Sevil AKAYGÜN

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EDUCATION

08/2005 – 08/2009 **Ph.D. in Chemical Education**
University of Northern Colorado (UNC), School of Chemistry and Biochemistry, Colorado, USA.

Title of Doctoral Dissertation: The Effect of Computer Visualizations on Students' Mental Models of Dynamic Nature of Physical Equilibrium.

08/2005 – 08/2008 **M.S. in Chemistry**
University of Northern Colorado (UNC), School of Chemistry and Biochemistry, Colorado, USA.

Title of Master Thesis: Investigations of Surface-Tip Interactions Using Atomic Force Microscopy.

09/2004 – 06/2005 **Ph.D Student in Secondary School Science and Mathematics Education**
Boğaziçi University, Faculty of Education, Istanbul, Turkey

09/1998 – 07/2000 **M.S. in Secondary School Science and Mathematics Education**
Boğaziçi University, Faculty of Education, Istanbul, Turkey

Title of Master Thesis: The Combined Effect of Multimedia-Based Instruction that Integrates Learning Chemical Reactions at Macroscopic, Symbolic and Microscopic Levels.

09/1988 – 07/1993 **B.S. in Teaching Chemistry**
Boğaziçi University, Faculty of Education, Istanbul, Turkey

EXPERIENCE

06/2018 – present **Associate Professor**
Boğaziçi University, Istanbul, Turkey

05/2012 – 06/2018 **Assistant Professor**
Boğaziçi University, Istanbul, Turkey

02/2010 – 05/2012 **Instructor**
Boğaziçi University, Istanbul, Turkey

09/2009 – 02/2010 **Instructor (Part-time)**
Boğaziçi University, Istanbul, Turkey

Courses given at Boğaziçi University:
SCED 240 Science, Technology, and Society
SCED 320 Teaching Methods in Science and Mathematics Education
SCED 404 Research Methods in Science and Mathematics Education
SCED 408 Text Analysis in Science and Mathematics Education
SCED 414 Seminar on Practice Teaching in Chemistry
SCED 421 Teaching Methods in Chemistry
SCED 422 Practice Teaching in Chemistry
SCED 450 School Experience in Science and Mathematics Education
SCED 481 Dynamic Visualizations in Chemistry and Nanoscience Education
SCED 482 Teaching Cutting-Edge Science Through Inquiry-based Learning
SCED 544 Science Curriculum Development Study (Graduate Level)
SCED 551 Media and Methods in Science and Mathematics Education (Graduate Level)

09/2009 – 01/2010 **Chemistry Teacher (Part time)**
Marmara Private High School, Istanbul, Turkey

Courses given:
Chemistry: Grade 10
IB (International Baccalaureate) High Level Chemistry

09/2007– 05/2009 **Supplementary Instruction Leader**
University of Northern Colorado, Greeley, CO

Courses given:
Chem 111 & Chem 112, Principles of Chemistry I & II

08/2005 – 12/2008 **Research Assistant**
University of Northern Colorado, Greeley, CO
Research on Molecular Animations

08/2005 – 05/2009 **Teaching Assistant**
University of Northern Colorado, Greeley, CO

Courses given:
Laboratory Instruction: Chem 111 & Chem 112, Principles of Chemistry I & II
Laboratory Instruction: Chem 281 Fundamentals of Biochemistry
Laboratory Instruction: Chem 443 Inorganic Chemistry I & II

09/2002 – 08/2005 **Chemistry Teacher**
The Koç School, Istanbul, Turkey

Courses given:
Chemistry: Grades 10 and 11
Chemistry Applications: Grades 10 and 11
Chemistry for Non-majors: Grade 11

09/2000 – 06/2004 **Part time Instructor**
Boğaziçi University, Istanbul, Turkey

Courses given:
Sced 360 Laboratory Applications in Secondary School Science II
Sced 350 Laboratory Applications in Secondary School Science I
Pred 154 School Experience I in Science and Maths. Education
Sced 441 Instructional Methods in Teaching Physics

09/1993 – 08/2002 **Chemistry/ Science Teacher**
Marmara Private High School, Istanbul, Turkey

Courses given:
Chemistry: Grade 9, 10, 11
Chemistry Applications: Grade 9, 10, 11
General Science: Grades 6, 7, 8, and 9
Science Terminology: Middle School Prep Class, High School Prep Class

