

PERSONAL
INFORMATION

Melih Turgut

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Date of Birth/Gender/Nationality 1983 / M / Turkish

WORK EXPERIENCE

15/11/2017 – present

Researcher - Associate Professor

Eskisehir Osmangazi University, Faculty of Education

- Conducting researches on didactics of mathematics, in particular, students' use of digital technologies in mathematics education within *semiotics* and *instrumental genesis* perspectives.
- Spatial-semiotic resources that attached to students' interaction with digital tools and teaching-learning linear algebra with technology.
- Supervising master students.

01/06/2011 – 14/11/2017

Researcher – Tenure track Assistant Professor

Eskisehir Osmangazi University, Faculty of Education

15/03/2015 – 15/11/2015

Post Doctoral Research Fellow

Freudenthal Institute for Science and Mathematics Education, Utrecht University, Utrecht, the Netherlands <http://www.uu.nl/staff/MTurgut/> ; <http://www.fisme.science.uu.nl>

Work on a project: *Articulating frameworks: teaching – learning linear algebra and theory of semiotic mediation*. Supervised by Prof. dr. P.H.M. (Paul) Drijvers.

EDUCATION AND
TRAINING

2007 – 2010

Doctor of Philosophy – **PhD**

Institute of Educational Sciences, Dokuz Eylül University, Izmir (Turkey)

Thesis Title: *The effect of technology assisted linear algebra education on preservice primary mathematics teachers' spatial ability* (in Turkish)

Supervisor: dr. Süha Yılmaz

2005 – 2007

Master of Science – **MSc**

Institute of Educational Sciences, Dokuz Eylül University, Izmir (Turkey)

Thesis Title: *Investigation of 6., 7. and 8. grade students' spatial ability* (in Turkish)

Supervisor: dr. Süha Yılmaz

2001 – 2005

Bachelor Degree – **BSc**

Buca Faculty of Education, Dokuz Eylül University, Izmir (Turkey)

PERSONAL SKILLS

Mother tongue Turkish

Other language	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Organisational/managerial skills

- Vice chair of department of Science and Mathematics Education
- Erasmus+ (LLP) faculty and departmental coordinator

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

Softwares and OSs

- Mac OSX, Windows, Office Packages
- LaTeX
- GeoGebra
- SPSS
- Atlas.ti (Qualitative Data Analysis)
- R version of CHIC (Cohesion Hierarchical Implicative Classification)

Driving licence B – B1 – C

ADDITIONAL INFORMATION

Given Courses

- Linear Algebra I and II
- Calculus III
- Computer Algebra Systems in Mathematics Education (Graduate) (in English)
- Spatial Thinking in Mathematics Education (Graduate) (in English)
- Research Methods in Education I and II (Graduate)
- Statistical Methods and Applications I and II (Graduate)

Granted Research and Conference Funds

- Research fund for master research from The Scientific and Technological Research Council of Turkey (TUBITAK) (2005–2007)
- Research fund for doctoral degree from The Scientific and Technological Research Council of Turkey (TUBITAK) (2007–2010)
- Research fund for post doctoral project from The Scientific and Technological Research Council of Turkey (TUBITAK) (2015)
- ERME Graham Littler Fund (CERME 9, 2015; CERME 10, 2017)
- ICME 13 partially fund (2016).

Supervised Thesis

- Esra Çelik, *Students' dragging modalities in geometric apprehension processes while using a DGS*, 2015–on going.
- Faysal Çeker, *Validity studies of Turkish version of Spatial Habits of Mind Scale*, 2016–on going.
- Havva Kaya, *Signs attached to students' dragging processes in translation and reflection problems: Synchronic and Diachronic analyses*, Defended (20 July 2017).
- B. Ozan Öngel, *Students' spatial-geometric reasoning steps for solving 3D problems designed in a DGS*, 2016–on going.

