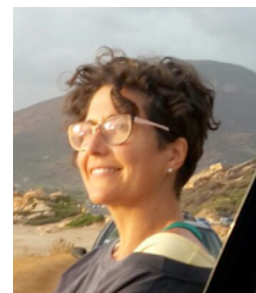


Cristina Sabena – Curriculum Vitae

Posizione attuale

- Professore associato confermato in Matematiche complementari – MAT/04 presso il Dipartimento di Filosofia e Scienze dell’Educazione dell’Università di Torino da novembre 2014.



Posizioni precedenti

- Borsista post-doc presso il Dipartimento di Scienze Matematiche e Informatiche dell’Università degli Studi di Siena "R. Magari", nell’ambito del progetto Europeo “Representing Mathematics with Digital Media (ReMath)”, da aprile 2007 a marzo 2008.
- Assegnista di ricerca in progetti nazionali e internazionali dal 2008 al 2010 presso il Dipartimento di Matematica dell’Università di Torino sui temi dell’apprendimento della matematica con l’uso di strumenti tecnologici.
- Ricercatore in Matematiche complementari – MAT/04 presso il Dipartimento di Matematica e successivamente il Dipartimento di Filosofia e Scienze dell’Educazione dell’Università di Torino da dicembre 2010 a ottobre 2014.

Formazione

- Laurea con lode in Matematica all’Università degli Studi di Torino (2002) con una tesi sull’approccio all’analisi matematica a partire dalle radici cognitive.
- Dottorato di Ricerca in Matematica presso l’Università degli Studi di Torino (2007) con una tesi sul ruolo delle diverse risorse semiotiche nell’insegnamento-apprendimento della derivata.

Coordinamento di progetti di ricerca

- Principal Investigator per l’unità italiana del progetto europeo FaSMEd (FP7, project number 612337) - Formative Assessment in Science and Mathematics Education (1/01/2014-31/12/2016).

Partecipazione a progetti di ricerca

- Progetti di ricerca di interesse nazionale in didattica della matematica: PRIN 2007B2M4EK “Strumenti e rappresentazioni nell’insegnamento-apprendimento della matematica: teoria e pratica”, PRIN 2007Y2SA59 “Il ruolo delle attività linguistiche e di modellizzazione nella costruzione e nello sviluppo delle conoscenze matematiche e nello sviluppo della razionalità scientifica”, PRIN COFIN2005 (prot. 2005019721_002) “Problemi di insegnamento-apprendimento in matematica: significati, modelli, teorie”.
- Progetto Europeo “Representing Mathematics with Digital Media (ReMath)”, da aprile 2007 a marzo 2008.

- Progetto Locale “L’educazione scientifica nella scuola dell’infanzia e nel primo ciclo di istruzione: modelli teorici e proposte di intervento”. Dipartimento di Filosofia e Scienze dell’Educazione, Università di Torino, a.a. 2013-15.

Incarichi internazionali

- Team Member del Topic Study Group 37: Theoretical Issues in Mathematics Education al Convegno ICME-12, Seoul 8-15 luglio 2012.
- Board Member dell’ERME (European Society for Research in Mathematics Education), dal 2013.
- Membro della CIEAEM (Commission Internationale pour l’Etude et l’Amélioration de l’Enseignement des Mathématiques), dal 2013 e Segretario dal luglio 2017.
- Membro dell’International Scientific Committee per il convegno ICTMT11, Bari 8-12 luglio 2013.
- Membro del Comitato locale per il convegno CIEAEM65, Torino 22-26 luglio 2013.
- Membro dell’International Program Committee per CIEAEM66, Lyon 23-27 luglio 2014.
- Membro dell’International Program Committee per CERME10, Dublin 1-5 febbraio 2017.

Soggiorni presso università straniere su invito

- Da settembre 2004 a maggio 2005: Invited researcher al *Laboratoire de recherche en sémiotique culturelle et pensée mathématique*, École du sciences de l’èducation, Laurentian University (Sudbury, CA), con il supporto di un grant del Progetto “*Artefact-Mediated Kinaesthetic Actions, Semiotic Activity, and Algebraic Thinking*” finanziato dal Conseil de Recherche en Sciences Humaines du Canada CRSH / Social Sciences and Humanities Research Council of Canada SSHRC. (Subvention ordinaire de recherche).

Organizzazione di convegni nazionali

- Dal 2011 al 2013 Coordinatrice del “Seminario Nazionale Giovani”, seminario di studio e ricerca dei giovani ricercatori in Didattica della matematica.
- Responsabile scientifico e organizzatore locale per i convegni Di.Fi.Ma. VII e VIII, Torino, 2015 e 2017.
- Dal marzo 2016 membro del Comitato Scientifico del Seminario Nazionale di Ricerca in didattica della matematica, su incarico dell’AIRDM.