THESES SUPERVIZED

Öznur Erkoca (cont.)	The Effects of Virtual Reality Experiences on Preservice Science Teachers' Views on Instructional Design
Ilgım Özergun (cont.)	Exploring Preservice Science Teachers' Progression on Designing Simulation Enhanced Inquiry-Based Lesson for Asynchronous Learning Environment
Merve Türkyılmaz Sarıgül (cont.)	A Comparison of STEM Education Researchers' and Middle School Teachers' Conceptions, Awareness, Attitudes and Self Efficacy of Stem Education
Merve Koçoğlu (2019)	Investigation of Self-Regulated Learning (SRL) Strategies Used by Gifted Students While Learning Science.
A. Sanem Sarılıcan (2019)	Effect of Using Different Instructional Methods to Teach Geometry Topics on Fifth Grade Students' Spatial Ability and Geometry Achievement
Şule Korkmaz Yavuz (2019)	Investigating Preservice Chemistry Teachers' Eye Movements While Working with Macroscopic, Symbolic and Submicroscopic Level of Representations for Chemical Equilibrium
Sevgi Aslıhan Karayol (2019)	The Effects of Project-Based Learning on Environmental Literacy
Büşra Açıkel (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.

Nurseda Tarsan (2015)	The Effect of Working with Ipad Applications Including Macroscopic and Submicroscopic Level Representations in Different Orders on Students' Conceptual Understanding of Gas Laws
Berra Sagun Gököz (2012)	Design and Implementation of a Nanoscience Workshop: Investigating 11th Grade Students' Awareness and Understanding in Nanoscience
Zeynep Polat (2012)	A Comparison between High School Students' Mental Models of Atomic Structure and Visualizations in the Textbooks for the Concept Atom.
Tağmay Yılmaz (2012)	Comparison of the Effects of Model-based and Computer-based Instruction on 9th Grade Students' Spatial Abilities and Conceptual Understanding of Ionic Lattice.

PROJECTS

06/2021 – present	Digitools: Digitalization of Training Contents for Middle Schools (ERASMUS Plus KA226, Project Number: SCH-098485, Researcher).
11/2020 – present	Developing a Model for Area Specialized Effective Mentoring and Implementing Professional Development for Mentors (TUBITAK 1001, Project Number: 220K086, Researcher).
03/2020 – present	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, Netherland, Project No: 483.20.026, Co-Principal Investigator)
03/2019 – 12/2020	Istanbul Foundation for Culture and Arts (IKSV) Alt Kat: Installation of Learning and Interaction Space and Creative Workshop Programme for Children and Youth (Istanbul Development Agency (ISTKA), Project Number: TR10/18/ÇVG/0144, Researcher).
01/2019 – 03/2020	Kids of Bosphorus are Designing the City (TUBITAK 4004, Project Number: 218B086, Expert).
05/2016 – 11/2019	Developing a Visualization Framework for Chemical Reactions: Supporting or Refuting Animation Models in Variance with each other through connection to Experimental Evidence (TUBITAK 2501, Project Number: 115K025, Project Coordinator).
05/2016 – 11/2019	Determination of the Level of Scientific Literacy of Turkish Society (TUBITAK 3501, Project Number:150829, Researcher).
05/2018 – 08/2019	A Bridge Reaching from School to the Society: Nanotechnology Clubs (TUBITAK 4005, Project Number: 118B086, Project Coordinator).
05/2016 – 08/2017	Kids of Bosphorus are Learning the City by the Sea (TUBITAK 4004, Project Number:116B417, Expert).
12/2014 – 12/2016	Integrating 'Science, Technology, Engineering, and Mathematics (STEM) Education' in Pre-service Chemistry and Mathematics Teacher Education (Boğaziçi University, Research Projects Fund, Project Number: 9221, Project Coordinator).
11/2013 – 10/2016	Project Irresistible, Including Responsible Research and Innovation in Cutting Edge Science and Inquiry-based Science Education to improve Teachers' Ability of Bridging Learning Environments (FP7-Science-in-Society-2013-1, Project Number: 612367, Country Leader).
01/2012 – 09/2013	Design, Development and Evaluation of a Customized Web-Based Portfolio System to Improve Preservice Teachers' Reflective Skills (TUBITAK 3501, 111K523, Researcher).
08/2010 – 02/2013	Determination of design principles for an animation developing software to be used to visualize fundamental chemistry concepts at the submicroscopic level. (Boğaziçi University, Research Projects Fund, 5588, Project Coordinator).