PhD Juries

- Hasan Altun (2016), Dokuz Eylül University
- Candas Uygan (2016), Anadolu University
- Zeliha Dur (2016), Anadolu University
- Faik Camci (2017), Anadolu University

Memberships

- European Society for Research in Mathematics Education, 2015 - ...
- International Group for Psychology of Mathematics Education (PME), 2013 - ...
- International Linear Algebra Society, 2009 – 2011
- Turkish Mathematics Education Association, 2013 - ...

Projects

- Articulating frameworks: teaching learning linear algebra and theory of semiotic mediation. *With collaboration of Paul Drijvers (Freudenthal Institute) and Maria Alessandra Mariotti (University of Siena). [post-doctoral research project-principal researcher. Supported by Scientific and Technological Research Council of Turkey]*
- Statistical implicative analysis of students' thinking modes and representation types in linear algebra, 2016 [*principal researcher. Supported by Eskisehir Osmangazi University Research Projects Council*].
- Personal professional development efforts of Science and Mathematics teachers in Turkey. 2014–2017 [*researcher. Supported by Eskisehir Osmangazi University Research Projects Council*].

- Contribution of middle school mathematics teachers' professional development through web-based hypothetical learning trajectories. 2017 – ... [researcher. *Supported by SOBAG-Scientific and Technological Research Council of Turkey*]
- Instrumental genesis of preservice mathematics teachers working on geometric constructions with the use of a DGS. 2017 – ... [researcher, *Supported by Eskisehir Osmangazi University Research Projects Council*]

Committee Member

- *International Scientific Committee Member, 13th International Conference on Technology in Mathematics Teaching–ICTMT13, 3-6 July 2017, Lyon, France.* <https://ictmt13.sciencesconf.org/resource/page/id/4>
- *International Programme Committee Member (IPC), The Fifth ERME Topic Conference MEDA: Mathematics Education in Digital Age, 5-7 September 2018, Copenhagen, Denmark.* <http://www.math.ku.dk/english/research/conferences/2018/meda/>
- *Co-leader, Thematic Working Group (TWG 15) of Teaching Mathematics with Resources and Technology, The 11th Congress of European Research in Mathematics Education (CERME 11), 6 – 10 February 2019, Utrecht, the Netherlands.*

Selected Refereed Conference Presentations

- Donevska-Todorova, A., & Turgut, M. (2017). Looking at compositions of reflections in a DGE from thinking modes and semiotic perspectives. In G. Aldon & J. Trgalova (Eds.), *Proceedings of the 13th International Conference for Technology in Mathematics Teaching - ICTMT13* (pp. 96–104), Lyon, France: Ecole Normale Supérieure de Lyon/Université Claude Bernard Lyon 1.
- Uygan, C., & Turgut, M. (2017). Spatial-semiotic analysis of an eight grade student's use of 3D modelling software. In G. Aldon & J. Trgalova (Eds.), *Proceedings of the 13th International Conference for Technology in Mathematics Teaching- ICTMT13* (pp. 177–186), Lyon, France: Ecole Normale Supérieure de Lyon/Université Claude Bernard Lyon 1.
- Turgut, M. (2017). Students' reasoning on linear transformations in a DGS: a semiotic perspective. In T. Dooley & G. Gueudet (Eds.), *Proceedings of the 10th Congress of European Society for Research in Mathematics Education*. Dublin, Ireland: DCU Institute of Education and ERME.
- Turgut, M., & Drijvers, P. (2016). *Students' thinking modes and the emergence of signs in learning linear algebra*. Paper presented at *13th International Congress on Mathematical Education (ICME-13)*, Hamburg, Germany.
- Turgut, M. (2015). Theory of semiotic mediation in teaching-learning linear algebra: In search of a viewpoint in the use of ICT. In K. Krainer & N. Vondrova (Eds.), *Proceedings of the 9th Congress of European Research in Mathematics Education* (pp. 2418– 2424). Prague, Czech Republic: Charles University and ERME.

