

CURRICULUM VITAE

Emine Adadan, Ph.D.

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ACADEMIC DEGREES

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| Ph.D. | 2006 | The Ohio State University, Columbus, OH Science Education <i>Dissertation:</i> Promoting High School Students' Conceptual Understandings of the Particulate Nature of Matter through Multiple Representations <i>Advisor:</i> Kathy C. Trundle <i>Co-Advisor:</i> Karen E. Irving |
| M.A. | 2002 | The Ohio State University, Columbus, OH Science Education |
| B.S. | 1995 | Marmara University, Istanbul Chemistry Education |

WORK EXPERIENCE

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| Dec. 2020 – present | <i>Full Professor</i> , Bogazici University |
| Dec. 2015-Dec. 2020 | <i>Associate Professor</i> , Bogazici University (ÜAK – March 26, 2015) |
| Sept. 2009-Dec. 2015 | <i>Assistant Professor</i> , Bogazici University |
| March 2007-Sept. 2009 | <i>Lecturer</i> , Bogazici University. |
| Sept. 1995-Sept. 1999 | <i>Chemistry/Science Teacher</i> , Özel Yeni Dünya High School, Istanbul. Teaching science for Grade 6 to 8, and teaching chemistry for Grade 9 to 11. |

PUBLICATIONS

International Publications

- Langbeheim, E., Akaygun, S., **Adadan, E.**, Hlatshwayo, M. & Ramnarain, U. D. (2023). Relating pictorial and verbal forms of assessments of the particle model of matter in two communities of students. *International Journal of Mathematics and Science Education*, 21(8), 2185-2201. (SSCI)
- Langbeheim, E., Ben-Eliyahu, B., **Adadan, E.**, Akaygun, S., & Ramnarain, U. D. (2022). Intersecting visual and verbal representations and levels of reasoning in the structure of matter learning progression. *Chemistry Education Research and Practice*, 23(4), 969-979. (SSCI)
- Akaygun, S., & **Adadan, E.** (2021). Investigating the role of conceptual understanding on how students watch an experimental video using eye-tracking. In Iztok Devetak & Saša A. Glažar (Eds.), *Applying Bio-Measurements Methodologies in Science Education Research* (pp. 93-106). Singapore: Springer.
- Akaygun, S., & **Adadan, E.** (2021). Fostering senior primary school students' understanding of climate change in an inquiry-based learning environment. *Education 3-13 - International Journal of Primary, Elementary and Early Years Education*, 49(3), 330-343. (ESCI)
- Adadan, E.**, & Ataman M. M. (2021). Promoting senior primary school students' understanding of particulate nature of matter through inquiry instruction with multiple representations. *Education 3-13 - International Journal of Primary, Elementary and Early Years Education*, 49(3), 317-329. (ESCI)
- Adadan, E.** (2020). Analyzing the role of metacognitive awareness in preservice chemistry teachers' understanding of gas behavior in a multirepresentational instruction setting. *Journal of Research in Science Teaching*, 57(2), 253-278. (SSCI)
- Akaygun, S., **Adadan, E.**, & Kelly, R. (2019). Capturing preservice chemistry teachers' visual representations of redox reactions through storyboards. *Israel Journal of Chemistry*, 59(6-7), 493-503. (SCI)
- Akaygun, S., & **Adadan, E.** (2019). Revisiting the understanding of redox reactions through critiquing animations in variance. In M. Schultz, S. Schmid, G.A. Lawrie (Eds.), *Research and Practice in Chemistry Education* (pp. 7-29). Singapore: Springer.
- Adadan, E.**, & Oner, D. (2018). Examining preservice teachers' reflective thinking skills in the context of web-based portfolios: The role of metacognitive awareness. *The Australian Journal of Teacher Education*, 43(11), 26-50. (SCOPUS, ERIC)
- Adadan, E.**, & Yavuzkaya, M.N. (2018). Examining the progression and consistency of thermal concepts: A cross-age study. *International Journal of Science Education*, 40(4), 371-396. (SSCI)

- Kampschulte, L., Akaygun, S., **Adadan, E.**, Eilert, K., Heyduck, B. (2018). Interdisciplinary research brought to school—connecting chemistry and biology through nanotechnology. *Journal of Microbiology and Biology Education*, 19(1): doi:10.1128/jmbe.v19i1.1400.
- Adadan, E.**, Akaygun, S., Sanyal, A. (2017). Size dependent properties of matter: Is the size of a pill important? *Science Activities: Classroom Projects and Curriculum Ideas*, 54(3-4), 86-95. (ESCI)
- Oner, D., & **Adadan, E.** (2016). Are integrated portfolio systems the answer? An evaluation of a web-based portfolio system to improve preservice teachers' reflective thinking skills. *Journal of Computing in Higher Education*, 28(2), 236-260. (SSCI)
- Adadan, E.**, & Oner, D. (2014). Exploring the progression in preservice chemistry teachers' pedagogical content knowledge representations: The case of "Behavior of Gases." *Research in Science Education*, 44(6), 829-858. (SSCI)
- Adadan, E.** (2014). Investigating the influence of pre-service chemistry teachers' understanding of the particle nature of matter on their conceptual understanding of solution chemistry. *Chemistry Education Research and Practice*, 15(2), 219-238. (SSCI)
- Adadan, E.** (2013). Using multiple representations to promote Grade 11 students' scientific understanding of the particle theory of matter. *Research in Science Education*, 43(3), 1079-1105. (SSCI)
- Yakmaci-Guzel, B., & **Adadan, E.** (2013). Use of multiple representations in developing preservice chemistry teachers' understanding of the structure of matter. *International Journal of Environmental and Science Education*, 8(1), 109-130. (SCOPUS)
- Adadan, E.**, & Savasci, F. (2012). An analysis of 16-17-year-old students' understanding of solution chemistry concepts using a two-tier diagnostic instrument. *International Journal of Science Education*, 34(4), 513-544. (SSCI) (Citations: WoS: 38; Scopus: 51)
- Oner, D., & **Adadan, E.** (2011). Use of web-based portfolios as tools for reflection in preservice teacher education. *Journal of Teacher Education*, 62(5), 477-492. (SSCI)
- Adadan, E.**, Trundle, K. C., Irving, K. E. (2010). Exploring Grade 11 students' conceptual pathways of the particulate nature of matter in the context of multirepresentational instruction. *Journal of Research in Science Teaching*, 47(8), 1004-1035. (SSCI)
- Adadan, E.**, Irving, K. E., Trundle, K. C. (2009). Impacts of multi-representational instruction on high school students' conceptual understandings of the particulate nature of matter. *International Journal of Science Education*, 31(13), 1743-1775. (SSCI)
- Beeth, M. E. & **Adadan, E.** (2006). The influences of university-based coursework on field experience. *Journal of Science Teacher Education*, 17(2), 103-120. (SCOPUS)

