Miglena Asenova
CURRICULUM VITAE

PERSONAL INFORMATION

SURNAME	**ASENOVA**
NAME	**MIGLENA**

CURRENT POSITION Associate Professor in MATH-01/B – Mathematics Education and History of Mathematics - at the University of Milan, Italy

EDUCATION

Master's Degree in Mathematics (LM-40), University of Modena and Reggio Emilia, awarded on 11 April 2017. Thesis title: "The Laplace Equation: A Historical-Epistemological Reflection".

PhD in Mathematics and Computational Sciences with PhD Thesis in Mathematics Education, University of Catania, Italy, awarded on 23.02.21 with *summa cum laude*. Title: "Categorical Definition of Mathematical Object in Mathematics Education"

Postgraduate Specialisation Diploma for Secondary-School Teaching (SSIS) in Applied Mathematics, awarded by the University of Bologna on 07.06.2008.

Five-year Degree in Business Administration, awarded by Otto von Guericke University Magdeburg, Germany, on 10.03.1995.

PREVIOUS POSITIONS

Fixed-term Researcher (RTD-A) in MATH-01/B – Mathematics Education and History of Mathematics, Free University of Bozen-Bolzano, 01.09.21–14.04.25.

Upper-secondary school teacher, 2008–2021.

TEACHING ACTIVITY

COURSES AND MODULES

Course lecturer for Mathematics for Natural Sciences, University of Milan, academic year 2025/2026, 8 ECTS credits.

Course lecturer for Didactics of Geometry, University of Milan, academic year 2025/2026, 6 ECTS credits.

Course in Elementary Mathematics from an Advanced Standpoint, University of Milan, academic year 2025/2026, 3 ECTS credits.

Teaching modules on Didactical Models for Mathematics Teaching within the 30-, 36- and 60-ECTS teacher-qualification programmes for teaching categories A026 (Mathematics), A027 (Mathematics and Physics), A028 (Mathematics and Sciences) and A047 (Applied Mathematics), University of Milan, academic years 2024/2025 and 2025/2026.

Laboratory in Foundations of Mathematics and Mathematics Education for Primary School, Free University of Bozen, Italy, German Section, academic years 2018/2019-2024/2025.

Course in History of Mathematics for prospective Mathematics secondary school teachers, University of Modena and Reggio Emilia, academic years 2022/2023 and 2023/2024.

Laboratory in Foundations of Mathematics and Mathematics Education

Course in Mathematics Education for prospective Mathematics secondary school teachers, University of Modena and Reggio Emilia, academic year 2022/2023,6 ECTS credits.

Secondary school teacher in Mathematics from 2008 to 2021.

SUPPLEMENTARY TEACHING AND STUDENT SUPPORT ACTIVITIES

SUPERVISION OF MASTER'S THESES

Academic year 2025/2026

University of Milan
Supervisor of one Master's thesis in LM-40 (Master's Degree in Mathematics),
Title: "Lo sviluppo della Semiotic Interpretative Knowledge (SIK) nell'azione didattica del docente nel contesto del calcolo combinatorio" ("The Development of Semiotic Interpretative Knowledge (SIK) in Teachers' Instructional Practice in the Context of Combinatorics")

Free University of Bozen-Bolzano
Supervisor of one Master's thesis in in LM-85bis (Five-year Masters' Degree in Primary School Sciences),
Title: "Erarbeitung von Vorschlägen zur Lernbegleitung für pädagogische Fachkräfte im Kindergarten in Bezug auf mathematische Spiele".
Supervisor and co-supervisor of two Master's theses in LM-85bis (Five-year Masters' Degree in Primary School Sciences)
Title: "Die Rolle von Embodied Cognition für das geometrische Verständnis bei Grundschulkindern"
Title: "Die Perspektive der Lehrkräfte bezüglich des DiToM-Projekts"

Academic year 2023/2024

University of Modena and Reggio Emilia
Supervisor of one Master's thesis in LM-40 (Master's Degree in Mathematics),
Title: "Un'indagine sulla concettualizzazione dinamica della densita di Q in R. Analisi delle concezioni spontanee e delle argomentazioni degli studenti di scuola secondaria di secondo grado" ("An Investigation into the Dynamic Conceptualisation of the Density of $\mathbb{Q}$ in $\mathbb{R}$: An Analysis of Upper-Secondary School Students' Spontaneous Conceptions and Arguments")

Free University of Bozen-Bolzano
Supervisor of two Master's thesis in LM-85bis (Five-year Masters' Degree in Primary School Sciences),
Title 1: "Präkonzepte von Kinder im Kindergarten über mehrstellige Zahlen" („Concezioni spontanee di bambini di scuola dell'infanzia riguardo ai numeri con più cifre");
Title 2: "Präkonzepte von Kinder und im ersten Schuljahr über mehrstellige Zahlen" („Concezioni spontanee di bambini del primo anno di scuola primaria riguardo ai numeri con più cifre").