- Turgut, M., & Uygan, C. (2014). *Designing spatial visualization tasks for middle school students with a 3D modelling software*. Paper presented at TIME2014–Technology and Its Integration in Mathematics Education Conference, 1–5 July 2014, Danube University Krems, Krems–Austria.
- Turgut, M. (2013). Applications Mathematica into teaching of linear algebra: The case of least–squares. In E. Faggiano & A. Montone (Eds.), *Proceedings of the 11th International Conference on Technology in Mathematics Teaching–ICTMT11*, (pp. 286–291). University of Bari, 9–12 July 2013, Italy: Università degli Studi di Bari Aldo Moro.
- Turgut, M., & Uygan, C. (2013). Spatial ability training with 3D modelling software. In E. Faggiano & A. Montone (Eds.), *Proceedings of the 11th International Conference on Technology in Mathematics Teaching–ICTMT11*, (pp. 292–297). University of Bari, 9–12 July 2013, Italy: Università degli Studi di Bari Aldo Moro.

Book Chapters

- Turgut, M. (2018). How does a dynamic geometry system mediate students’ reasoning on 3D linear transformations? In S. Stewart, C. Andrews-Larson, A. Berman & M. Zandieh (Eds.), *Challenges and Strategies in Teaching Linear Algebra*. ICME – 13 Monograph, Springer International Publishing AG. https://doi.org/10.1007/978-3-319-66811-6_11
- Turgut, M. (2017). A spatial–semiotic framework in the context of Information and Communication Technologies (ICTs). In M.S. Khine (Ed.), *Visual–spatial ability in STEM Education: Transforming Research into Practice* (pp. 173–194). Switzerland: Springer International Publishing. https://doi.org/10.1007/978-3-319-44385-0_9

Selected Journal Publications in Mathematics Education

- Balbag, M.Z., Yenilmez, K., & Turgut, M. (2017). Personal professional development efforts scale for middle school mathematics teachers: An adaptation study. *International Journal of Instruction*, 10(4), 325–342. <https://doi.org/10.12973/iji.2017.10419a>
- Turgut, M. (2015). Development of spatial ability self–report scale (SASRS): Reliability and validity studies. *Quality & Quantity: International Journal of Methodology*, 49(5), 1997–2014. <https://doi.org/10.1007/s11135-014-0086-8>
- Turgut, M. (2015). Individual differences in the mental rotation skills of Turkish prospective teachers. *Issues in the Undergraduate Mathematics of School Teachers: The Journal (Volume 5: Teacher Attributes)*, Online: <http://www.k-12prep.math.ttu.edu/journal/5.attributes/volume.shtml>
- Turgut, M., & Uygan, C. (2015). Designing spatial visualization tasks for middle school students with a 3D modelling software: An instrumental approach. *International Journal for Technology in Mathematics Education*, 22(2), 45–51. https://doi.org/10.1564/tme_v22.2.01
- Turgut, M., Yenilmez, K., & Anapa, P. (2014). Symmetry and rotation skills of prospective elementary mathematics teachers. *Bolema – Mathematics Education Bulletin*, 28(48), 383–402. <https://doi.org/10.1590/1980-4415v28n48a19>