National Publications

- Adadan, E.** (2025). Çözünme ve Çözeltilerin Doğası. In B. Pekdağ & C. Nakiboğlu (Eds.), *Kimya Öğretiminde Alternatif Kavramalar ve Çözüm Odaklı Öneriler 1* (pp. 305-332). Bursa, Turkey: Dora.
- Adadan, E.** (2024). Kavramsal değişim öğrenme modeli. In B. Pekdağ & N. Azizoğlu (Eds.), *Kavramsal değişim kuramları ve uygulamaları* (pp. 1-20). Bursa, Turkey: Dora.
- Açıkel, B., Akaygün, S., & **Adadan, E.** (2021). Öğretmen rehberliğinde öğrencilerin sergi ürünü geliştirme süreci. In A. Güney & E. Bilici (Eds.), *Sergileme tasarımı-Bilim merkezleri ve müzeler için bir kılavuz* (pp. 189-222). Konya, Turkey: Çizgi Kitabevi.
- Adadan, E.** (2019). Öğrenme yaklaşımları ve fen öğretimindeki yansımaları. In B. Akçay (Ed.), *Fen öğrenme ve öğretim yaklaşımları* (pp. 71-106). Ankara, Turkey: Nobel Akademik.
- Kabapınar, F., & **Adadan, E.** (2019). Bilim merkezlerindeki eğitim atölyeleri: Geliştirilme, uygulanma ve değerlendirme süreci. In F. Köseoğlu and U. Kanlı (Eds.), *Okul duvarlarının ötesine öğrenme yolculuğu: Bilim-Teknoloji merkezleri ve bilim müzeleri* (pp 425-452). Ankara, Turkey: Nobel Akademik.
- Adadan, E.**, & Kabapınar, F. (2019). Okul dışı öğrenme ortamı olarak bilim merkezlerinde fen eğitimi: Öğrenme ve öğretim. In F. Köseoğlu and U. Kanlı (Eds.), *Okul duvarlarının ötesine öğrenme yolculuğu: Bilim-Teknoloji merkezleri ve bilim müzeleri* (pp 99-120). Ankara, Turkey: Nobel Akademik.
- Adadan, E.** (2017). Kimya öğretiminde yönlendirilmiş araştırmaya dayalı laboratuvar uygulamaları (2. Baskı). In A. Ayas and M. Sözbilir (Eds.), *Kimya öğretimi: Öğretmen eğitimcileri, öğretmenler ve öğretmen adayları için iyi uygulama örnekleri* (pp. 153-182). Ankara, Turkey: Pegem Akademi. (Citations: Google Scholar: 1)
- Adadan, E.** (2015). Kimya öğretiminde yönlendirilmiş araştırmaya dayalı laboratuvar uygulamaları (1. Baskı). In A. Ayas and M. Sözbilir (Eds.), *Kimya öğretimi: Öğretmen eğitimcileri, öğretmenler ve öğretmen adayları için iyi uygulama örnekleri* (pp. 27-56). Ankara, Turkey: Pegem Akademi.
- Adadan, E.** (2014). Model-tabanlı öğrenme ortamının kimya öğretmen adaylarının maddenin tanecikli yapısı kavramını ve bilimsel modellerin doğasını anlamaları üzerine etkisinin incelenmesi. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi*, 33(2), 400-425.
- Oner, D., & **Adadan, E.** (2013). Web tabanlı portfolyo oluşturarak öğretmen olmak: Öğretmenlik uygulamaları için pedagojik bir model. *G.Ü. Gazi Eğitim Fakültesi Dergisi (GEFAD)*, 33(3), 475-494.

Other Publications

- Adadan, E.** (2024). Teachers' Expectations in Turkey: A case of a chemistry teacher. In Y.L.T. Ting, C. Dalton-Puffer & S. Rieder-Marschallinger (Eds), *Overview of curricular demands of disciplinary literacies: An exploratory survey and report by CLILNetLE Working Group 3 Deliverable 7* (pp. 169-174). https://doi.org/10.25365/phaidra.532_20
- Lorenzo, F., Cvikic, L., Llinares, A., De Boer, M., **Adadan, E.**, Arias-Hermoso, R., Čaleta, M., Demirkol Orak, S., Evnitskaya, N., Glasnović Gracin, D., Granados, A., Guzmán-Alcón, I., Kasprzak, M., Lehesvuori, S., Miloshevska, L., Özdemir, H., Piacentini, V., del Pozo, E., Roquet, H., Bagalová, D., & Ting, T. (2024). *Assessing disciplinary literacy with CEFR descriptors: History, Mathematics and Science. A paper by CLILNetLE Working Group 2. V1.* PHAIDRA repository, University of Vienna. https://doi.org/10.25365/phaidra.532_30
- Adadan, E.** (2023). Kimyasal türler arası etkileşimler: Kimyasal bağlar. *Bilim ve Teknik Dergisi*, 56(670), 68-73.
- Akaygun, S., & **Adadan, E.** (2018). *Bir nanoteknoloji eğitimi çalıştayının ardından: Lise fen bilimleri öğretmenlerinin nanoteknoloji farkındalıkları.* In H. Gür & H.H. Şahan (Eds.) Electronic Proceedings of the UNESAK 2018 Congress, Volume I, (pp. 430-436). Balıkesir, Turkey. ISBN 978-605-258-237-4.
- Adadan, E.**, & Akaygun, S. (2018). *Ortaokul ve lise öğrencilerinin nanoteknoloji farkındalıklarının incelenmesi.* In H. Gür & H.H. Şahan (Eds.) Electronic Proceedings of the UNESAK 2018 Congress, Volume II, (pp. 14-24). Balıkesir, Turkey. ISBN 978-605-258-238-1.
- Langbeheim, E., **Adadan, E.**, Akaygun, S., Hlatswayo, M., Ramnarain, U. (2017). *A comparison of student responses to pictorial and verbal items focusing on conceptual understanding of the particle model of matter.* In O. Finlayson, E. McLoughlin, S. Erduran, & P. Childs (Eds.) Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education, Part 11 (co-ed. J. Dolins), (pp. 1450-1457). Dublin, Ireland: Dublin City University. ISBN 978-1-873769-84-3.
- Akaygun, S., **Adadan, E.**, Sanyal, A., & Acikel, B. (2016). *Nano and Health Module: Teacher Notes and Activity Sheets.* Unpublished booklet, Bogazici University, Istanbul, Turkey.
- Oner, D., & **Adadan, E.** (2012). *Design of a customized web-based portfolio system to improve preservice teachers' reflective skills.* In M.B. Nunes and P. Isaías (Eds.) Proceedings of the IADIS International e-Learning Conference 2012, (pp. 509-512), Lisbon, Portugal 17-20 July 2012.

- Adadan E.** (2006). *Promoting high school students' conceptual understandings of the particulate nature of matter through multiple representations*. Unpublished Doctoral Dissertation. The Ohio State University.
- Oguz, A., Fortner, R., **Adadan, E.**, Gay, K., Kim, C-K., Yalcinoglu, P., Bektasli, B., Cook-Hoggarth, K. L., McDonald, C., Mishler, K., Manzo, L. (2004). *A look at environmental education through science teachers' perspectives and textbooks' coverage*. Atlanta, GA: Annual Meeting of the School Science and Mathematics Association. (ERIC Document Reproduction Service No. ED493919).
- Beeth, M. E., **Adadan, E.**, Firat, G. G., & Kutay, H. (2003). *The changing face of Bio 101 with regard to Nation's science standards*. St Louis, MO: Annual meeting of Association for the Educators of the Teachers of Science. (ERIC Document Reproduction Service No. ED474716).

PAPER PRESENTATIONS

- Akaygün, S. **Adadan, E.**, **Budak, Ü. S.**, Mogias, A. & Bayram, D.. (2025, October). *Kimya öğretmen eğitimcilerinin çevresel sürdürülebilirlik eğitimi alanına ilişkin yeterlilikleri ve ihtiyaçları*. A paper presented at the biannual meeting of Ninth National Congress on Chemistry Education (IX. Ulusal Kimya Eğitimi Kongresi), Artvin Çoruh Üniversitesi, Artvin, Turkey.
- Bayram, D., Evagorou, M., Akaygun, S., Mogias, A., Protopsaltis, A., **Adadan, E.**, Boubonari, T., Pouliopoulos, T., Drymiotou, I., Vlasakidis, C., & Kalemaki, E. (2025, August). *Preparing pre-service teachers for education for environmental sustainability*. A workshop presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.
- Aksit, O., Hagevik, R. A., **Adadan, E.**, Alatlı, B. K., Yürük, N., Mugaloglu, E. Z., Kocakulah, M. S., Uçar, S., Trundle, K.C. (2025, August). *A comparative study of Turkish and Indonesian preservice science teachers' beliefs and behaviors about climate literacy*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.
- Huraibat, B., **Adadan, E.**, & Kabapinar, F. (2025, August). *Investigating Grade 11 students' complex causal reasoning of chemical equilibrium: From perspectives of kinetic theory and thermodynamics*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.
- Güler, İ. & **Adadan, E.** (2025, August). *Examining reasoning of Grade 10 students about the precipitation reactions in the context of multiple representations*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.