Academic year 2022/2023

University of Modena and Reggio Emilia

Supervisor of three Master's thesis in Matematica LM-40 (Master's Degree in Mathematics),
Title 1: "Funzioni: un'analisi epistemologica dalle prime definizioni storiche alle concezioni delle matricole di un cdl in Matematica";
Title 2: "Un'indagine nelle classi seconde di scuola secondaria di secondo grado";
Title 3: "Validazione e generalizzazione in ambito algebrico: una sperimentazione in aula".

Supervisor of one Master's thesis in LM-60 (Didattics and Science Comunication),
Title: "Alla conquista di π: una ricerca-azione sull'insegnamento- apprendimento del rapporto tra la circonferenza e il suo diametro"

Academic year 2020/2021

Free University of Bozen-Bolzano
Co-supervisor of one Master's thesis in LM-85bis (Five-year Masters' Degree in Primary School Sciences);
Title: "Moltiplicare come processo di oggettivazione. Un incontro tra la cultura germanofona e quella italiana"
Supervisor of una Master's thesis in LM-85bis
Title: "Einsatz des Bilderbuchs in der frühen mathematischen Bildung" („Uso die libri illustrati nella formazione matematica precoce").

SEMINARS

National and international research seminars:

October 2024: Seminar cycle (8 hours); title "The mathematics teacher's semiotic interpretative knowledge: thehourstical and practical implications in research and practice", within the Doctoral Course in Énfasis en Educación Matemática of the Universidad Distrital José de Caldas di Bogotà, Colombia, as a part of the course "Enfoques epistemológicos y metodológicos para la investigación docente sobre la formación de profeshourss de matemáticas".

May 2024: Seminar (3 hours); title "Paradigmi di ricerca e approccio categoriale nella ricerca in Didattica della matematica" at the l'University of Bari, Italy.

February 2024: Seminar (1 hour); title "Dall'Interpretative Knowledge (IK) alla Semiotic Interpretative Knowledge (SIK): l'importanza degli aspetti semiotici nel feedback agli studenti" within the XXXX National Seminar of the Italian Associatiation for Research in Mathematics Education: "Voci dalla ricerca… giovani ricercatori raccontano la propria ricerca", Rimini, Italy.

May 2022: Seminar (2 hours); title "Research Paradigms and other (un)confortable issues", within the Doctoral Course in Pedagogia generale, Pedagogia speciale, Didattica generale e Didattica disciplinare of the Free University of Bozen-Bolzano, Italy.

May 2022: (1,5 hours): Webinar as invited speaker; title "Categorical Definition of Mathematical Object specific to Mathematics Education" within the PhD-Webinar-Series "PhD in Mathematics Education", organizzato dello da YERME (Young Reseracher in Mathematics Education).

April 2021: Seminar (4 hours); title "Categorical definition of Mathematical Object specific to Mathematics Education", within the Doctoral Course in Enfasis Matématica of the Universidad Distrital José de Caldas di Bogotà, Colombia.

September 2019: Oral Comunication (1/2 hour); title "Strumenti matematici e concettuali per l'analisi della continuità / discontinuità tra argomentazione e dimostrazione", within the XXI Conference of the Italian Mathematical Union, 2-7 Settembre 2019, University of Pavia, Italy.

May 2019: Seminar (1,5 hours); title "L'evoluzione epistemologica del concetto di dimostrazione nella tradizione occidentale", within the Master's Degree Course in Mathematics at the University of Parma, Italy.

August 2017: Seminar (1 hour); invited speaker; title “Las construcciones geométricos en el primo ciclo de instrucción. Una interpretación duvaliana”, within the “Seminars de la Maestría en Educacón”, Universidad de Tunja, Colombia.

August 2017: Seminar (1 hour); invited speaker; title “Las construcciones geométricos en el primo ciclo de instrucción”, within the Seminar Internacional “Reflexiones críticas sobre la didáctica de la matemática: da la investigación al aula”,Universidad de la Sabana, Colombia.

November 2009: Seminar (3/4 hours); invited speaker; title “Il concetto di verità in Didattica della Matematica”, tenuto nell’ambito del Ciclo di Seminari di ricerca del Gruppo NRD dell’University of Bologna.

National research and professional-development seminars

November 2025: Seminar (0,5 hour); invited speaker; title ““Cos’è una dimostrazione?”: l’evoluzione delle concezioni degli studenti di un corso di Laurea in Matematica”, within the Convegno Nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), 7-9 november 2025 (together with Tania Bertolini).

October 2025: Seminar (1,5 hours); title “Un problema vale l’altro? Non proprio…” nell’ambiro del Convegno BRIMA, 5 october 2025, Bressanone, Facolty of Education, Free University of Bozen-Bolzano, Italy.

March 2025: Seminar (1 hour); invited speaker; title “Prospettiva semiotica nella formazione insegnanti: riflessioni, esempi e proposte”, within the Convegno di formazione “Non temiamo la Matematica”, Ravarino (MO), Italy.

November 2024: Seminar (1/2 hour); invited speaker; title “Quando capire lo studente è un’attività di problem solving: registri semiotici e interpretazione in matematica” within the Convegno Nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), 8-10 novembre 2024 (together with Agnese Del Zozzo e Marzia Garzetti)

January 2024: Seminar (1,5 hours); invited speaker; title “La conoscenza semiotica interpretativa del docente di matematica: esempi e riflessioni” invited della Società Mathesis di Torino, University of Turin, Italy.