PUBLICATIONS – *JOURNAL ARTICLES*

Kelly, R. M., **Akaygun, S.**, Hansen, S. J., Villalta-Cerdas, A., & Adam, J. (2021). Examining learning of atomic level ideas about precipitation reactions with a resources framework. *Chemistry Education Research and Practice, DOI: https://doi.org/10.1039/D0RP00071J*

Akaygun, S. & Adadan, E. (2021) Fostering senior primary school students' understanding of climate change in an inquiry-based learning environment. *Education 3-13*, *49*(3), 330-343.

Kucukler, H., **Akaygun, S**., Imamoglu, Y., Aslan-Tutak F., & Ozel, S. (2019). The effect of sea and the city summer school on gifted and talented middle school students' attitudes and perceptions towards the sea and the city (Deniz ve kent yaz okulunun özel yetenekli ortaokul öğrencilerinin deniz ve kente yönelik tutum ve algılarına etkisi). *Journal of Teaching Science (Fen Bilimleri Öğretimi Dergisi), 7*(2), 189-223.

Kelly, R. & **Akaygun, S**. (2019). Visualizations and representations in chemistry education (Editorial). *Chemistry Education Research and Practice, 20*, 657 – 658.

Hansen, S. J. R., Hu, B., Riedlova, D., Kelly, R. M., **Akaygun, S**., & Villalta-Cerdas, A. (2019). Critical consumption of chemistry visuals: eye tracking structured variation and visual feedback of redox and precipitation reactions. *Chemistry Education Research and Practice*, *20*, 837-850.

Akaygun, S., Adadan, E., & Kelly, R. (2019). Capturing preservice chemistry teachers' visual representations of redox reactions through storyboards. *Israel Journal of Chemistry, 59*, 493-503.

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 Biology Education*, *19*(1). 19.1.4.

Laherto, A., Kampschulte, L., de Vocht, M., Blonder, R., **Akaygun, S.**, & Apotheker, J. (2018). Contextualizing the EU's "Responsible Research and Innovation" policy in science education: A conceptual comparison with the nature of science concept and practical examples. *Eurasia Journal of Mathematics Science and Technology Education, 14*(6), 2287-2300.

Tosmur-Bayazıt, N., **Akaygün, S**., Demir, K., & Aslan-Tutak, F. (2018). An example of stem teacher professional development: exploration of edible cars activity from teacher education perspective (Bir STEM öğretmen eğitimi örneği: Yenebilir arabalar etkinliğinin öğretmen eğitimi açısından incelenmesi. *Journal of Teaching Science (Fen Bilimleri Öğretimi Dergisi)*, *6*(2), 213 – 232.

Blonder, R., Rosenfeld, S., Rap, S., Apotheker, J., **Akaygun, S.**, Reis, P., Kampschulte, L., Laherto, A. (2017). Introducing Responsible Research and Innovation (RRI) into the Secondary School Chemistry Classroom: The Irresistible Project. *Daruna, 44*, 36–43

Kelly, R. M., **Akaygun, S.**, Hansen, S., & Villalta Cerdas, A. (2017). The effect that comparing molecular animations of varying accuracy has on students' submicroscopic explanations. *Chemistry Education Research and Practice*, *18*, 582-600.

Apotheker, J., Blonder, R., **Akaygun, S.**, Reis, P., Kampschulte, L., & Laherto, A. (2017). Responsible Research and Innovation in secondary school science classrooms: experiences from the project Irresistible. *Pure and Applied Chemistry*, *89*(2), 211-219.

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).

Aslan Tutak, F., **Akaygun, S.**, & Tezsezen, S. (2017). Collaboratively learning to teach STEM: Change in participating pre-service teachers' awareness of STEM (İşbirlikli FeTeMM (Fen, Teknoloji, Mühendislik, Matematik) eğitimi uygulaması: Kimya ve matematik öğretmen adaylarının FeTeMM farkındalıklarının incelenmesi). *Hacettepe University Journal of Education (Hacettepe Üniversitesi Eğitim Fakültesi Dergisi), 32*(4), 794-816.

Kelly, R. M., & **Akaygun, S.** (2016). Insights into how students learn the difference between a weak acid and a strong acid from cartoon tutorials employing visualizations. *Journal of Chemical Education*, *93*(6), 1010-1019.

Akaygun, S. (2016). Is the oxygen atom static or dynamic: The effect of generating animations on students' mental models of atomic structure. *Chemistry Education Research and Practice*, *17*, 788-807.