- Gören, D. & Adadan E. (2025, August). *Exploring pre-service science teachers' data visualization literacy*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.
- Adadan, E.** (2025, August). *The transfer of fundamental science knowledge: preservice chemistry teachers' understanding of vapor pressure*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Copenhagen, Denmark.
- Aksit, O., Ceyhan, G., Hagevik, R., Yürük, N., Alatlı, B. K., Kocakulah, S., **Adadan, E.**, Muğaloğlu, E. Z., Wheeler, L., Hartono, H., Inderawati, R., Sofendi, S., Arslan, P. A., & Trundle, K. C., (2025, March). *A cross-cultural study comparing Turkish and Indonesian preservice science teachers' orientations towards climate change*. A paper presented at the annual meeting of National Association of Research in Science Teaching (NARST), Washington, D.C., USA.
- Adadan, E.** & Yavuzkaya M. (September, 2024). *Students' conceptual progression of chemical reactions*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Lisbon, Portugal.
- Huraibat, B., **Adadan. E.**, & Kabapinar, F. (September, 2024). Lise öğrencilerinin temsilsel yetkinliklerinin gelişiminin çoklu gösterimlerin kullanıldığı öğrenme ortamında incelenmesi. A paper presented at Thirteenth National Congress on Science and Mathematics Education (16. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Trakya University, Edirne Turkey
- Trundle. K. C., Aksit, O., Ceyhan, G., Hagevik, R., Yürük, N., Alatlı, B. K., Kocakulah, S., **Adadan, E.**, Muğaloğlu, E. Z., Wheeler, L., Hartono, Inderawati, R., & Sofendi (September, 2024). *Indonesian and Turkish preservice science teachers' orientations towards climate change* [Invited talk]. 6th Sriwijaya University Learning and Education International Conference (SULE-IC). Palembang, South Sumatra, Indonesia.
- Kurt, Y. Ting, T. & **Adadan, E.** (October, 2023). *Bi/multilingual disciplinary literacies: Starting from materials*. A paper presented at the annual meeting of 14th International Free Linguistics Conference, Istanbul, Turkey.
- Adadan, E.** & Iscan M. (2023, September). *Üniversite öğrencilerinin maddenin tanecikli yapısına ilişkin kavramsal yetkinliğinin buhar basıncı kavramlarını anlamalarına etkisinin incelenmesi*. A paper presented at the biannual meeting of Eight National Congress on Chemistry Education (VIII. Ulusal Kimya Eğitimi Kongresi), Marmara Üniversitesi, Atatürk Eğitim Fakültesi, İstanbul, Turkey.
- Huraibat, B., **Adadan. E.**, & Kabapinar, F. (2023, August). *Examining preservice chemistry teachers' understanding on equilibrium from kinetic and thermodynamic perspective*. A

- paper presented at the biannual meeting of European Science Education Research Association (ESERA), Cappadocia, Nevşehir, Turkey.
- Ozcelik C. & **Adadan, E.** (2023, August). *Students' understanding of the greenhouse effect: A cross-age study*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Cappadocia, Nevşehir, Turkey.
- Adadan, E.** & Iscan M. (2023, August). *Examining first-year college students' understanding of vapor pressure: The influence of competency in the particle nature of matter*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Cappadocia, Nevşehir, Turkey.
- Adadan, E.** (2023, July). Students' understanding of chemistry concepts in the context of multirepresentational instruction: Focusing on transfer and metacognition. An invited paper presentation at the biannual meeting of Asian Chemical Congress (ACC), Istanbul, Turkey.
- Adadan, E.** (2021, September; online). Kimya eğitiminde çoklu gösterimler ve görselleştirme. An invited paper presentation at the biannual meeting of Seventh National Congress on Chemistry Education (VII. Ulusal Kimya Eğitimi Kongresi), Nevşehir Hacı Bektaş Veli Üniversitesi, Eğitim Fakültesi, Nevşehir, Turkey.
- Ozcelik, C., **Adadan, E.**, & Huraibat, B. (2021, September; online). *Identifying representational transitions in Grade 11 students' explanations about solution concepts*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Braga, Portugal.
- Adadan, E.**, & Akaygun, S. (2019, October). *Preservice chemistry teachers' interpretation of animations in variance: An example of acid-base equilibrium reaction*. A paper presented at the 2nd International Congress on Seeking New Perspectives in Education, Istanbul, Turkey.
- Akaygun, S., & **Adadan, E.** (2019, October). *Conceptualization of varying animations: The case of Precipitation Reactions*. A paper presented at the 2nd International Congress on Seeking New Perspectives in Education, Istanbul, Turkey.
- Yavuzkaya, M. N., & **Adadan, E.** (2019, August). *Students' conceptual progression of chemical reactions*. A poster presented at the biannual meeting of European Science Education Research Association (ESERA), Bologna, Italy.
- Akaygun, S., **Adadan, E.** (2019, August). *Animation challenge: Investigating the effect of critiquing the animations in variance on preservice teachers' understanding of redox reactions*. A paper presented at the biannual meeting of European Science Education Research Association (ESERA), Bologna, Italy.
- Adadan, E.** (2019, August). *Examining preservice chemistry teachers' understanding of gas behavior: The contribution of metacognitive awareness*. A paper presented at the

- biannual meeting of European Science Education Research Association (ESERA), Bologna, Italy.
- Akaygun, S., **Adadan, E.** (2019, May). *Bir tepkime, iki animasyon: Birbiriyle farklılaşan animasyonların kimya ve fen bilgisi öğretmen adaylarının redoks tepkimesini kavramsallaştırma düzeyleri üzerine etkisi.* A paper presented at the biannual meeting of Sixth National Congress on Chemistry Education (VI. Ulusal Kimya Eğitimi Kongresi), Hacettepe Üniversitesi, Eğitim Fakültesi, Ankara, Turkey.
- Adadan, E.,** & Akaygun, S. (2019, May). *Kimya öğretmen adaylarının asit-baz denge tepkimesini görselleştirmeleri: Farklılaşan animasyonların etkisi.* A paper presented at the biannual meeting of Sixth National Congress on Chemistry Education (VI. Ulusal Kimya Eğitimi Kongresi), Hacettepe Üniversitesi, Eğitim Fakültesi, Ankara, Turkey.
- Akaygun, S., **Adadan, E.** (2019, April). *Kimya eğitiminde deney videolarının kullanımı: Redoks tepkimesi örneği.* A paper presented at 12th International Educational Research Congress, Rize Turkey.
- Adadan, E.,** & Akaygun, S. (2019, April). *Exploring preservice chemistry teachers' understanding of acid-base equilibrium reactions.* A paper presented at the International Conference on Science, Mathematics, Entrepreneurship and Technology Education, Izmir, Turkey.
- Akaygun, S., **Adadan, E.** (2019, April). *Bir nanoteknoloji eğitimi çalıştayının lise fen bilimleri öğretmenlerinin nanoteknoloji ile ilgili kavramları anlamalarına etkisi.* A paper presented at the International Conference on Science, Mathematics, Entrepreneurship and Technology Education, Izmir, Turkey.
- Adadan, E.,** & Akaygun, S. (2018, October). *Ortaokul ve lise öğrencilerinin nanoteknoloji farkındalıklarının incelenmesi.* A paper presented at International Necatibey Educational and Social Sciences Research Congress, Balıkesir, Turkey.
- Akaygun, S., **Adadan, E.** (2018, October). *Bir nanoteknoloji eğitimi çalıştayının ardından: Lise fen bilimleri öğretmenlerinin nanoteknoloji farkındalıkları.* A paper presented at International Necatibey Educational and Social Sciences Research Congress, Balıkesir, Turkey.
- Adadan, E.,** & Akaygun, S. (2018, October). *Kimya öğretmen adaylarının çökme tepkimelerini deneysel kanıtlar bağlamında incelemeleri.* A paper presented at Thirteenth National Congress on Science and Mathematics Education (13. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Pamukkale University, Denizli, Turkey.
- Yavuzkaya, M. N., & **Adadan, E.** (2018, October). *Maddenin sınıflandırılması: Kesitsel bir çalışma.* A paper presented at Thirteenth National Congress on Science and Mathematics Education (13. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Pamukkale University, Denizli, Turkey.