November 2023: Seminar (1/2 hour) title “La conoscenza semiotica interpretativa dell’insegnante di matematica: esempi e riflessioni” at the Convegno Nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), 10-12 november 2023 (together with Agnese Del Zozzo e George Santi); evento organizzato con la collaborazione del NRD dell’University of Bologna.

November 2022: Seminar (1/2 hour); title “La scomposizione additiva al centro dell’aritmetica all'inizio della scuola primaria: basi teoriche ed esempi d'aula” within the Convegno Nazionale “Incontri con la matematica” XXXVI, Castel san Pietro Terme (BO), 21-23 october 2022 (together with M. Gaidoschik).

November 2021: Seminar (1/2 hour); title “Oggetti matematici in Didattica della matematica” in occasione del Convegno Nazionale “Incontri con la matematica”, Castel San Pietro Terme (BO).

November 2020: Seminar (1/2 hour); title “Discussioni fra alunni della scuola primaria sul concetto di altezza di un poligono” in occasione del Convegno Nazionale “Incontri con la matematica”, Castel San Pietro Terme (BO) (together with Ines Marazzani).

October 2019: Seminar (3/4 hours); title “Costruzioni geometriche in un approccio dimostrativo alla scuola primaria”, within the Convegno GIMat 2019, 18-19 october 2019, University of Palermo, Italy.

November 2018: Seminar (1/2 hour); title “L’equazione di Laplace: una prospettiva storico-epistemologica. L'equazione di Laplace è davvero di Laplace?”, within Convegno Incontri con la

matematica “La didattica della matematica, strumento concreto d’aula”, 16-17-18 november 2018, Castel San Pietro Terme, Bologna (together with Sergio Polidoro).

March 2018: Seminar (1 ora); title “Esempi di apprendimento strategico e apprendimento comunicativo in matematica nella scuola primaria”, within Convegno Nazionale “La didattica della matematica: dalla ricerca scientifica alla pratica d’aula”, Formigine (MO), 6-7 march 2018, Italy.

April 2017: Seminar (3/4 hours); title “Le costruzioni geometriche del primo ciclo d’istruzione”, within Convegno “Non temiamo la matematica”, Ravarino (MO), Italy.

July 2013: Seminar (3/4 hours); title “Interpretare per capire e scegliere per imparare” within Convegno Nazionale “Insegnare e imparare la Matematica: due facce della stessa medaglia” at Cerchio (AQ), Italy.

March 2017: Seminar (3/4 hours); title “Le costruzioni geometriche del primo ciclo d’istruzione”, within Convegno Nazionale “Non temiamo la matematica”, Ravarino (MO), Italy.

November 2015: Seminar (3/4 hours); title “Aspetti semantici e sintattici delle costruzioni geometriche alla scuola primaria”, within the XXIX Convegno nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), Italy.

November 2013: Seminar (1/2 hour); title “Il ruolo delle rappresentazioni visive nell’apprendimento della matematica”, within the XXVII Convegno nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), Italy.

November 2011: Seminar (1/2 hour); invited speaker; title “Linguaggio e didattica della matematica: una parafrasi algebrica e le sue implicazioni didattiche”, within the XXV Convegno nazionale “Incontri con la Matematica”, Castel San Pietro Terme (BO), Italy.

RESEARCH ACTIVITY

Books / Book chapters

Asenova, M., (2025). Variazioni sul tema: Semiotica. In B.D’Amore & M.I. Fandiño Pinilla (Eds.), *Variazioni sul tema: Semiotica. Contributi alla ricerca in Didattica della Matematica. Un omaggio a Raymond Duval* (pp. 17-29). Bonomo.

Asenova, M., D’Amore, B., Fandiño Pinilla, M.I., Iori, M., & Santi, G. (2025). La teoria dell’oggettivazione e la teoria delle situazioni didattiche: un esempio di confronto fra teorie in didattica della matematica. In B. D’Amore & M.I. Fandiño Pinilla (Eds.), *Alcuni contributi alla Teoria dell’Oggettivazione* (pp. 89-138). Bonomo.

Asenova, M., Del Zozzo, A., & Garzetti, M. (2024). The Semiotic perspective in teachers’ training in Mathematics Education. In Moretti, M. T. (Ed.). *Florilegium de investigaciones que envuelven la teoría semiocognitiva del aprendizaje matemático de Raymond Duval* (parte 3, pp. 196-214). GPEEM/PPGECT/UFSC. ISBN 9786501047546; DOI 105281/zenodo.11506904

Asenova, M., D’Amore, B., Fandiño Pinilla, M.I., Funeme, C.C., Iori, M., & Santi, G. (2024). *Teorías relevantes en Educación Matemática*. Editorial Magisterio. (Traduzione in spagnolo di Asenova, M., D’Amore, B., Fandiño Pinilla, M.I., Funeme, C.C., Iori, M., & Santi, G. (2023). ISBN 9789582014759

Asenova, M., D’Amore, B., Del Zozzo, A., Fandiño Pinilla, M.I., Iori, M., Marazzani, I., Monaco, A., Nicosia, G. G., & Santi, G. (2022). *I problemi di matematica nella scuola primaria tra ricerca didattica e prassi scolastica*. Pitagora. ISBN 8837121501 (Riedition 2023 with Bonomo, ISBN 9788869722882).