Supervisione Tesi Dottorato

- Co-supervisione della tesi di Monica Panero, Dottorato in Matematica XXVII ciclo (1 gennaio 2012 - 31 dicembre 2014), Scuola di Dottorato in Scienze e Alta Tecnologia, Università di Torino. Titolo della tesi: “Teaching practices with the derivative concept. A problematic meeting between Algebra and Calculus in secondary school”. Tesi discussa il 13 marzo 2015.

- Dall'aprile 2012 Professore presso il Dottorato in Matematica, Scuola di Dottorato in Scienze e Alta Tecnologia, Università di Torino.

Editorial Boards e reviews

- Da ottobre 2016 membro dell'Editorial Board della rivista *Educational Studies in Mathematics*.
- Reviewer per le seguenti riviste:
 - *International Conference PME - Psychology of Mathematics Education* (dal 2007)
 - *Journal for Research in Mathematics Education* (da ottobre 2008)
 - *Educational Studies in Mathematics* (da novembre 2010)
 - *International Journal of Science and Mathematics Education* (da febbraio 2013)
 - *Gesture* (da novembre 2016).

Contributi a Convegni internazionali

Presentazioni di lavori di ricerca con peer review ai seguenti convegni internazionali:

- CERME (Conference of the European Society for Research in Mathematics Education): 2005, 2007, 2009, 2011, 2013, 2017.
- CIEAEM conference (Commission Internationale pour l'Etude et l'Amélioration de l'Enseignement des Mathématiques): 2003, 2012, 2013, 2014, 2015, 2016.
- CME conference (Children's Mathematical Education): 2010.
- ICME (International Congress on Mathematical Education): 2004, 2008, 2012, 2016 (Invited Lecture).
- ICMI Study 19 conference: Proof and Proving in Mathematics Education, May 10-15, 2009, Taipei (Taiwan).
- ICTMT (International Conference on Technology in Mathematics Teaching): 2013, 2017.
- *Interacting Bodies conference* (2nd Conference of the International Society for Gesture Studies (ISGS)): 2005.
- MAVI Conference (Mathematical Views): 2009, 2010, 2015.
- PME (Annual Conference of the International Group for the Psychology of Mathematics Education): 2004, 2005, 2009, 2010, 2011, 2013, 2014, 2015, 2016.

Conferenze nazionali plenarie o su invito

- Seminario Nazionale di ricerca in didattica della matematica 'Giovanni Prodi', Rimini 28-30 Gennaio 2016, dal titolo "L'analisi semiotica in ottica multimodale: dalla costruzione di un quadro teorico al networking con altre teorie" (relazione disponibile sul sito http://www.airdm.org/sem_naz_2016_25.html)

- Conferenza plenaria al XXXIV Convegno UMI-CIIM, dal titolo: “Promuovere processi di valutazione formativa attraverso l’argomentazione matematica (e viceversa)”, Bari, 6-8 ottobre 2017.

Temi di ricerca: analisi semiotica in ottica multimodale dei processi di insegnamento-apprendimento della matematica, con particolare attenzione al ruolo dei gesti; i processi argomentativi e il loro ruolo per la valutazione formativa; il ruolo dei fattori affettivi nella formazione degli insegnanti di matematica; networking di teorie in didattica della matematica.

Publicazioni (con referaggio)