- Akaygun, S., **Adadan, E.** (2018, October). *Çökme tepkimelerini görselleştirme: Kimya öğretmen adaylarının farklılaşan animasyonları incelemeleri*. A paper presented at Thirteenth National Congress on Science and Mathematics Education (13. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Pamukkale University, Denizli, Turkey.
- Akaygun, S., **Adadan, E.** (2018, September). *Understanding precipitation reactions through critiquing animations in variance*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Warsaw, Poland.
- Adadan, E.** (2018, September). *The influence of metacognitive awareness on preservice chemistry teachers' understanding of gas behavior*. A poster presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Warsaw, Poland.
- Adadan, E., & Akaygun, S.** (2018, September). *Capturing preservice chemistry teachers' understanding of precipitation reactions through their storyboards and animations*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Warsaw, Poland.
- Akaygun, S., **Adadan, E.,** Kelly R.M. (2018, August). *Critiquing the animations in variation: Do they help understanding?* A paper presented at the 25th Biennial Conference on Chemical Education, South Bend, IN, The United States.
- Akaygun, S., **Adadan, E.,** Kelly R.M. (2018, July). *Reconsidering animations in learning chemistry*. A paper presented at the 25th IUPAC International Conference on Chemistry Education (ICCE), Sydney, Australia.
- Akaygun, S., & **Adadan, E.** (2017, October). *Visualizing redox reactions: Storyboards and animations created by chemistry preservice teachers*. A paper presented at the 6th World Congress on Educational and Instructional Studies, Antalya, Turkey.
- Yavuzkaya, M. N., & **Adadan, E.** (2017, September). *Farklı yaş gruplarındaki öğrencilerin maddenin sınıflandırılmasıyla ilgili muhakemelerinin değerlendirilmesi*. A paper presented at the biannual meeting of Fifth National Congress on Chemistry Education (V. Ulusal Kimya Eğitimi Kongresi), Fırat Üniversitesi, Eğitim Fakültesi, Elazığ, Turkey.
- Adadan, E., & Akaygun, S.** (2017, September). *Çoklu gösterimlerin kimya öğretmen adaylarının redoks tepkimelerini anlamalarına etkisinin incelenmesi*. A paper presented at the biannual meeting of Fifth National Congress on Chemistry Education (V. Ulusal Kimya Eğitimi Kongresi), Fırat Üniversitesi, Eğitim Fakültesi, Elazığ, Turkey.
- Akaygun, S., & **Adadan, E.** (2017, September). *Redoks tepkimesinin süreç aşamalı çizimler ile görselleştirilmesi*. A paper presented at the biannual meeting of Fifth National Congress on Chemistry Education (V. Ulusal Kimya Eğitimi Kongresi), Fırat Üniversitesi, Eğitim Fakültesi, Elazığ, Turkey.

- Akaygun, S., **Adadan, E.**, & Yıldırım, G. (2017, September). *Redoks tepkimesinin deneysel kanıtlar ışığında değerlendirilmesi*. A paper presented at the biannual meeting of Fifth National Congress on Chemistry Education (V. Ulusal Kimya Eğitimi Kongresi), Fırat Üniversitesi, Eğitim Fakültesi, Elazığ, Turkey.
- Langbeheim, E., **Adadan, E.**, Akaygun, S., Hlatswayo, M., Ramnarain, U. (2017, August). *A comparison of student responses to pictorial and verbal items focusing on conceptual understanding of the particle model of matter*. A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Dublin, Ireland.
- Yavuzkaya, M. N., & **Adadan, E.** (2017, August). *Evaluating progression in students' reasoning about classification of chemical substances*. A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Dublin, Ireland.
- Adadan, E.** (2017, August). *Exploring preservice chemistry teachers' explanations about dissolving in the context of multirepresentational instruction*. A paper presented at the bi-annual meeting of European Science Education Research Association (ESERA), Dublin, Ireland.
- Akaygun, S., & **Adadan, E.** (2017, August). *An introduction of cutting-edge science: Understanding nanoworld*. A paper presented at the bi-annual meeting of European Science Education Research Association (ESERA), Dublin, Ireland.
- Akaygun, S., & **Adadan, E.** (2017, May). *Teaching nanotechnology as an extracurricular activity: Views of teachers*. A paper presented at the International Conference on Education in Mathematics, Science and Technology (ICEMST), Kusadasi, Aydin, Turkey.
- Adadan, E.**, & Akaygun, S. (2017, May). *Promoting students' perceptions toward responsible research and innovation through inquiry-based instruction on nanotechnology*. A paper presented at the International Conference on Education in Mathematics, Science and Technology (ICEMST), Kusadasi, Aydin, Turkey.
- Adadan, E.**, & Akaygun, S. (2017, May). *Investigating middle school students' perceptions about science learning environments in the context of inquiry-based instruction on global climate change*. A paper presented at the International Conference on Education in Mathematics, Science and Technology (ICEMST), Kusadasi, Aydin, Turkey.
- Akaygun, S., & **Adadan, E.** (2017, May). *An interactive exhibit on climate change*. A paper presented at the International Conference on Education in Mathematics, Science and Technology (ICEMST), Kusadasi, Aydin, Turkey.
- Akaygun, S., & **Adadan, E.** (2017, May). *Understanding redox reactions: Mental models of chemistry preservice teachers*. A paper presented at the International Conference on Research in Education and Science (ICRES), Kusadasi, Aydin, Turkey.
- Acikel, B., Akaygun, S., & **Adadan, E.** (2016, September). *Science teachers' experiences about guiding students along the development of an interactive science exhibition artifacts*. A

- paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Barcelona, Spain.
- Adadan, E., & Akaygun, S.** (2016, September). *Exploring students' attitudes toward responsible research and innovation in the context of nanotechnology applications module*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Barcelona, Spain.
- Yavuzkaya, M. N., & **Adadan, E.** (2016, September). *Students' understanding of heat and temperature: A cross-age study*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Barcelona, Spain.
- Akaygun, S., & **Adadan, E.** (2016, September). *Understanding responsible research and innovation: Perspective of teachers*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Barcelona, Spain.
- Akaygun, S., & **Adadan, E.** (2016, August). *Integration of responsible research and innovation into cutting-edge science topics through student-curated exhibits*. 24th IUPAC International Conference on Chemistry Education (ICCE), Kuching, Sarawak, Malaysia.
- Adadan, E., & Akaygun, S.** (2016, June). *Teaching about global climate change in the light of responsible research and innovation*. A paper presented at ERPA International Congresses on Education, Sarajevo, Bosnia and Herzegovina.
- Akaygun, S., & **Adadan, E.** (2016, June). *Teaching nanotechnology applications in the light of responsible research and innovation*. A paper presented at ERPA International Congresses on Education, Sarajevo, Bosnia and Herzegovina.
- Adadan, E., & Akaygun, S.** (2016, May). *Reflections of community of learners' interactions to teachers' professional development*. A paper presented at the International Conference on Education in Mathematics, Science and Technology (ICEMST), Bodrum, Mugla, Turkey.
- Akaygun, S., & **Adadan, E.** (2016, May). *Student-curated exhibits on nanotechnology applications in health sciences*. A paper presented at International Conference on Education in Mathematics, Science and Technology (ICEMST), Bodrum, Mugla Turkey.
- Akkılık, E., & **Adadan, E.** (2015, September). *Tahmin Et-Gözle-Açıkla yöntemi bağlamında yansıtıcı öğrenme günlüğü tutmanın 10. sınıf öğrencilerinin elektrik ve manyetizma kavramlarını anlamalarına ve fizik dersine karşı motivasyonlarına etkisinin incelenmesi*. A paper presented at the biannual meeting of Second National Congress on Physics Education (II. Ulusal Fizik Eğitimi Kongresi), Orta Doğu Teknik Üniversitesi, Ankara, Turkey.
- Akaygun, S., & **Adadan, E.** (2015, September). *Sorumlu araştırma ve inovasyon odaklı nanobilimin sağlık alanındaki uygulamaları: Bir Bilim Kulübü faaliyeti örneği*. A paper presented at the biannual meeting of Fourth National Congress on Chemistry Education (IV. Ulusal Kimya Eğitimi Kongresi), Balıkesir Üniversitesi, Ayvalık, Balıkesir, Turkey.