Asenova, M. (2021). Definizione categoriale di Oggetto matematico in Didattica della matematica. Pitagora. ISBN 883712145. (Riedition 2024 with Bonomo; ISBN 9788869722585).

D'Amore, B., Asenova, M., Del Zozzo, A., Iori, M., Nicosia, G. G., & Santi, G. (2021). *I numeri: Matematica, storia, giochi e curiosità, per una didattica corretta ed efficace*. Pitagora. ISBN 8837121365 (Riedition 2023 with Bonomo, ISBN 978-8869722851).

Asenova, M., Fandiño Pinilla, M. I. & Monaco, A. (2012). Il Curricolo Verticale di matematica. In: Cerini, G., Loiero, S. & Spinosi, M. (Eds.), *Indicazioni per il curricolo 2012* (pp. 83-92). Tecnodid. ISBN 978867070008.

Contributions in conference proceedings

Asenova, M., Del Zozzo, A., & Garzetti, M. (2026). Semiotic Noticing: A Tool for Researchers. In H. Krzywacki, M. Hähkiöniemi, E. Haataja, M.S. Hannula, & P. Hästö (Eds.). Proceedings of the 49th Conference of the International Group for the Psychology of Mathematics Education (Research Reports, pp. 75–82). PME.

Asenova, M. (2026). Integrating fallibilism and formal logic: A Peircean approach to Lakatos' methodology. *Proceedings of CERME 14*.

Asenova, M., & Capone, R. (2026). In Proceedings of CERME 14. Interdisciplinarity in STEM education: A category-theoretical model from the viewpoint of Mathematics. *Proceedings of CERME 14*.

Asenova, M., Del Zozzo, A., & Garzetti, M. (2025). In C. Cornejo, P. Felmer, D.M. Gómez, P. Dartnell, P. Araya, A. Peri, & V. Randolph (Eds.), *Proceedings of the 48th Conference of the International Group for the Psychology of Mathematics Education: Research Reports* (Vol. 1, pp. 67-74). PME.

Asenova, M., Brings, L., Gaidoschik, M., Kleine, M., & Lassnitzer, E. (2025). Challenges in number line estimation tasks. In C. Cornejo, P. Felmer, D.M. Gómez, P. Dartnell, P. Araya, A. Peri, & V. Randolph (Eds.) *Proceedings of the 48th Conference of the International Group for the Psychology of Mathematics Education: General Contributions* (p. 349). PME.

Brings, L., Kleine, M., Coronado Alvarez S., Pilet, J., Rukavina, S., Tatsis, C. Fesakis, G., Moutsios-Rentzos, A., Asenova, M., & Drumčić Danilović, D. (2025). Development of screening instruments for mathematics education: Thehourstical Framework and item development. Proceedings of CERME 14.

Grisendi, C., & Asenova, M. (2025). Dynamic conceptualisation of density of Q in R: Upper-secondary school students' spontaneous conceptions and arguments. *Proceedings of CERME 14*.

Grisendi, C., & Asenova, M. (2025). In C. Cornejo, P. Felmer, D.M. Gómez, P. Dartnell, P. Araya, A. Peri, & V. Randolph (Eds.), *Proceedings of the 48th Conference of the International Group for the Psychology of Mathematics Education: Research Reports* (Vol. 1, pp. 347-354). PME.

Asenova, M., Del Zozzo, A., & Garzetti, M. (2024). Enhancing Teacher Training in Mathematics Education: A Model for a Semiotic Approach to Feedback and Interpretative Knowledge. In P. Iannone, F. Moons, C. Drüke-Noe, E. Geraniou, F. Morselli, K. Klingbeil, M. Veldhuis, & S. Olsher (Eds.), *Proceedings of FAME 1 – Feedback & Assessment in Mathematics Education (ETC 14), 5-7 June 2024, Utrecht (The Netherlands)* (pp. 39-46). Utrecht University and ERME. https://doi.org/10.5281/zenodo.14231455

Grisendi, C., & Asenova, M. (2024). Concezioni spontanee e argomentazioni di studenti di Scuola Secondaria di Secondo Grado riguardo alla densità di $\mathbb{Q}$ in $\mathbb{R}$. In M. Asenova & B. D'Amore (Eds.), Proceedings of *Convegno Nazionale "Incontri con la Matematica" nr. 38* (pp. 209-210). ISBN: 978 88 6972 000-0

Asenova, M., Del Zozzo, A., & Garzetti, M. (2024). Quando capire lo studente è un'attività di problem solving: registri semiotici e interpretazione in matematica. In M. Asenova & B. D'Amore (Eds.),

Proceedings of Convegno Nazionale "Incontri con la Matematica" nr. 38 (pp. 179-180). Bonomo. ISBN: 978 88 6972 0000

Asenova, M., Del Zozzo, A., & Santi, G. (2023). From Interpretative Knowledge to Semiotic Interpretative Knowledge in prospective teachers' feedback to students' solutions. In M. Ayalon, B. Koichu, R. Leikin, L. Rubel, M. Tabach (Eds.), *Proceedings of the 46th of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 51-58). University of Haifa and PME. ISSN 0771100X; ISBN: 9789659311224.

