). Workshop given at the Department of Statistical Science, University College London. London, UK, Feb 2023.

Demirci, S. Middle School Students' Water Systems Literacy: A Multiple Case Study Example. Invited talk at the course of MSE 346 Teaching Complex Systems in Science, Middle East Technical University, Department of Mathematics and Science Education, Online, November 25, 2022

Demirci, S. How to prepare a conference paper presentation. Invited talk at the course of MSE 599 M.Sc. Seminar, Middle East Technical University, Department of Mathematics and Science Education, Online, November 2022

Demirci, S. Youth responsibilities in the Climate Crisis. Invited talk as a part of Access Project Events (Project Partners: FHI 360, US Embassy Ankara and Turkish Education Association), Online, February 1, 2022

Demirci, S. İklim degisikliginin bilimi, sebepleri, sonuclari ve cozum onerileri [Climate change: Science, Causes, Impacts, and Solutions.] Invited talk as a part of TEDMEM Event at Turkish Education Association, Online, August 20, 2021

Demirci, S. How to prepare a conference paper presentation. Invited talk at the graduate seminar course, Middle East Technical University, Department of Mathematics and Science Education, Online, 2021

Demirci, S. Climate change: Science, Impacts, and Solutions. Invited talk as a member of Climate Reality Leadership Corps at the course of MSE 487 Environmental Science, Middle East Technical University, Department of Mathematics and Science Education, December, 2020, Ankara, Turkey

Demirci, S. Climate change: Science, Impacts, and Solutions. Invited talk as a member of Climate Reality Leadership Corps at the course of MSE 487 Environmental Science, Middle East Technical University, Department of Mathematics and Science Education, Fall 2016, Ankara, Turkey

Demirci, S. Climate change: Science, Impacts, and Solutions. Invited talk as a member of Climate Reality Leadership Corps at the course of MSE 475 Climate Change Education for Sustainability, Middle East Technical University, Department of Mathematics and Science Education, Spring 2016, Ankara, Turkey

Demirci, S. Climate change: Science, Impacts, and Solutions. A total of 10 talks were given as a member of Climate Reality Leadership Corps at the Middle East Technical University between October 2013 - June 2014, Ankara, Turkey

## **ACTIVITIES, MEMBERSHIPS & SERVICE TO THE FIELD AND UNIVERSITY**

Judge at Undergraduate Statistics Project Competition and Electronic Undergraduate Statistics, Research Conference ([USPROC](#)), Fall 2022

Early Career Member, American Educational Research Association, January 2023 - Present

Organizing Committee Member, TED International Education Forum – Digital Obesity, Ankara, Turkey, May 2021

Jury Member, Science Fair of ODTÜ Geliştirme Vakfı Okulları, Ankara, Turkey, 2013 – 2016 & 2020



Volunteer at [Science through ART](#), The European Researchers' Night event funded under the European Union's Horizon 2020 program, organized by the METU Society and Science Application and Research Center, METU Campus in September 2019

Volunteer at [Science@Home](#), The European Researchers' Night event funded under the European Union's Horizon 2020 program, organized by the METU Society and Science Application and Research Center, METU Campus in September 2017

Volunteer at [Science is Fun! @METU](#) event, organized by the METU Society and Science Application and Research Center, METU Campus, November 4, 2012

Student Member, North American Association for Environmental Education, 2013 – 2014

Member, METU Scouts, Ankara, Turkey, 2006 – Present

Leader, METU Scouts, Ankara, Turkey, 2009 – 2011

Head of Education Committee, METU Scouts, 2009-2010

## **COMMUNITY SERVICE**

Volunteer at the charity event for suburban middle school students, Ankara, Turkey, 2022-Present

Volunteer at organizing weekend supplementary classes for the middle school students of “Okula Yüz Verin” project, METU Alumni, Ankara, Turkey, 2013-2014

Volunteer at the Charity Project of Construction of School Building “Okula Yüz Verin”, METU Alumni, Ankara, Turkey, 2010-2014

Volunteer at the project of studying with visually impaired students “Engelsiz ODTÜ”, Ankara, Turkey, 2009-2010

Youth Summer Camp Leader at Middle East Technical University, Ankara, Turkey, 2009

Volunteer at Project of Collecting, Sorting, and Recycling Waste “Temiz Eymir”, Ankara, Turkey, 2008-2010

Volunteer at selling UNICEF Cards and Gifts at Middle East Technical University, Ankara, Turkey, 2006-2010

Volunteer at annual charity events for suburban elementary school students in Ankara, Turkey, 2006-2011

Volunteer at organizing wheelchair basketball game, 2010

**PERSONAL INTERESTS:** Camping, Pilates, Western concert flute (beginner)