- Adadan, E., & Oner, D.** (2015, September). *Examining the nature of preservice teachers' reflective skills in the context of web-based portfolios: The influence of metacognitive awareness.* A paper presented at the annual meeting of European Educational Research Association (EERA), Budapest, Hungary.
- Akaygun, S., **Adadan, E.**, Sanyal, A., & Acikel, B. (2015, September). *Integrating RRI to nanoscience applications as extracurricular activity in secondary science education.* A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Helsinki, Finland.
- Oner, D., & **Adadan, E.** (2015, May). *BOUNCE sistemi bağlamında öğretmen adaylarının yansıtıcı düşünme becerilerini geliştirme.* A paper presented at International Educational Technology Conference (Uluslararası Eğitim Teknolojisi Konferansı), Istanbul, Turkey.
- Oner, D., & **Adadan, E.** (2015, May). *Web tabanlı portfolyo kullanarak hizmet öncesi öğretmenlerinin yansıtıcı düşünme becerilerini geliştirme: BOUNCE örneği.* A paper presented at Ninth International Computer and Instructional Technologies Symposium (9. Uluslararası Bilgisayar ve Öğretim Teknolojileri Sempozyumu), Afyonkarahisar, Turkey.
- Adadan, E., & Oner, D.** (2015, May). *Hizmet öncesi öğretmenlerinin yansıtıcı düşünme becerilerinin niteliğinin BOUNCE sistemi bağlamında incelenmesi: Bilişüstü farkındalığın rolü.* A paper presented at Ninth International Computer and Instructional Technologies Symposium (9. Uluslararası Bilgisayar ve Öğretim Teknolojileri Sempozyumu), Afyonkarahisar, Turkey.
- Akaygun, S., **Adadan, E.**, & Sanyal, A. (2014, September). *Öğrenci, öğretmen, uzman ve toplumu birleştiren köprü: Sorumlu araştırma ve inovasyonun fen eğitimine entegrasyonu.* A paper presented at Eleventh National Congress on Science and Mathematics Education (11. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Çukurova University, Adana, Turkey.
- Adadan, E., & Oner, D.** (2014, September). *Öğretmen adaylarının üstbilişsel farkındalıkları ile öğretmenlik uygulamaları üzerine yansıtımalarının doğası arasındaki ilişkinin incelenmesi.* A paper presented at Eleventh National Congress on Science and Mathematics Education (11. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), Çukurova University, Adana, Turkey.
- Adadan E., Akaygun, S., & Sanyal, A.** (2014, July). *Teachers' perceptions of the community of learners: The case of Turkey.* A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Jyväskylä, Finland.
- Oner, D., & **Adadan, E.** (2014, April). *An investigation of web-based portfolios as reflection instruments in preservice teacher education: The BOUNCE case.* A poster presented at the annual meeting of American Educational Research Association (AERA), Philadelphia, PA, The United States.

- Adadan, E.** (2014, April). *The influence of preservice chemistry teachers' particle theory understandings on their understanding of solution chemistry*. A paper presented at the International Conference of National Association of Research in Science Teaching (NARST), Pittsburgh, PA, The United States.
- Adadan, E.** (2013, September). *Kimya öğretmen adaylarının maddenin tanecikli yapısını anlama düzeylerinin modellerin doğasını anlamaları üzerine etkisinin model-tabanlı öğrenme ortamında incelenmesi*. A paper presented at the biannual meeting of Third National Congress on Chemistry Education (III. Ulusal Kimya Eğitimi Kongresi), Karadeniz Teknik Üniversitesi, Fatih Eğitim Fakültesi, Trabzon, Turkey.
- Oner, D., & **Adadan, E.** (2013, July). *Learning to teach with web-based portfolios: A pedagogical model for preservice teacher education*. A paper presented at the annual meeting of International Association for Development of the Information Society (IADIS), Prague, Czech Republic.
- Oner, D., & **Adadan, E.** (2012, July). *Design of a customized web-based portfolio system to improve preservice teachers' reflective skills*. A paper presented at the annual meeting of International Association for Development of the Information Society (IADIS), Lisbon, Portugal.
- Adadan, E.,** & Oner, D. (2012, July). *The development of preservice chemistry teachers' pedagogical content knowledge representations about the nature and behavior of gases*. A paper presented at the bi-annual meeting of European Conference on Research in Chemical Education (ECRICE), Rome, Italy.
- Adadan, E.,** & Savasci, F. (2011, September). *Evaluating secondary students' conceptions of solution chemistry using a two-tier diagnostic instrument*. A paper presented at the annual meeting of European Educational Research Association (EERA), Berlin, Germany.
- Savasci, F., & **Adadan, E.** (2011, September). *High school students' understanding of solutions and solubility concepts*. A paper presented at the annual meeting of European Educational Research Association (EERA), Berlin, Germany.
- Adadan, E.,** & Oner, D. (2011, September). *Preservice chemistry teachers' representations of pedagogical content knowledge*. A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Lyon, France.
- Adadan, E.,** & Savasci, F. (2011, September). *Development of a two-tier diagnostic test to assess the nature of Grade 11 students' conceptions of solution chemistry*. A paper presented at the bi-annual meeting of European Science Education Research Association (ESERA), Lyon, France.

- Oner, D. & **Adadan, E.** (2010, May). *Use of web-based portfolios as tools for reflection in preservice teacher education: A preliminary analysis*. A poster presented at the annual meeting of American Educational Research Association (AERA), Denver, CO.
- Adadan, E.** (2009, September). *Does model-based instruction on the particle theory of matter affect preservice chemistry teachers' conceptual understandings of dissolution and solubility concepts?*. A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Istanbul, Turkey.
- Yakmaci-Guzel, B. & **Adadan, E.** (2009, September). *Evaluating the use of visual representations for promoting pre-service chemistry teachers' conceptual understandings of the structure of matter*. A poster presented at the bi-annual meeting of European Science Education Research Association (ESERA), Istanbul, Turkey.
- Adadan, E.** & Çirçi, R. (2008, August). *Model tabanlı öğretimin kimya öğretmen adaylarının çözünlürlükle ilgili kavramları anlamalarına etkisi*. A paper presented at Eighth National Congress on Science and Mathematics Education (8. Ulusal Fen Bilimleri ve Matematik Eğitimi Kongresi), İzzet Baysal University, Bolu, Turkey.
- Adadan, E.**, Trundle, K. C., & Irving, K. E. (2008, April). *Progression in Grade 11 students' conceptions about the aspects of the Particle Theory*. A paper presented at the annual meeting of National Association of Research in Science Teaching, Baltimore, MD.
- Adadan, E.**, Irving, K. C., & Trundle, K. E. (2007, April). *High school students' learning pathways of the particulate nature of matter*. A paper presented at the annual meeting of National Association of Research in Science Teaching, New Orleans, LA.
- Adadan, E.**, Trundle, K. C., & Irving, K. E. (2006, April). *Learning with multiple representations: High school students' understanding of the particulate nature of matter*. A paper presented at the annual meeting of National Association of Research in Science Teaching, San Francisco, CA.
- Adadan, E.**, Trundle, K. C., & Irving, K. E. (2006, January). *High school students' understanding of the nature of matter*. Presented at the annual meeting of the Association for Science Teacher Education, Portland, OR.
- Adadan, E.** (2005, November). *Students' conceptions of the particulate nature of matter*. A paper accepted to be presented at the annual meeting of School Science and Mathematics Association, Forth Worth, TX.
- Adadan, E.**, Trundle, K. C., & Irving, K. E. (2005, October). *Promoting high school students' scientific understanding of the particulate nature of matter through multiple representations*. Presented at the annual meeting of Mid-Atlantic Region Association for Science Teacher Education, Breaks Interstate, VA.
- Oguz, A., Fortner, R., **Adadan, E.**, Gay, K., Kim, C. K., & Yalcinoglu, P. (2004, October). *A*

Look at environmental education through science teachers' perspectives and textbooks' coverage. A paper presented at the annual meeting of School Science and Mathematics Association, Atlanta, GA.

Adadan, E. (2003, October). *What factors influence students' attitudes toward science? The relationship between attitudes and achievement in science.* A paper presented at the annual meeting of School Science and Mathematics Association, Columbus, OH.