Asenova, M. (2023). An Epistemic-Logical Model for Analysis of Students' Argumentation in Mathematics Education Research. In P. Drijvers, C. Csapodi, H. Palmér, K. Gosztonyi, & E. Kónya (Eds.), *Proceedings of the Thirteenth Congress of the European Society for Research in Mathematics Education (CERME13)* (pp. 56–63). Alfréd Rényi Institute of Mathematics and ERME. ISBN: 9789637031045.

Asenova, M. (2022). Mathematical objects within a transitory epistemology. In E. Barbin. R. Capone, M. N. Fried, M. Menghini, H. Pinto, & F.S. Tortoriello (Eds.) *Proceedings of the 9th European Summer University of History and Epistemology in Mathematics Education* (pp. 237-242). Edizioni Nuova Cultura Roma. ISBN: 9788833656014.

Gaidoschik, M., & Asenova, M. (2022). La scomposizione additiva al centro dell'aritmetica all'inizio della scuola primaria: basi teoriche ed esempi d'aula. In B. D'Amore (Ed.), *Didattica della matematica come attività di ricerca in aula. Atti del XXXVI Convegno "Incontri con la matematica", Castel San Pietro Terme (Bo), 21-23 ottobre 2022* (pp. 93-94). Pitagora. ISBN: 8837121549.

Asenova, M. (2022). Questioning the exclusivity of classical logic and set-theoretic assumptions in analysis of classroom argumentation and proof. In J. Hodgen, E. Geraniou, G. Bolondi, & F. Ferretti (Eds.), *Proceedings of the Twelfth Congress of the European Society for Research in Mathematics Education (CERME12)* (pp. 77-84). Free University of Bozen-Bolzano, Italy and ERME. ISBN: 9791221025378.

Asenova, M. (2021). Oggetti matematici in Didattica della matematica. In B. D'Amore (Ed.), *Atti del XXXV Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 211-212). Pitagora. ISBN: 9788837121402.

Asenova, M., & Marazzani, I. (2020). Discussioni fra alunni della scuola primaria sul concetto di altezza di un poligono. In B. D'Amore & S. Sbaragli (Eds.), *Atti del XXXIV Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 43-44). Pitagora. ISBN: 9788837121266.

Asenova, M. (2019). Epistemological obstacles in the evolution of the concept of proof in the path of ancient Greek tradition. In *U. T. Jankvist, M. Van den Heuvel-Panhuizen, M., & M. Veldhuis (Eds.), Proceedings of CERME11, February 6 - 10, 2019* (pp. 120-127). Utrecht, the Netherlands: Utrecht University and ERME, Freudenthal Group & Freudenthal Institute. ISBN: 9789073346758.

Asenova, M. & Polidoro, S. (2018). L'equazione di Laplace: Una prospettiva storico-epistemologica. In B.D'Amore & S. Sbaragli (Eds.), *Atti del XXXII Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 139-140). Pitagora. ISBN: 8837121006.

Asenova, M. (2016). Ragionamento deduttivo e modello deduttivo nyaya. In: Iori M. (Ed.). La matematica e la sua Didattica. Mathematics and Mathematics Education. *Proceedings of the International Conference in occasion of the 70 years of Bruno D'Amore, Bologna, October 8, 2016* (pp. 61-65). Pitagora. ISBN: 9788837119270.

Asenova, M. (2015). Aspetti sintattici e semantici delle costruzioni geometriche alla scuola primaria. In B. D'Amore & S. Sbaragli (Eds.). La didattica della matematica disciplina per l'apprendimento. Proceedings of *Convegno "Incontri con la matematica", n. 29, Castel San Pietro Terme (BO)* (pp. 141-142). Pitagora. ISBN: 9788837119126.

Asenova, M. & Bolondi, G. (2015). A hermeneutic approach in mathematics education: the case of probability. In: Barbin, E., Jankvist,U.T. & Kjeldsen, T.H. (Eds.). History and Epistemology in Mthematics Education. *Proceedings of the Seventh European Summer University, Copenhagen, Denmark, 14-18 July 2015* (pp. 823-824). Copenhagen: Danish schoolof education, Aarhus University. ISBN: 9788776847371.

Asenova, M. (2013). Il ruolo delle rappresentazioni visive nell'apprendimento della matematica. In: D'Amore, B. & Sbaragli, S. (Eds.). La didattica della matematica come chiave di lettura delle situazioni d'aula. Proceedings of *Convegno "Incontri con la matematica", n. 27, Castel San Pietro Terme (BO)* (pp. 141-142). Pitagora. ISBN: 8837117175.