Akaygun, S., & Aslan-Tutak, F. (2016). STEM images revealing STEM conceptions of preservice chemistry and mathematics teachers. *International Journal of Education in Mathematics, Science and Technology*, *4*(1), 56-71.

Akaygun, S., Elmas, R., Kara, H., Karataş, F. Ö. & Yıldırım, G. (2016). A reflection from chemistry teachers of science high schools: views about the revised chemistry curriculum (Fen lisesi kimya öğretmenlerinden bir yansıtma: Güncellenen kimya öğretim programı ile ilgili görüşler). *Erzincan University Journal of Education Faculty* (*Erzincan Üniversitesi Eğitim Fakültesi Dergisi), 18*(2), 737-770.

Yaseen, Z., & **Akaygün, S.** (2016). A comparison of high school students' mental models on atom and textbook visualizations (Lise öğrencilerinin atom ile ilgili zihinsel modellerinin ders kitaplarındaki görseller ile karşılaştırılması). *Mehmet Akif Ersoy University Journal of Education Faculty (Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi), 40*, 469-490.

Schwarzer, S., **Akaygun, S.**, Sagun Gokoz, B., Anderson, S., & Blonder, R. (2015). Using atomic force microscopy in out of school settings two case studies investigating the knowledge and understanding of high school students. *Journal of Nano Education*, *7*(1), 10-27.

Sagun Gököz, B., & **Akaygün, S**. (2014). A bridge connecting high school to university: a nanoscience workshop (Üniversiteden liseye uzanan köprü: Bir nanobilim atölye çalışması). *Bogazici University Journal of Education (Boğaziçi Üniversitesi Eğitim Dergisi)*, *3*(2), 49-72.

Akaygun, S., & Jones, L. L (2014). Words or pictures: A comparison of written and pictorial explanations of physical and chemical equilibrium. *International Journal of Science Education*, *36*(5), 783-807.

Akaygun, S., & Jones, L. L (2013). Research based design and development of a simulation of liquid vapor equilibrium. *Chemistry Education Research and Practice*, *14*(3), 324-344.

Jones, L. L., MacArthur, J. R., & **Akaygun, S.** (2011). Using technology to engage preservice elementary teachers in learning about scientific inquiry. *Center for Educational Policy Studies Journal*, *1*(1), 113-130.

Ardac, D., & **Akaygun, S.** (2005). Using static and dynamic visuals to represent chemical change at molecular level. *International Journal of Science Education*, *27*(11), 1269-1298.

Ardac, D., & **Akaygun, S.** (2004). Effectiveness of multimedia based instruction that emphasizes molecular representations on students' understanding of chemical change. *Journal of Research in Science Teaching*, *41*(4), 317-337.

PUBLICATIONS – *BOOK CHAPTERS*

Akaygun, S., & Adadan, E. (2021). Investigating the role of conceptual understanding on how students watch an experimental video using eye-tracking. In Devetak I., Glažar S.A. (Eds) *Applying Bio-Measurements Methodologies in Science Education Research* (pp. 93-106). Cham: Springer.

Akaygun, S. (2020). Nanotechnology in our lives and in science education (Nanoteknolojinin hayatımızdaki ve fen eğitimdeki yeri). In H. Artun, M. S. Günbatar & S. Aydın-Günbatar (Eds.) *Technology Trends in Science Teaching (Fen Öğretiminde Teknoloji Eğilimleri)* (pp. 291-328). Ankara: Pegem Akademi.

Akaygun, S. (2020). Chemical pollutants and preventive technologies (Kimyasal kirlilik ve önleme teknolojileri). In H. Ş. Ayvacı & S. Cepni (Eds.). *Technological Applications of Science (Bilimin Teknolojideki Uygulamaları)* (pp. 311-346). Ankara: Pegem Akademi.

Akaygun, S., & Aslan-Tutak, F. (2020). Collaboratively learning to teach STEM: A model for learning to integrate STEM education in preservice teacher education. In V. L. Akerson & G. A. Buck (Eds.), *Critical Questions in STEM Education* (pp 147-163). Switzerland: Springer.

Akaygun, S. (2019). Using animation developing softwares in science education (Animasyon oluşturma programlarının fen bilimleri eğitiminde kullanımı). In D. Akgündüz (Ed.), *Technological Approaches in Science and Mathematics Education (Fen ve Matematik Eğitiminde Teknolojik Yaklaşımlar)* (pp. 287-310).. Ankara: Anı Yayınları.