Adadan, E. (2003, October). *Factors affecting international students' class participation.* A paper presented at the annual meeting of School Science and Mathematics Association, Columbus, OH.

Beeth, M. E., **Adadan, E.**, Firat, Gulsum G., & Kutay, H. (2003, January). *The changing face of Bio 101 with regard to Nation's Science Standards.* A paper presented at the National meeting of Association for the Educators of the Teachers of Science, St Louis, MO.

WORKSHOPS PRESENTED

Adadan, E. (December, 2023). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK, presented to Middle School Students at Bursa Merkez Anadolu İmam Hatip Lisesi, Bursa.

Adadan, E. (October, 2023). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK, presented to Middle School Students at Hakkı Değer Ortaokulu, Kadıköy, Istanbul.

Adadan, E. (Mart, 2021, online). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK in cooperation with Aydın İl Milli Eğitim Müdürlüğü.

Adadan, E. (December, 2019). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK, presented to Middle School Students at Büyük Reşitpaşa Ortaokulu, Fatih, Istanbul.

Adadan, E. (December, 2019). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK, presented at High School Students at Mimar Muslihiddin Mesleki ve Teknik Anadolu Lisesi, Uzunköprü, Edirne.

Adadan, E. (March, 2019). *Günlük hayatımızdaki nanoparçacıklar. (Nanoparticles in our everyday life).* Science Talks organized by TÜBİTAK, presented at High School Students at Kayseri Science Center, Kayseri.

Adadan, E. (March, 2010). *Constructivists approaches in teaching and learning of high school chemistry.* A workshop presented at Besiktas School District's In-service Teacher Training Workshop, Besiktas, Istanbul.

Adadan, E. & Savasci-Acikalin, F. (November, 2007). *Contemporary approaches in teaching and learning of science*. A workshop presented at Avcilar School District's In-service Teacher Training Workshop, Avcilar, Istanbul.

TEACHING

- SCED 340: Science, Technology and Society (Spring 2012)
- SCED 350: Secondary School Science Laboratory Applications I (every Fall since 2007)
- SCED 351: Laboratory Applications in Science Education (Fall 2024)
- SCED 360: Secondary School Science Laboratory Applications II (Spring 2008, 2009, 2010, 2011)
- SCED 414: Seminar on Practice Teaching in Chemistry (Spring 2013, 2015, 2017, 2018, 2020, 2021, 2022)
- SCED 320/420: Teaching Methods in Science and Mathematics Education (Fall 2007, 2009; Spring, 2013, 2016, 2019; 2023 Summer 2008, 2009, 2010)
- SCED 421: Teaching Methods in Chemistry (Fall 2008, 2010, 2011, 2021, 2022)
- SCED 422: Teaching Practice in Chemistry (Spring 2008, 2009, 2010, 2014, 2016, 2019, 2020, 2021, 2022, 2023, 2024)
- SCED 450: School Experience in Teaching Science I (Spring 2008, 2009, 2010)
- SCED 451: School Experience in Teaching Science II (Fall 2007, 2008, 2009)
- SCED 511: Instructional Science for Science and Mathematics Instruction (every Fall since 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020)
- SCED 579: Graduate Seminar (Spring 2013, 2016, 2023)
- SCED 570: Research in Science and Mathematics Education (Spring, 2011)
- SCED 572: Readings on Recent Research in Science and Mathematics Education (Spring 2014, 2015, 2017, 2018, 2020)
- SCED 582: Special Topics in Science and Math Education I (Fall 2007)
- SCED 59A: Guided Research II (Fall 2010)
- SCED 599: Guided Research I (Spring, 2011; Fall, 2012)
- SCED 690: Master's Thesis in Science Education (each semester, since Fall 2007)

GRADUATE STUDENT ADVISING

İlkay Buket Ataç Özdemir, Bogazici University, 2009. *Teaching module that integrates visualization tools and inquiry to address the concepts of reversibility, incomplete conversion, and dynamic equilibrium*. (M.S. Thesis, Co-advised with Prof. Dilek Ardaç).

- Müjde Müge Ataman Mortaş, Bogazici University, 2011. *Promoting Grade 6 students' scientific understanding of the particulate nature of matter and the role of models in science through multi-representational instruction.* (M.S. Thesis, Advisor)
- F. Tuğba Tanrıverdi, Bogazici University, 2013. *Pre-service chemistry teachers' conceptual understandings of solution chemistry in the context of multirepresentational instruction.* (M.S. Thesis, Advisor)
- Erhan Akkılık, Bogazici University, 2016. *The Predict-Observe-Explain instruction coupled with reflective journal writing for teaching electricity and magnetism: A quasi-experimental study with Grade 10 students.* (M.S. Thesis, Advisor)
- Merve Nur Yavuzkaya, Bogazici University, 2019. *Exploring the progression in students' understanding of chemical reactions across different grade levels.* (M.S. Thesis, Advisor)
- Meltem İşcan, Bogazici University, 2019. *Exploring the relationship between students' understanding of particle theory of matter and their conceptual understanding of vapor pressure.* (M.S. Thesis, Advisor)
- Ceren Özçelik, Bogazici University, 2022. *Students' understanding of the greenhouse effect: A cross-age study.* (M.S. Thesis, Advisor).
- Beyza Nur Çelik, Bogazici University, 2023. *Examining middle school students' learning progression for scientific argumentation.* (M.S. Thesis, Advisor).
- Ayşenur Çelikkol, Bogazici University, 2025. *Analyzing Grade 9 students' understanding of gas behavior using static and dynamic visualizations in multi-representational instruction.* (M.S. Thesis, Advisor).
- İsmail Güler, Bogazici University, 2025. *Examining Grade 10 students' reasoning about the precipitation reactions in the context of multiple representations.* (M.S. Thesis, Advisor).
- Dilara Gören, 2023-present (Ph.D. Dissertation, Advisor)
- Kübra Nur Cömert, 2024-present. (M.S. Thesis, Advisor).
- Berfin Huraibat, 2021-present (Ph.D. Dissertation, Co-Advised with Prof. Filiz Kabapınar).
- Zeynep Polat, Bogazici University, 2012. *A comparison between students' mental models of atomic structure and visualizations in textbooks for the concept of an atom.* (M.S. Thesis, Committee member)
- Suzan Tuna, İstanbul Üniversitesi, 2012. *Öğretmenlik uygulamalarının öğretmen adaylarının öz yeterlik ve sınıf yönetimi inançlarına etkileri.* (Master Tezi, Jüri Üyesi)
- Sibel Yiğit, Bogazici University, 2013. *Development and implementation of a training program designed to enhance prospective chemistry teachers' content knowledge, pedagogical content knowledge related to misconceptions and teaching efficacy beliefs.* (M.S. Thesis, Committee member)