Asenova, M. (2011). Linguaggio e didattica della matematica: una parafrasi algebrica e le sue implicazioni didattiche. In B. D'Amore & S. Sbaragli (Eds.), Un quarto di secolo al servizio della didattica della matematica. Proceedings of *Convegno "Incontri con la matematica", n. 25, Castel San Pietro Terme (BO)* (pp.143-144). Pitagora. ISBN: 883711849X.

Articles in academic journals

Bertolini, T., & Asenova, M. (2025). Un'analisi delle concezioni sulla dimostrazione di studenti di un corso di laurea in Matematica. *La Matematica e la sua Didattica, 33*(2), 115–159. https://doi.org/10.60923/issn.3035-2940/23699

Asenova M. (2024). Bridging the Gap: An Epistemic Logical Model for Analysing Students' Argumentation and Proof in Mathematics. Education Sciences, 14, 673. https://doi.org/10.3390/educsci14060673

Gelmi, A., Garzetti, M., & Asenova, M. (2024). Creativity in mathematical learning: A model to explain the cognitive functioning of creative processes and provide general design requirements. *La matematica e la sua didattica, 32*(1), 71-99. ISSN: 11209968.

Asenova, M. (2024). Modelo argumentativo Nyaya y razonamiento deductivo. *Revista Internacional Magisterio, 122*, 9-13. ISSN: 16924053

Asenova, M. (2023). Is theoretical topic-specific research "old fashioned"? An epistemological inquiry about the ontological creativity of Mathematics Education Research. *Mathematics Education Research* Journal, 36(4), 849-870. https://doi.org/10.1007/s13394-023-00471-z

Asenova, M., Del Zozzo, A., & Santi, G. (2023). Unfolding Teachers' Interpretative Knowledge into Semiotic Interpretative Knowledge to Understand and Improve Mathematical Learning in an Inclusive Perspective. *Education Sciences, 13*(1), 65. https://doi.org/10.3390/educsci13010065

Asenova, M. (2022). Non-classical approaches to logic and quantification as a means for analysis of classroom argumentation and proof in mathematics education research. *Acta Scientiae, 24*(5), pp. 404-428. https://doi.org/10.17648/acta.scientiae.7405

Asenova, M., Bagossi, S., & Arzarello, F. (2023). Una definizione categoriale di covariazione al secondo ordine. Aspetti epistemologici e didattici. *Caminhos da Educação Matemática em Revista, 13*(2), 11–32. ISSN: 19837399.

Asenova, M., D'Amore, B., Fandiño Pinilla, M. I., Iori, M., & Santi, (2020). Parole sconosciute non matematicamente rilevanti: influenzano davvero la risoluzione di un problema? *La matematica e la sua didattica, 28*(2), 191-253. ISSN: 11209968.

Asenova, M., D'Amore, B., Fandiño Pinilla, M. I., Iori, M., & Santi, G. (2020). Análisis de algunos aspectos de la teoría de la objetivación. *RECME-Revista Colombiana de Matemática Educativa, 5*(2), 33-50.

Asenova, M., D'Amore, B., Fandiño Pinilla, M.I., Iori, M., & Santi, G. (2020). La teoria dell'oggettivazione e la teoria delle situazioni didattiche: Un esempio di confronto tra teorie in didattica della matematica. *La matematica e la sua didattica, 28*(1), 7-61. ISSN: 11209968.

Asenova, M. (2018). Vedere geometricamente: La percezione non iconica alla scuola primaria. *La matematica e la sua didattica, 26*(2), 173-210. ISSN: 11209968.

Asenova, M. & Polidoro, S. (2018). L'equazione di Laplace: Una riflessione storico-epistemologica. *La matematica e la sua didattica, 26*(2), 153-171. ISSN: 11209968.

Other publications related to Mathematics and Mathematics Education

Asenova, M. (2020). La filosofia della matematica elimini tutti i dogmi. Interview to Fernando Zalamea. *Prisma, 22*(9), 62–65. ISSN: 2611710X.

Asenova, M. (2012). *Avanti tutta! (cl.2)*. Libro - quaderno di matematica per le scuole secondarie di primo grado. Firenze: Giunti T.V.P. ISBN: 9788809764224.

Asenova, M. (2012). *Avanti tutta! (cl.1)*. Libro - quaderno di matematica perle scuole secondarie di primo grado. Firenze: Giunti T.V.P. ISBN: 9788809764217.

Asenova, M. (2011). Prodotti notevoli e scomposizioni. Una parafrasi algebrica e le sue implicazoni didattiche. In: Sbaragli, S. (Ed.). *Buone pratiche d'aula in Matematica. Percorsi didattici in continuità tra scuola dell'infanzia e secondaria di secondo grado* (pp. 181-188). Pitagora. ISBN: 8837118244.

Asenova, M., Foresti, I., Grassi, G., Iori, M., Sangiorgi, M. C. & Sbaragli, S. (2011). *Prove nazionali di matematica: prepariamoci alle prove INVALSI.* Test per la classe terza della scuola secondaria di primo grado. Giunti Scuola. ISBN: 9788809751194

LEADERSHIP, COORDINATION OF, OR PARTICIPATION IN, NATIONAL AND INTERNATIONAL RESEARCH CENTRES, GROUPS AND PROJECTS

Co-leader of TWG1 (Argumentation and proof) at CERME 15 since 2026.