- Sabena, C. (2017). Early child spatial development: a teaching experiment with programmable robots. In G. Aldon, F. Hitt, L. Bazzini & U. Gellert (eds.), *Mathematics and technology: a C.I.E.A.E.M. source book* (pp. 13-30). Springer Series ‘Advances in Mathematics Education’.
- Cusi, A., Morselli, F., and Sabena, C. (2017). Promoting formative assessment in a connected classroom environment: design and implementation of digital resources. *ZDM Mathematics Education*, 49:755–767.
- Cusi, A., Morselli, F., and Sabena, C. (2017). Promuovere strategie di valutazione formativa in Matematica con le nuove tecnologie: l’esperienza del progetto FaSMEd. *Annali online della Didattica e della Formazione Docente, Vol 9, N° 14, Strategie e metodologie didattiche in Matematica e nelle Scienze*, pp. 91-107. ISSN 2038-1034.
- Cusi, A., Morselli, F. & Sabena, C. (2017). “Every time I fell down (made a mistake), I could get up (correct)”: affective factors in formative assessment practices with classroom connected technologies. In C. Andrà, D. Brunetto, E. Levenson & P. Liljedal (Eds.), *Teaching and Learning in Maths Classrooms: Emerging Themes in Affect-related Research: Teachers’ Beliefs, Students’ Engagement and Social Interaction (Research in Mathematics Education)* (pp. 265-275). Dordrecht, Heidelberg, New York, London: Springer.
- Aldon, G., Cusi, A., Morselli, F., Panero, M & Sabena, C. (2017). Formative assessment and technology: reflections developed through the collaboration between teachers and researchers In G. Aldon, F. Hitt, L. Bazzini & U. Gellert (eds.), *Mathematics and technology: a CIEAEM source book* (pp. 551-578). Springer Series ‘Advances in Mathematics Education’.
- Radford, L., Arzarello, F., Edwards, L., and Sabena, C. (2017). The Multimodal Material Mind: Embodiment in Mathematics Education. In J. Cai (Ed.), *Compendium for Research in Mathematics Education* (pp. 700-721). Reston, VA: National Council of Teachers of Mathematics.
- Panero, M., Arzarello, F. & Sabena, C. (2016). The mathematical work with the derivative of a function: teachers’ practices with the idea of “generic”. In I. M. Gómez-Chacón, L. Vivier (Eds.) *Mathematical work: the role of teacher, knowledge and interactions. Boletim de Educação Matemática (BOLEMA)*, 30(54), 265-286. ISSN: 0103-636X. DOI: <http://dx.doi.org/10.1590/1980-4415v30n54a13>.
- Maffia, A., & Sabena C. (2016). Teacher gestures as pivot signs in semiotic chains. In C. Csikos, A. Rausch, & J. Sztányi (Eds.), *Proceedings of the 40th Conference of the International Group for the Psychology of Mathematics Education* (Vol. 3, pp. 235-242). Szeged, Hungary: PME.

- Sabena, C., Krause, C. & Maffia, A. (2016). L'analisi semiotica in ottica multimodale: dalla costruzione di un quadro teorico al networking con altre teorie. *Relazione al XXXIII Seminario Nazionale di ricerca in didattica della matematica Giovanni Prodi, Rimini 28-30 Gennaio 2016*. http://www.airdm.org/sem_naz_2016_25.html.
- Sabena, C. (2015). La concettualizzazione spaziale nel bambino: una sperimentazione con un robotino programmabile. *L'insegnamento della matematica e delle scienze integrate, vol. 38 A-B, n°3* (maggio-giugno 2015), pp. 213-234.
- Aldon, G. & Sabena, C. (2015). Formative assessment in the FaSMEd project: reflections from classroom experiences. In C. Sabena, B. Di Paola (eds.), *Teaching and learning mathematics: resources and obstacles, Proceedings of CIEAEM 67, Quaderni di ricerca didattica, 25-2* (pp. 83-86). Aosta, July 20-24, 2015. ISSN: 1592-4424. http://math.unipa.it/~grim/CIEAEM%2067_Pproceedings_QRDM_Issue%2025_Suppl.2.pdf
- Maffia, A. & Sabena, C. (2015). Networking of theories as resource for classroom activities analysis: the emergence of multimodal semiotic chains. In C. Sabena, B. Di Paola (eds.), *Teaching and learning mathematics: resources and obstacles, Proceedings of CIEAEM 67, Quaderni di ricerca didattica, 25-2* (pp. 405-417). Aosta, July 20-24, 2015. ISSN: 1592-4424. Open access → caricato sul AperTO http://math.unipa.it/~grim/CIEAEM%2067_Pproceedings_QRDM_Issue%2025_Suppl.2.pdf
- Aldon, G., Cusi, A., Morselli, F., Panero, M., & Sabena, C. (2015). Which support technology can give to mathematics formative assessment? The FaSMEd project in Italy and France. In C. Sabena, B. Di Paola (eds.), *Teaching and learning mathematics: resources and obstacles, Proceedings of CIEAEM 67, Quaderni di ricerca didattica, 25-2* (pp. 631-641). Aosta, July 20-24, 2015. ISSN: 1592-4424. http://math.unipa.it/~grim/CIEAEM%2067_Pproceedings_QRDM_Issue%2025_Suppl.2.pdf.
- Bazzini, L. & Sabena, C. (2015). Participation in mathematical problem-solving through gestures and narration. In U. Gellert, J. Giménez, C. Hahn, S. Kafoussi (Eds.), *Educational Paths to Mathematics: A C.I.E.A.E.M Sourcebook*. Cham: Springer.
- Radford, L. & Sabena, C. (2015) The Question of Method in a Vygotskian Semiotic Approach. In A. Bikner-Ahsbabs, C. Knipping & N. Presmeg (Eds.), *Approaches to Qualitative Research in Mathematics Education. Examples of Methodology and Methods* (pp. 157-182). Springer: Dordrecht, Heidelberg, New York, London.
- Morselli, F. & Sabena, C. (2015). "Let's play! Let's try with numbers!": Pre-service teachers' affective pathways in problem solving. In K. Krainer & N. Vondrova (Eds.), *Proceedings of CERME9* (pp. 1231-1237). Prague: Charles University in Prague, Faculty of Education and ERME. <https://hal.archives-ouvertes.fr/CERME9>.
- Panero, M., Arzarello, F. & Sabena, C. (2015). Practices of Italian teachers with the derivative concept: a problematic meeting between Algebra and Analysis in secondary school.. pp. 605-617. In *Mathematical Working Space, Proceedings Fourth ETM Symposium*.
- Coppola, C., Di Martino, P., Pacelli, T & Sabena, C. (2015). Crucial events in pre-service primary teachers' mathematical experience. In K. Beswick, T. Muir, J. Wells. (Eds.), *Proceedings of PME39, Vol 2* (pp. 193-200). Hobart, Australia: PME.
- Andrà, C., Lindström, P., Arzarello, F., Holmqvist, K., Robutti, O., Sabena, C. (2015). Reading mathematics representations: an eye-tracking study. *International Journal of Science and Mathematics Education*, Volume 13, Issue 2, pp 237-259.