- Pınar İnal, Marmara Üniversitesi, 2013. *Araştırmaya dayalı öğrenmenin madde konusunda ilköğretim öğrencilerinin akademik başarıları, kavramsal anlamaları, tutumları, bilimsel süreç becerileri ve iletişim becerileri üzerine etkisi.* (Doktora Tezi, Jüri Üyesi)
- Ayla Gümrah, Marmara Üniversitesi, 2013. *Bilimsel tartışma yönteminin ortaöğretim öğrencilerinin kimyasal değişimler konusunu anlamaları, bilimin doğası hakkındaki görüşleri, bilimsel süreç, iletişim ve argüman becerileri üzerine etkisi.* (Doktora Tezi, Jüri Üyesi)
- Mine Doğucu, Bogazici University, 2013. *The relationship between mathematics teachers' probability approaches and misconceptions.* (M.S. Thesis, Committee member)
- Sibel Demir, Marmara Üniversitesi, 2014. *Bilimsel tartışma ve araştırmaya dayalı tasarlanan laboratuvar programının, fen bilgisi öğretmen adaylarının bilimsel yaratıcılıklarına etkisi* (Doktora Tezi, Jüri Üyesi)
- Oya Ağlarıcı, Marmara Üniversitesi, 2014. *Doğrudan-yansıtıcı yaklaşıma dayalı öğretimin kimya öğretmen adaylarının bilimin doğası görüşlerine etkisi.* (Doktora Tezi, Jüri Üyesi)
- Nilüfer Demirci, Marmara Üniversitesi, 2014. *Sistematik yaratıcı problem çözme etkinliklerinin ilköğretim 7. sınıf öğrencilerinin ışık konusundaki kuramsal, deneysel ve günlük yaşam problemlerini çözmelerine etkisi.* (Doktora Tezi, Jüri Üyesi)
- Filiz Gülhan, Marmara Üniversitesi, 2016. *Fen-Teknoloji-Mühendislik-Matematik Entegrasyonunun (STEM) 5. sınıf öğrencilerinin algı, tutum, kavramsal anlama ve bilimsel yaratıcılıklarına etkisi.* (Doktora Tezi, Jüri Üyesi)
- Ercan Tatlı, Marmara Üniversitesi, 2017. *Bilim kurgu etkinliklerinin fen bilgisi öğretmen adaylarının bilimsel bilgiyi kavramalarına, bilimsel okuryazarlıklarına ve bilime karşı tutumlarına etkisi.* (Doktora Tezi, Jüri Üyesi)
- Candan Cengiz, Marmara Üniversitesi, 2017. *Bilimsel tartışma (Argümantasyon) öğretim becerilerinin gelişimi: Fen Bilgisi öğretmen adayları ile durum çalışmaları* (Doktora Tezi, Jüri Üyesi)
- İlkay Buket Ataç Özdemir, Marmara Üniversitesi, 2017. *Bilimin doğası ve bilimsel tartışma ile birleştirilmiş bilimin doğası eğitiminin Lise 10. sınıf öğrencilerinin bilimin doğası anlayışları, tartışma becerileri ve kimya dersine karşı tutumları üzerine etkilerinin karşılaştırılması.* (Doktora Tezi, Jüri Üyesi)
- Berkan Avcı, Marmara Üniversitesi, 2017. *Lego Mindstorms robotik projelerinin öğretmen adaylarının teknolojik pedagojik alan bilgisi, problem çözme becerileri ve bilimsel yaratıcılıkları üzerine etkisi.* (Master Tezi, Jüri Üyesi)
- Zeynep Pehlivan, Bogazici University, 2018. *Investigation of preservice mathematics teachers algebraic thinking through translations among multiple representations.* (M.S. Thesis, Committee member)

- Selin Akgün, Bogazici University, 2018. *University students' understanding of the nature of science*. (M.A. Thesis, Committee member)
- Büşra Açıklı, Bogazici University, 2018. *Exploring high school teachers' and students' experiences in the development of interactive exhibits on nanotechnology applications integrating responsible research and innovation: Practical approaches, challenges, and benefits*. (M.S. Thesis, Committee member)
- Buket Semercioğlu Kapçak, Bogazici University, 2019. *Mathematical quality of geometry instruction of a novice high school teacher*. (M.S. Thesis, Committee member)
- Mehmet Tufan, Necmettin Erbakan Üniversitesi, 2019. *Kimya ders kitaplarındaki ve kimya öğretmenlerinin geliştirdikleri analogilerin incelenmesi*. (Master Tezi, Jüri Üyesi)
- Figen Güneş, Necmettin Erbakan Üniversitesi, 2019. *Farklı öğrenim seviyelerindeki öğrencilerin asit-baz konusuyula ilgili bilişsel yapıları*. (Master Tezi, Jüri Üyesi)
- Naz Fulya Özkarabacak, Muğla Sıtkı Koçman Üniversitesi, 2019. *Examination of different participant groups' quality of scientific thinking and science process skills through sequential inquiry-based activities about electromagnetic waves*. (Master Tezi, Jüri Üyesi)
- Bektaş Şahin, Marmara Üniversitesi, 2019. *Sosyo-kültürel yapılandırmacılık temelinde tasarlanan etkinliklerin kimya öğrencilerinin okulda kimya konusunu kavramalarına etkisi*. (Master Tezi, Jüri Üyesi)
- Sümeyye Arpacı, Bogazici University, 2020. *Investigating the role of computerized assessment and other correlates on students' science performance in PISA 2015*. (M.S. Thesis, Committee member)
- Nurdan Turan, Bogazici University, 2021. *An examination of elementary and lower secondary level Japanese and Turkish mathematics curricula through quantitative and (co)variational reasoning in terms of the treatment of functional relationships*. (M.S. Thesis, Committee member)
- Ilgım Özergun, Bogazici University, 2022. *Exploring preservice science teachers' progression on designing simulation-enhanced inquiry-based lessons for asynchronous learning environments*. (M.S. Thesis, Committee member)
- Alp Köksal, Bogazici University, 2022. *Exploring epistemic cognition in different task contexts*. (M.S. Thesis, Committee member)
- Beyza Ekiz, Bogazici University, 2024. *A qualitative study to examine mathematics and science mentor teachers' understanding on effective mentoring*. (M.S. Thesis, Committee member)

Meryem Demir Güldal, İstanbul Üniversitesi - Cerrahpaşa, 2024. *Model tabanlı araştırma sorgulamanın öğretmen adaylarının fen kavramlarını kavramsal anlamaları ve temsil yeterliklerine etkisi.* (Ph.D. Dissertation, Committee member).

ADMINISTRATIVE DUTIES

Matematik ve Fen Bilimleri Eğitimi Bölümü, Bölüm Başkanı: Mart 2023 – Temmuz 2024.

Erasmus+Personel Ders Verme Hareketliliği Komisyonu: Aralık 2022 – devam ediyor.

Boğaziçi Üniversitesi, Eğitim Fakültesi, Fakülte Kurulu Üyesi (Bölüm Başkanı): Eylül 2022 – Temmuz 2024.

Boğaziçi Üniversitesi, Eğitim Fakültesi, Fakülte Yönetim Kurulu Üyesi, Profesör Temsilcisi: Eylül 2022 – Eylül 2025.

Matematik ve Fen Bilimleri Eğitimi Bölümü, Bölüm Başkan Vekili: Eylül 2022 – Mart 2023.

Akademik Dış İlişkiler Komisyonu Üyeliği: Kasım 2020 – Kasım 2025.

Yurtdışından Öğrenci Kabul Komisyonu Üyeliği: Kasım 2020 – Nisan 2023.

Öğrenci Değişim ve Yerleştirme Komisyonu Üyeliği: Kasım 2020 – Nisan 2023.

Boğaziçi Üniversitesi, Eğitim Fakültesi, Fakülte Erasmus Koordinatörü: Ekim 2020-Nisan 2023.

Boğaziçi Üniversitesi, Eğitim Fakültesi, Dekan Yardımcısı: Ekim 2020-Ocak 2022.

Lisans Eğitim Komisyonu Üyeliği: Mart 2020-Kasım 2025.

Birim Akademik Teşvik Başvuru ve İnceleme Komisyonu Üyeliği: Aralık 2018-Aralık 2020.

Boğaziçi Üniversitesi, Eğitim Fakültesi, Fakülte Kurulu Doçent Temsilcisi: Mart 2018-Ocak 2021.

Fakülte Akreditasyon ve Değerlendirme Kurulu Başkanı: Kasım 2016-Eylül 2022.

Fakülte Akreditasyon ve Değerlendirme Kurulu Üyeliği: Aralık 2015-Eylül 2022.

Matematik ve Fen Bilimleri Eğitimi Bölümü, Bölüm Başkan Yardımcısı: Aralık 2013-Nisan 2018.

UYGAR Merkezleri Koordinasyon ve Değerlendirme Komisyonu Üyeliği: Aralık 2013-Mart 2020.

Okul Öncesi Birimi Yürütme Kurulu Üyeliği: Eylül, 2011-Eylül 2012.

Matematik ve Fen Bilimleri Eğitimi Bölümü Erasmus Koordinatörü: September 2008 – Aralık 2020.

Dekanlık Eğilim Belirleme Komisyonu Üyeliği: Temmuz-Eylül, 2008, 2010; Ekim 2013-Şubat 2014; Ocak-Mart, 2016.

Lisans Öğrenci Danışmanlığı (60 öğrenci ve üzeri): Eylül 2007- devam ediyor.