Member of INVALSI Mathematics Level Group GL08 from 2017 to 2023 and Level Group coordinator since 2026.

Participation as an expert in the professional-development programme for early-career researchers in Mathematics Education promoted by AIRDM (Italian National Association for Research in Mathematics Education); co-coordination, together with Ferdinando Arzarello (University of Turin), of a module of 12 hours held in March, April and May 2025.

Participation as a group coordinator in the First Specialist Seminar on Embodied Education, held at the Free University of Bozen-Bolzano, 26–28 September 2024.

Co-investigator in the project Erasmus Plus "DiToM_Diagnistic Tool in Mathematics"; 31.12.22-31.12.25; funded by the European Union.

Co-investigator in the project PRIN "Mathematics standardized assessment as a tool for teachers' professional development"; 15.10.23-14.10.25; funded by the Italian Ministry of University and Research (MUR).

Participation in the international teacher-education research project promoted by the OECD, "Teaching Mathematics for Deep Understanding: Case Studies"; role: analysis of videos assigned to the Italian group and contribution to the text used by the OECD for video annotations. https://www.globalteachinginsights.org/media/Completing%20the%20Square%3A%20How%20to%20solve%20quadratic%20equations/1_hll8t0dd

Member of the NRD (Research Unit in Mathematics Education) at the University of Bologna since 2009.

Member, since 2020, of the NRD subgroup participating in the RICTO research network, whose focus is the Theory of Objectification.

EDITORIAL LEADERSHIP AND MEMBERSHIP OF EDITORIAL BOARDS OF ACADEMIC JOURNALS

Co-editor of the Proceedings of the annual conference "Incontri con la Matematica" for 2023 and 2024.

Co-editor-in-chief of the journal "La matematica e la sua didattica" since November 2021

Member of the Editorial Board of the "Mediterranean Journal for Mathematics Education" since 2021.

NATIONAL AND INTERNATIONAL AWARDS AND RECOGNITION FOR RESEARCH

Name: "Assessment on the scientific allowance"
Date: July 2023
Awarding institution: Free University of Bozen-Bolzano. The award is conferred by the Rector, based on the evaluation of the University's Mentoring Group and ASN Committee, and consists of a bonus awarded on the basis of an assessment of research, teaching, and third-mission activities, on a scale from 0 to 12 points.

Basis for the award:
Assessment of research activity (4 out of 4 points, rated "excellent"), teaching activity (3 out of 4 points, rated "very good"), and third-mission activity (2 out of 4 points, rated "good"), for an overall score of 9 out of 12 points. The award is granted to candidates achieving a minimum score of 6 points.

PRESENTATIONS AT INTERNATIONAL CONFERENCES AND CONGRESSES

Presentation entitled "Semiotic Noticing: A Tool for Researchers" at PME 49, Helsinki, Finnland

Presentation entitled "Conceptual blending in STEM education: stimulating embodiment and creativity" ad ESERA 2025, 25-29 august 2025, Copenhagen; Denmark.

Presentation entitled "Investigating the effectiveness of a training model for developing semiotic interpretative knowledge in mathematics education" at PME 48, 28 luglio -2 agosto 2025, Santiago, Cile. PME, Universidad de Chile e Università O'Higgins.

Poster presentation entitled "Diagnosing mathematical skills: Challenges in number line estimation tasks" al PME 48, 28 July-2 August, 2025, Santiago, Cile. PME, Universidad de Chile e Università O'Higgins.

Presentation entitled "Integrating Fallibilism and Formal Logic: A Peircean Approach to Lakatos' Methodology" al CERME 14, 4-8 February 2025, Bolzano, Italy.

Presentation entitled "Interdisciplinarity in STEM education: A category-thehourstical model from the viewpoint of Mathematics" al CERME 14, 4-8 February 2025, Bolzano, Italy.

Presentation entitled “Enhancing Teacher Training in Mathematics Education: A Model for a Semiotic Approach to Feedback and Interpretative Knowledge” at FAME 1 (First ERME Topic Conference on Formative Assessment in Mathematics Education), 5-7 June 2024, Utrecht, The Netherlands; ERME and University of Utrecht.

Presentation entitled “From Interpretative Knowledge to Semiotic Interpretative Knowledge in Prospective Teachers’ Feedback to Students’ Solution” at PME 46,16-21 July 2023, Haifa, Israel. PME and University of Haifa, Israel.

Presentation entitled “An Epistemic-Logical Model for Analysis of Students’ Argumentation in Mathematics Education Research” at CERME 13-Conference European Research in Mathematics Education, 10-14 July 2023, Budapest, Ungheria. ERME e Università di Budapest.

Presentation entitled “What kind of logic in Mathematics Education Research?” nell’ambito del Convegno “Logical and Epistemological Aspects of Proof in Mathematics Education”, 26-27 November 2022; University of Milan.