Akaygun, S. (2019). Research topic and problem (Araştırma konusu ve problem). In H. Özmen & O. Karamustafaoğlu (Eds.), *Research Methods in Education (Eğitimde Araştırma Yöntemleri)* (pp. 41-54). Ankara: Pegem Akademi.

Akaygun, S., & Adadan, E. (2019). Revisiting the understanding of redox reactions through critiquing animations in variance. In M. Schultz, S. Schmid & G. Lawrie (Eds.), *Research and Practice in Chemistry Education* (pp. 7-29). Singapore: Springer.

Aslan-Tutak, F., & **Akaygün, S.** (2019). Engineering applications in science classes (Fen bilimleri derslerinde mühendislik uygulamaları). In D. Akgündüz (Ed.), *Technological Approaches in Science and Mathematics Education (Fen ve Matematik Eğitiminde Teknolojik Yaklaşımlar)* (pp. 551-564). Ankara: Anı Yayınları.

Akaygun, S. (2018). Visualizations in high school chemistry textbooks used in Turkey. In C. Cox & W. E. Schatzberg (Eds.), *International Perspectives on Chemistry Education Research and Practice*, (pp. 111-127). Washington, DC: American Chemical Society.

Akaygun, S., Brown, C., Karatas, F. O., Supasorn, S., & Yaseen, Z. (2018). Teaching Chemistry with Analogies around the World: Views of Teachers from Four Countries. In C. Cox & W. E. Schatzberg (Eds.), *International Perspectives on Chemistry Education Research and Practice*, (pp. 129-146), Washington, DC: American Chemical Society.

Akaygün, S., & Aslan Tutak, F. (2017). STEM (Science, Technology, Engineering, Mathematics) Education Approach (FeTeMM (Fen, Teknoloji, Mühendislik, Matematik) Eğitimi Yaklaşımı). In M. Ergun (Ed.) *New Approaches in Teaching Science (Fen Bilimleri Öğretiminde Yeni Yaklaşımlar)* (p. 1-34), Ankara: Nobel Akademik Yayıncılık.

Akaygün, S. (2017). Professional Development for science center experts: A journey for science (Bilim merkezi uzman eğitimi: bilim için devam eden yolculuk. In A. Güney (Ed.) Science Center with Every Aspect (Her Yönüyle Bilim Merkezi) (p. 227-249). Konya: Çizgi Kitabevi.

Akaygun, S. (2017). Visualizing the invisible: Using dynamic visualizations in chemistry education (Görünmeyeni görselleştirme: kimya eğitiminde hareketli bilgisayar görsellerinin kullanımı). In M. Sözbilir & A. Ayas (Eds), *Teaching Chemistry: Examples of Good Practices for Teacher Educators, Inservice and Preservice Teachers (Kimya Öğretimi: Öğretmen Eğitimcileri, Öğretmenler ve Öğretmen Adayları için Iyi Uygulama Örnekleri)*, 2nd Edition, (pp. 617-648). Ankara: Pegem Akademi.

Akaygun, S. (2016). Visualizing condensation: Integrating animation-developing technology in chemistry classes. In D. Falvo & M. Urban (Eds.), *Improving K-12 STEM Education Outcomes through Technological Integration*, (pp. 172-185), USA: IGI Global.

Blonder, R., Parchmann, I., **Akaygun, S**., & Albe, V. (2014). Nanoeducation: Zooming into teacher professional development programs in nanotechnology in four European countries. In C. Bruguière, A. Tiberghien, & P. Clément (Eds.), *Topics and trends in current science education*. (pp. 159-174), Dordrecht, The Netherlands: Springer.

Akaygun, S. & Jones, L. L. (2014). Animation or simulation: investigating the importance of interactivity for learning solubility equilibria. In J. P. Suits & M. J. Sanger, (Eds.) *Pedagogic Roles of Animations and Simulations in Chemistry Courses*, (pp. 127-159), Washington, DC: Oxford University Press.

Akaygun, S. & Jones, L. L. (2014). How does level of guidance affect understanding when students use a dynamic simulation of liquid-vapor equilibrium? In I. Devetak, & S. A. Glazar, (Eds), *Learning with understanding in the chemistry classroom*, (pp. 243-263), Dordrecht, The Netherlands: Springer.

Akaygun, S. & Jones, L. L. (2013). Dynamic visualizations: Tools for understanding particulate nature of matter. In G. Tsaparlis & H. Sevian (Eds.), *Concepts of Matter in Science Education*, (pp. 281–300). Dordrecht, The Netherlands: Springer.