AWARDS and HONORS

2017, Excellence in Research in Social Sciences Award presented by Bogazici University Foundation.

2009 to 2016 (each year), Academic Incentive Award, Bogazici University.

2009 to 2019 (each year), Academic Publication Award, Bogazici University Foundation.

2009 to 2019 (each year), International Academic Publication Incentive Award, The Scientific and Technological Research Council of Turkey.

2006, International Student Grant awarded by Office of International Education, The Ohio State University.

2000 to 2006, Full Scholarship awarded by Turkish Ministry of Education to pursue M.A. and Ph.D. in the USA.

RESEARCH PROJECTS

Principle Investigator, *Exploring Preservice Science Teachers' Data Visualization Literacy*, funded by Bogazici University Research Project (BU-BAP), Project No: 20340, May 2025-continue.

Researcher, *Science Education through Novel teaching Strategies for Environmental Sustainability* (SENSES), funded by ERASMUS Plus program of the European Union, Project Number: 2024-1-NL01-KA220-HED-000250820, Oct 2024 - continue.

Researcher, *CLIL Network for Languages in Education: Towards bi- and multilingual disciplinary literacies* (CLILNetLE), funded by European Cooperation in Science and Technology, Project Number: COST Action CA21114, October 2022 – continue.

Researcher, *Digitools: Digitalization of Training Contents for Middle Schools*, funded by ERASMUS Plus program of the European Union, Project Number: 2020-1-TR01-KA226-SCH-098485, June 2021-Nov 2023.

Researcher, *Towards achieving a shared aim: Education for global citizenship and sustainable development by using socio-scientific issues in science education*, funded by Science Diplomacy Fund, Dutch Research Council, Netherland, Project No: 483.20.026, July 2020-Dec 2021.

Researcher, *Okuldan topluma uzanan köprü: Nanoteknoloji kulüpleri*, funded by The Scientific and Technological Research Council of Turkey, Project No: 118B078, May 2018-May 2019.

Principle Investigator, *Students' conceptual progression of chemical reactions: A cross-age study*, funded by Bogazici University Research Projects (BU-BAP), Project No: 12746, June 2017-June 2019.

Researcher, *Kimyasal tepkimeler için bir görselleştirme sisteminin geliştirilmesi; Deneysel kanıtlara göre birbiriyle farklılaşan animasyon modellerinin kabul veya red edilmesi*, funded by The Scientific and Technological Research Council of Turkey, Project No: 115K025, May 2016-May 2018.

Researcher, *Including responsible research and innovation in cutting edge science and inquiry-based science education to improve teacher's ability of bridging learning environments (IRRESISTIBLE)*, funded by European Commission, The Seventh Framework Programme-Science in Society, Project No: 612367, November 2013-November 2016.

Researcher, *Hizmet öncesi öğretmenlerinin yansıtma becerilerini geliştirmek için özelleştirilmiş web tabanlı portfolyo sistemi tasarımı, geliştirilmesi ve değerlendirilmesi*, funded by The Scientific and Technological Research Council of Turkey, Project No: 111K523, March 2012- October 2013.

Principle Investigator, *Promoting preservice chemistry teachers' conceptual understandings of the associated solution chemistry concepts through model-based inquiry instruction*, funded by Bogazici University Research Project (BU-BAP), Project No: 6335, June 2011-October 2013.

Project Specialist, *Görsel yönden zenginleştirilmiş çoklu temsil ortamlarında argumantasyon yöntemiyle fen öğrenimi*, funded by The Scientific and Technological Research Council of Turkey, Project No: 109K566, April 2010-October 2012.

Principle Investigator, *Evaluation of high school students' conceptual understandings of the nature of solutions and solubility concepts at multiple representational levels*, funded by Bogazici University Research Project (BU-BAP), Project No: 09HD301P, 2009-2011.

Researcher, *Use of web-based portfolios as a tool for reflection in preservice teacher education*, funded by Bogazici University Research Project (BU-BAP), Project No: 09HD201P, 2009-2011.

PROFESSIONAL DEVELOPMENT

Workshops-Conferences Attended

Workshop organized by **Association for Evaluation and Accreditation of Teacher Education Programs (EPDAD)** on Continuous Development of Evaluation and Accreditation Processes, Istanbul, June 22-23, 2019.

World Stem Education Conference organized by **Istanbul Aydin University**, Istanbul, June 8, 2018.

The Future in Education Conference (Eğitimde Gelecek Konferansı) organized by **MEF University**, Istanbul, November 2017.

Workshop organized by **Istanbul University** on Changes and Transformations in Teacher Education (Öğretmen Yetiştirmede Değişim ve Dönüşümler), Istanbul, October 6-8, 2016.

Workshop organized by **Sibel Erduran** from University of Limerick, Ireland, on Scientific practices: What are they and how they can be promoted in school science?, Istanbul, December 22, 2014.

Presenters: Gürol Irzik, Zubeida Dagher, Sibel Erduran, Ebru Muğaloğlu, Deniz Sarıbaş, Ebru Kaya, Gaye Ceyhan.

Workshop presented by **John Gilbert** from University of Reading, UK on Visualization in Science and Science Education, Istanbul, Oct 15-16, 2008.

Workshop presented by **John Gilbert** from University of Reading, UK, on Visualization in Science and Science Education, Istanbul, May 16-18, 2007.

Workshop presented by **Jan Lundell** from University of Helsinki, Finland, on Chemistry ICT: Models, Visualization and Computational Chemistry in Teaching and Learning, Istanbul, April 2-6, 2007.

Certificates

Ohio Project Wild, Ohio Department of Natural Resources, Division of Wildlife, April, 2001.

Ohio Project Learning Tree, Ohio Department of Natural Resources, Division of Forestry, April, 2001.

Ohio Water Education Project, National Project Water Education for Teachers, May, 2001.

Affiliations

National Association for Research in Science Teaching (NARST).

American Educational Research Association (AERA).

European Science Education Research Association (ESERA).

PROFESSIONAL SERVICE

Editorial Board member of ***International Journal of Science Education*** (SSCI), March 2022-present.

Editorial Board member of ***Journal of Science Teacher Education*** (ESCI), March 2021-present.

Advisory Board member of **TÜBİTAK Directorate of Science Fellowships and Grant Programmes** (TÜBİTAK Bilim İnsanı Destek Programları (BİDEB)), January 2020-present.

Advisory Board member of **TÜBİTAK Journal of Science and Technology** (Tübitak Bilim ve Teknik Dergisi), January 2019 – present.

Editorial Board member of **Boğaziçi Üniversitesi Eğitim Dergisi**, Jan 2015-2021.

Editorial Board member of **International Journal of Environmental and Science Education**, December 2013-June 2016.

Reviewer for **Research in Science Education** (SSCI), since 2012

Reviewer for **Science Education** (SSCI), since 2011

Reviewer for **Chemistry Education Research and Practice** (SSCI), since 2012

Reviewer for **Journal of Teacher Education** (SSCI), since 2015

Reviewer for **International Journal of Science Education** (SSCI), since 2017

Reviewer for **International Journal of Environmental and Science Education**, 2013-2015

Reviewer for **Boğaziçi Üniversitesi Eğitim Dergisi**, since 2010

Reviewer for **Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi**, 2012

Reviewer for Strand 1 proposals (**Science Learning, Understanding, and Conceptual Change**) for the annual meeting of National Association of Research in Science Teaching, 2004, 2008, 2010, 2014.

Reviewer for Strand of Teaching Science for the bi-annual meeting of European Science Education Research Association, 2009.

Reviewer for Strand of Student Learning proposals for the annual meeting of Association for Science Teacher Education, 2008.

PUBLIC SERVICE

Student Teacher at the Scarlet and Gray Ag Day, Columbus, OH, April 2001.

Science Fair Judge at Walnut Spring Middle School, Columbus, OH, March 2006.

Environmental Convention Judge at Özel Çevre Okulları, Istanbul, April 2008.

Workshop Presenter on Nanoscience at SCI-ALL Project (Bilim Herkesi Birleştirir Projesi) organized by Istanbul Governor at Eyüp Culture and Art Center and funded by European Union Horizon 2020 Marie Skłodowska Curie Program, Istanbul, October 2017.