Presentation entitled “Mathematical Objects specific to Mathematics Education: A Categorical Definition within a Transitory Epistemology” within the 9th Summer University on the History and Epistemology in Mathematics Education, 18-22 July 2022; HPM: History and Pedagogy in Mathematics; Università di Salerno, Italy.

Presentation entitled “Questioning the Exclusivity of Classical Logic and Set-Thehourstic Assumptions in Analysis of Classroom Argumentation and Proof” at CERME 12, 2-5 February 2022; Free University of Bozen-Bolzano, Italy.

Presentation (invited) entitled “Ontological, epistemological and methodological reflexivity in Mathematics Education Research” at the International Workshop “Methodologies and Mathematics Education Research”, 14-15 June 2022; University of Turin, Italy.

Presentation (invited) entitled “Some reflections on the concepts of Zurechnungsfähigkeit (accountability) and objective world in Habermas and their interpretation in reference to Mathematics and Mathematics Education”, within the International Workshop “Habermas’ Elaboration on Rationality and Mathematics Education”, 9-11 April 2019, Dipartment of Matematics, University of Genoa, Italy.

Presentation entitled “Epistemological obstacles in the evolution of the concept of proof in the path of ancient Greek tradition” at CERME11, 6-10 February 2019, University of Utrecht, The Netherlands.

Poster presentation with a 15-minute oral presentation on “A hermeneutic approach in mathematics education: the case of probability” in occasione dell’ESU7 a Copenhagen, Danimarca, 14-18 July 2015; HPM: History and Pedagogy in Mathematics, Aarhus University, Danish School of Education, Danmark.

Poster presentation on “A hermeneutic approach in mathematics education”, within the EARLI Conference, Bologna, August 2015.

ORGANISATIONAL ACTIVITIES

2024-2025: Member of the Local Organising Committee of CERME 14, held at the Free University of Bozen-Bolzano, 4–8 February 2025.

2024: Substitute member of a Doctoral Committee at the Free University of Bozen-Bolzano and member of the selection committee for a research fellowship in academic discipline MAT/04 at the Free University of Bozen-Bolzano, Italy.

Since 2020: member of various degree examination committees as supervisor and second reviewer at the Free University of Bozen-Bolzano and as supervisor at the University of Modena and Reggio Emilia.

Since 2011: member of the Organising Committee of the annual national conference "Incontri con la Matematica", held in Castel San Pietro Terme (Bologna), Italy.

THIRD-MISSION ACTIVITIES

November 2024: Invited chair of a round-table discussion (1 hour) entitled "Laboratory Work in Mathematics Education: From Early Childhood Education to Teacher Education" at the "Incontri con la Matematica" Conference; event organised in collaboration with the NRD of the University of Bologna.

October 2024: Professional-development workshop for teachers (1.5 hours) entitled "The Role of Language in Mathematical Problem Solving in the Classroom", as part of the annual "BRIMA Primar" event organised by the Free University of Bozen-Bolzano.

September–October 2024: Professional-development course for teachers (12 hours), organised by the Italian Education Directorate of the Autonomous Province of Bolzano.

May 2024: Professional-development course for upper-secondary school teachers at I.I.S. Sulmona (4 hours).

September 2023: Professional-development course for primary, lower-secondary, and upper-secondary school teachers, organised by the Italian Education Directorate of the Autonomous Province of Bolzano.

2020–2023: Collaboration with INVALSI as a member of Level Group L08 and in the production of "INVALSI Open" resources.

2013–2023: Author of INVALSI Mathematics assessment items.

November 2023: Professional-development workshop for teachers (1.5 hours) entitled "Why on Earth Does Johnny Answer Like That? Mathematics Teachers' (Semiotic) Interpretative Knowledge", as part of the annual "BRIMA Primar" event organised by the Free University of Bozen-Bolzano.

February 2022: Contribution to the event "A Week as a Scientist" (1 hour), an initiative for fourth-year upper-secondary school students interested in enrolling in a STEM degree programme at the University of Modena and Reggio Emilia.

October 2022: Professional-development course for primary, lower-secondary, and upper-secondary school teachers in Tione (TN) (10 hours).

October 2022: Professional-development workshop for teachers (1.5 hours) entitled "The Role of Relational Thinking in Mathematics Learning", as part of the annual "BRIMA Primar" event organised by the Free University of Bozen-Bolzano.

2021: Collaboration in the OECD teacher-education project "Teaching Mathematics for Deep Understanding: Case Studies".

June 2019: Contribution entitled "Among the Paradoxes of Infinity" to the event "A Week as a Scientist" (3 hours), an initiative for fourth-year upper-secondary school students interested in enrolling in a STEM degree programme at the University of Modena and Reggio Emilia.

2015–2019: Author of Mathematics Education columns for the journal "La Vita Scolastica".

November 2016: Workshop entitled "Problem Solving across Primary and Secondary Education" at Formathday, Bologna.

November 2015–February 2016: Collaboration in the "Formative Assessment for Mathematics Teaching and Learning" project at the University of Bologna; qualitative analysis of classroom videos (50 hours).

April 2016: Professional-development course in Mathematics Education for primary and secondary school teachers, Cerveteri, Rome (6 hours).

31.08.2026