RECENT CONFERENCE PRESENTATIONS

Koçoğlu, M. & **Akaygun, S**. (2021, May 19-21). *Investigation of self-regulated learning strategies used by gifted students in science learning through videos* (Özel yetenekli öğrencilerin videolar aracılığıyla fen öğrenme süreçlerinde kullandıkları öz-düzenlemeli öğrenme stratejilerinin incelenmesi). 14th National Congress of Science and Mathematics Education (Online), Burdur, Turkey.

Akaygun, S. & Adadan, E. (2021, April 12–14). *How do the students watch an experimental video? An investigation using eye-tracking*. Eye Tracking in Science Education Research Meeting (Online), Kaiserslautern, Germany.

Akaygun, S. (2020, November 19–22). *Nanotechnology Education* [Workshop presentation]. 2nd International Conference on Science, Mathematics, Entrepreneurship and Technology Education (E-Conference), Bursa, Turkey.

Arkun, E., & **Akaygun, S**. (2020, November 19–22). *An investigation of 9th grade chemistry textbooks with respect to the periodic table*. 2nd International Conference on Science, Mathematics, Entrepreneurship and Technology Education (E-Conference), Bursa, Turkey.

Özergun, I., & **Akaygun, S**. (2020, November 19–22). *An investigation of 5th and 7th grade middle school students' conceptualizations of STEM integration*. 2nd International Conference on Science, Mathematics, Entrepreneurship and Technology Education (E-Conference), Bursa, Turkey.

Karataş, F. O., Orçan, F., Uludüz, Ş. M., Çelik, S. & **Akaygun, S**., (2020, November 19–22). *The Relationship Between Scientific Literacy Level And Socioeconomic Status: A Survey Research*. 2nd International Conference on Science, Mathematics, Entrepreneurship and Technology Education (E-Conference), Bursa, Turkey.

Akaygun, S. & Adadan, E. (2020, November 5–6). *Triggering visualization of submicroscopic level with an experimental video of a redox reaction*. [Poster session]. Project-based Education and Other Activating Strategies in Science Education (Online), Prague, Chechia.

Akaygun, S. & Adadan, E. (2019, October 26–28). *Interpretation of animations in variance: An example of precipitation reaction* [Paper presentation]. 2nd International Congress on Seeking New Perspectives in Education, Istanbul, Turkey.

Adadan, E., & **Akaygun, S**. (2019, October 26–28). *Preservice chemistry teachers' interpretation of animations in variance: An example of acid-base equilibrium reaction* [Paper presentation]. 2nd International Congress on Seeking New Perspectives in Education, Istanbul, Turkey.

Karataş, F. O., Turan Bektaş, B., Uludüz, Ş. M., Orçan, F., **Akaygun, S**., Çelik, S. (2019, October 26–28). Assessment of the scientific literacy level of Turkish society in terms of various variables: The case of Black Sea region of Turkey [Paper presentation]. *Ondokuz Mayıs University 100th Year Education Symposium*, Samsun, Turkey.

Karataş, F. O., Orçan, F., Turan Bektaş, B., Uludüz, Ş. M., Çelik, S., **Akaygun, S**. (2019, October 26–28). Determination of Turkish society's perceptions of scientific literacy levels: Dunning-Kruger effect [Paper presentation]. *Ondokuz Mayıs University 100th Year Education Symposium*, Samsun, Turkey.

Sarılıcan, A. S. & **Akaygun, S**. (2019, September 26–28). Effect of technology-based instruction on fifth grade students' spatial ability and geometry achievement [Paper presentation]. *4th International Symposium of Turkish Computer and Mathematics Education*, Izmir, Turkey.

Akaygun, S. & Adadan, E. (2019, August, 26–30). Animation challenge: Investigating the effect of critiquing the animations in variance on preservice teachers' understanding of redox reactions [Paper presentation]. *13th Biennial Conference of the European Science Education Research Association*, Bologna, Italy.

Akaygun, S. (2019, May 2–4). Supporting chemistry teachers in terms of extracurricular activities that they can conduct at their schools (Kimya öğretmenlerinin okullarinda yürütebileceği ders dişi etkinlikler bağlaminda desteklenmesi) [Symposium contribution]. *6th National Chemistry Education Congress (6. Ulusal Kimya Eğitimi Kongresi)*, Hacettepe University, Ankara, Türkiye.