- Turgut, M. (2014). Turkish validity studies of a spatial environmental ability scale: Santa Barbara Sense of Direction. *Acta Didactica Universitatis Comenianae–Mathematics (ADUC–M)*, 14, 87–103.
- Turgut, M., & Uygan, C. (2014). Spatial ability training for undergraduate mathematics education students: Designing tasks with SketchUp®. *The Electronic Journal of Mathematics and Technology*, 8(1), 53–65.
- Turgut, M. (2013). Academic self-efficacy beliefs of undergraduate mathematics education students. *Acta Didactica Napocensia*, 6(1), 33–40.
- Turgut, M., & Nagy-Kondor, R. (2013). Spatial visualization skills of Hungarian and Turkish prospective mathematics teachers. *International Journal for Studies in Mathematics Education*, 6(1), 168–183.
- Turgut, M., & Nagy-Kondor, R. (2013). Comparison of Hungarian and Turkish prospective mathematics teachers' mental cutting performances. *Acta Didactica Universitatis Comenianae–Mathematics (ADUC–M)*, 13, 47–58.
- Turgut, M., & Yılmaz, S. (2012). Relationships among pre-service primary mathematics teachers' gender, academic success and spatial ability. *International Journal of Instruction*, 5(2), 5–20.
- Ali, A.T., Lopez, R., & Turgut, M. (2012). k-type partially null and pseudo null slant helices in Minkowski 4-space. *Mathematical Communications*, 17(1), 93–103.
- Yılmaz, S., & Turgut, M. (2010). A new version of Bishop frame and an application to spherical images. *Journal of Mathematical Analysis and Applications*, 371(2), 764–776.
- Ali, A.T., & Turgut, M. (2010). Position vector of a time-like slant helix in Minkowski 3-space. *Journal of Mathematical Analysis and Applications*, 365(1), 559–569.
- Yılmaz, S., Özyılmaz, E., Yaylı, Y., & Turgut, M. (2010). Tangent and trinormal spherical images of a time-like curve on the pseudohyperbolic space. *Proceedings of the Estonian Academy of Sciences*, 59(3), 216–224.
- Ali, A.T., & Turgut, M. (2010). Some characterizations of slant helices in the Euclidean space E^3 . *Hacettepe Journal of Mathematics and Statistics*, 39(3), 327–336.
- Yılmaz, S., Özyılmaz, E., & Turgut, M. (2010). New spherical indicatrices and their characterizations. *Analele Stiintifice ale Universitatii Ovidius Constanta*, 18(2), 337–354.
- Turgut, M. (2008). On the invariants of time-like dual curves. *Hacettepe Journal of Mathematics and Statistics*, 37(2), 129–133.

Selected Journal
Publications in Differential
Geometry

Citations <https://scholar.google.com.tr/citations?user=jKYqIY0AAAAJ&hl=en>

Social Profile https://www.researchgate.net/profile/Melih_Turgut

Invited Talks

- *Semiotic perspectives in Mathematics Education*, 21 April 2016, at Anadolu University, Eskisehir, Turkey.
- *An underpinning skill in mathematics education: Spatial thinking*, 7 July 2014, at Comenius University of Bratislava, Slovakia.
- *Spatial ability in mathematics education*, Technical University of Liberec, 16–20 September 2013, Liberec, Czech Republic.

Reviewer Roles

- Analele Stiintifice ale Universitatii "Al. I. Cuza" din Iasi (Romania) (SCI–Exp)
- Analele Stiintifice ale Universitatii Ovidius Constanta (SCI–Exp)
- Croatian Journal of Education (SSCI)
- Education and Information Technologies (AEI)
- the Electronic Journal of e-Learning (ESCI)
- Hacettepe University Journal of Education (ESCI)
- International Journal of Innovation in Science and Mathematics Education (AEI)
- International Journal of Instruction (ERIC)
- Iranian Journal of Science and Technology, Transactions A: Science (SCI–Exp)
- Journal of Educational Computing Research (SSCI)
- Journal of Mathematical Analysis and Applications (SCI)
- Mathematics Education Research Journal (ESCI)
- Nonlinear Analysis Series A: Theory, Methods & Applications (SCI)
- Phythagoras: Journal of the Association for Mathematics Education of South Africa (MathEduc)
- Proceedings of the 9th Congress of European Research in Mathematics Education (CERME9)
- Proceedings of the 10th Congress of European Research in Mathematics Education (CERME10)
- Proceedings of the 12th European Conference on e-Learning ECEL 2013
- Proceedings of the 13th International Congress on Mathematical Education (ICME13)
- Proceedings of the 14th European Conference on e-Learning ECEL 2015
- Proceedings of the 15th European Conference on e-Learning ECEL 2016
- Proceedings of the 13th International Conference on Technology in Mathematics Teaching (ICTMT13)