Akaygun, S., & Adadan, E. (2019, May 2–4). One reaction, two animations: The effect of animations in variance on preservice chemistry teachers' conceptualizations of level redox reactions (Bir tepkime, iki animasyon: Birbiriyle farklılaşan animasyonların kimya ve fen bilgisi öğretmen adaylarının redoks tepkimesini kavramsallaştırma düzeyleri üzerine etkisi). *6th National Chemistry Education Congress (6. Ulusal Kimya Eğitimi Kongresi)*, Hacettepe University, Ankara, Türkiye.

Adadan, E. & **Akaygun, S.** (2019, May 2–4). Chemistry preservice teachers' visualizations of acid-base reactions: The effect of animations in variance (Kimya öğretmen adaylarının asit-baz denge tepkimesini görselleştirmeleri: farklılaşan animasyonların etkisi). *6th National Chemistry Education Congress (6. Ulusal Kimya Eğitimi Kongresi)*, Hacettepe University, Ankara, Türkiye.

Akaygun, S. & Karataş, F. Ö. (2019, May 2–4). Periodic tablo in its 150th year: The knowledge and views of chemistry preservice teachers (150. Yılında periyodik tablo: kimya öğretmen adaylarının bilgi ve görüşleri). *6th National Chemistry Education Congress (6. Ulusal Kimya Eğitimi Kongresi)*, Hacettepe University, Ankara, Türkiye.

Akaygun, S. & Adadan, E. (2019, April 25-28). The use of experimental videos in chemistry education: The example of redox reactions (Kimya eğitiminde deney videolarının kullanımı: redoks tepkimesi örneği.) *XII. International Congress of Educational Research (XII. Uluslararası Eğitim Araştırmaları Kongresi)*, Recep Tayyip Erdoğan Üniversitesi, Rize, Türkiye.

Akaygun, S. & Çorapçı, F. (2019, April 25-28). Investigation of 21st century skills of visually impaired and visually not impaired students (Görme engelli olan ve olmayan gençlerin 21. yüzyil becerilerinin incelenmesi). *XII. International Congress of Educational Research (XII. Uluslararası Eğitim Araştırmaları Kongresi)*, Recep Tayyip Erdoğan Üniversitesi, Rize, Türkiye.

Karataş, F. Ö., Turan Bektaş, B., Orçan, F., Çelik, S. ve **Akaygün, S**. (2019, April 25-28). Investigation of the level of scientific literacy of Turkish society with respect to various variables: Reflections from the pilot study (Türk toplumunun bilimsel okuryazarlik düzeyinin çeşitli değişkenler açisindan değerlendirilmesi: Pilot uygulamadan yansımalar). *XII. International Congress of Educational Research (XII. Uluslararası Eğitim Araştırmaları Kongresi)*, Recep Tayyip Erdoğan Üniversitesi, Rize, Türkiye.

Akaygun, S., & Adadan, E. (2019, April 12-14). The effect of a nanotechnology workshop on high school science teachers' understandings of nanotechnology concepts (Bir nanoteknoloji eğitimi çalıştayının lise fen bilimleri öğretmenlerinin nanoteknoloji ile ilgili kavramları anlamalarına etkisi) *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Akaygun, S., & Karataş, F. Ö. (2019, April 12-14). Investigation of chemistry preservice teachers' concerns about teaching chemistry (Kimya öğretmen adaylarının kimya öğretimi ile ilgili kaygılarının incelenmesi). *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Adadan, E., & **Akaygun, S.** (2019, April 12-14). Exploring preservice chemistry teachers' understanding of acid-base equilibrium reactions. *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Karataş, F. Ö. & **Akaygun, S.** (2019, April 12-14). Analogies in chemistry classrooms: Teachers' practice. *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Karataş, F. Ö., Turan Bektaş, B., Çelik, S., Orçan, F., & **Akaygün, S**. (2019, April 12-14). Determining socioscientific issues as a sub-dimension of scientific literacy: Delphi technique. *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Özergun, I. & **Akaygun, S**. (2019, April 12-14). Investigation of science textbooks with respect to the concepts of entrepreneurship (Fen bilimleri ders kitaplarının girişimcilik kavramı açısından incelenmesi). *International Conference on Science, Mathematics, Entrepreneurship and Technology Education (Uluslararası Fen, Matematik, Girişimcilik ve Teknoloji Eğitimi Kongresi)*, İzmir, Türkiye.

Akaygun, S., & Adadan, E. (2018, October 26-28). After a nanotechnology workshop: The nanotechnology awareness of high school science teachers (Bir nanoteknoloji eğitimi çalıştayının ardından: Lise fen bilimleri öğretmenlerinin nanoteknoloji farkındalıkları) *International Necatibey Congress of Research in Education and Social Sciences* (*Uluslararası Necatibey Eğitim ve Sosyal Bilimler Araştırmaları Kongresi (UNESAK),* Balıkesir Üniversitesi, Balıkesir, Türkiye.

Adadan, E., & **Akaygun, S**. (2018, October 26-28). Investigation of nanotechnology awareness middle and high school students (Ortaokul ve lise öğrencilerinin nanoteknoloji farkındalıklarının incelenmesi). *International Necatibey Congress of Research in Education and Social Sciences* (*Uluslararası Necatibey Eğitim ve Sosyal Bilimler Araştırmaları Kongresi (UNESAK),* Balıkesir Üniversitesi, Balıkesir, Türkiye.

PROFESSIONAL ACTIVITIES

02/2019 – present	Vice editor of Journal of Turkish Chemical Society Section C: Chemical Education (JOTCSC).
11/2018 – present	Editorial Board Member of Boğaziçi University Journal of Education (BUJE).
01/2017 – present	Chemistry field editor of Science Education Journal (Fen Bilimleri Öğretimi Dergisi, FEAD).
08/2019 – 02/2020	*Improving Science and Mathematics Instruction* – Supervising primary science and mathematics teachers, Bogazici American Schools, Istanbul, Turkey.
01/2019 – 12/2019	Guest co-editor of the Special Issue, "STEM Education" of Boğaziçi University Journal of Education (BUJE).
08/2018 – 10/2019	Guest co-editor of the Themed Issue, "Visualizations and representations in chemistry education" of Chemistry Education Research and Practice (CERP).
05/2018 – 02/2019	Committee Member of *Developing National Science and Chemistry Curricula For Gifted and Talented Students*, Ministry of National Education, Ankara, Turkey
06/2018 – 10/2018	Editorial Board Member of Bilim Genç (Youth Science) published by The Scientific and Technological Research Council of Turkey (TUBITAK).

MEMBERSHIP AND ACTIVITIES IN PROFESSIONAL ASSOCIATIONS

2009 – present	Member of European Science Education Research Association (ESERA)
2011 – present	Member of Turkish Science Education and Research Association (Fen Bilimleri Eğitimi ve Araştırmaları Derneği, FEAD)
2005 – 2015	Member of American Chemical Society (ACS)
2015	Member of National Association for Research in Science Teaching (NARST)

PROFESSIONAL HONORS, AWARDS AND FELLOWSHIPS

2017 – present	Academic Incitement Award, Turkish Higher Education Council, Ankara, Turkey.
2013 – 2016	Academic Incitement Award, Bogazici University Foundation, Istanbul, Turkey.
03/2015	National Association for Research in Science Teaching (NARST), International Committee Travel Scholarships, VA, USA.
08/2009	Dean's Citation of Academic Excellence, University of Northern Colorado, Greeley, CO, USA.
05/2009	Gordon Research Conference (GRC), Chair's Fund Scholarship, GRC on Visualization in Science and Education, Oxford, England.
02/2009	Loretta Jones Chemical Education Graduate Scholarship, University of Northern Colorado, Greeley, USA.
03/2006	Bob Ross International Ambassador Award, University of Northern Colorado, Greeley, CO, USA.

COMMUNITY SERVICE

09/2019 – present	Board Member of Faculty of Education Administrative Council, Representative of Associate Professors, Bogazici University, Istanbul, Turkey.
02/2017 – present	Board Member of Summer Term Commission, Bogazici University, Istanbul, Turkey.
09/2015 – present	Board Member of Arts and Culture Commission, Bogazici University, Istanbul, Turkey.
09/2012 – 06/2021	Board Member of Leasing Commission, Bogazici University, Istanbul, Turkey.
09/2011 – 03/2020	Co-organizer of Seminar Series, Faculty of Education, Bogazici University, Istanbul, Turkey.
04/2021	*Nanotechnology in our Lives* – Seminar (Online) given to university students, Namık Kemal University, Tekirdağ, Turkey.
10/2019	*21st Century Skills and Their Reflection on Education* – Seminar given to middle and high school teachers, Adıyaman, Turkey.
12/2018	*STEM Education* – Workshop given to middle and high school science and mathematics teachers, Samsun, Turkey.