- Sabena, C. (2014). Early childhood spatial development through a programmable robot. In G. Aldon, B. Di Paola, C. Fazio (Eds.), *Mathematics and reality, Proceedings of CIEAEM 66, Quaderni di Ricerca in didattica*, 24(1), pp. 265-278. ISSN 1592-4424. http://math.unipa.it/~grim/quaderno24_suppl_1.htm.
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- Sabena, C. (2014). Description of the data: Introducing the session of Carlo, Giovanni and the exponential function. In A. Bikner-Ahsbahr & S. Prediger (Eds.), *Networking of Theories as a Research Practice in Mathematics Education*. ZDM-Series Advances in Mathematics Education (pp. 13-28). New York: Springer.
- Arzarello, F. & Sabena, C. (2014). Analytic-Structural Functions of Gestures in Mathematical Argumentation Processes. In L.D. Edwards, F. Ferrara & D. Moore-Russo (Eds.), *Emerging perspectives on gesture and embodiment* (pp. 75-103). Charlotte, NC (US): Information Age Publishing, Inc.
- Arzarello, F. & Sabena, C. (2014). Introduction to the approach of Action, Production and Communication (APC). In A. Bikner-Ahsbahr & S. Prediger (Eds.), *Networking of Theories as a Research Practice in Mathematics Education* (pp. 31-45). ZDM-Series Advances in Mathematics Education. New York: Springer.
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- Morselli, F. & Sabena, C. (2014). Emozioni e risoluzioni di problemi di matematica. Un'indagine sui futuri insegnanti della scuola dell'infanzia e primaria. *Pedagogia e Vita*, 72(2014), pp. 183-200.
- Dreyfus, T., Sabena, C., Kidron, I., & Arzarello, F. (2014). The Epistemic Role of Gestures – A case study on networking of APC and AiC. In A. Bikner-Ahsbahr & S. Prediger (Eds.), *Networking of Theories as a Research Practice in Mathematics Education* (pp. 127-151). ZDM-Series Advances in Mathematics Education. New York: Springer
- Sabena, C., Arzarello, F., Bikner-Ahsbahr, A., & Schäfer, I. (2014). The epistemological gap - A case study on networking of APC and IDS. In A. Bikner-Ahsbahr & S. Prediger (Eds.), *Networking of Theories as a Research Practice in Mathematics Education*. ZDM-Series Advances in Mathematics Education (pp. 179-200). New York: Springer.
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- Giorda, C., Leone, M., Morselli, F., & Sabena, C. (2014). Lo spazio in geografia, fisica e matematica. Un concetto ponte per didattiche interdisciplinari?, *Ambiente, società, territorio*, LVIV (XIV), pp. 10-15.
- Arzarello, F., Robutti, O., Sabena, C., Cusi, A., Garuti, R., Malara, N., Martignone, F. (2014). Meta-didactical transposition: A theoretical model for teacher education programmes. In A. Clark-Wilson, O. Robutti & N. Sinclair (Eds.), *The Mathematics Teacher in the Digital Era. An International Perspective on Technology Focused Professional Development* (pp. 347-372). Dordrecht, Olanda: Springer.

- Coppola, C., Di Martino, P., Pacelli, T., & Sabena, C. (2013). Inside teachers' affect: teaching as an occasion for math-redemption. In M. S. Hannula, P. Portaankorva-Koivisto, A. Laine & L. Näveri (Eds.) *Proceedings of MAVI 17 Conference* (pp. 203-215). Helsinki, Finland: Finnish Research Association for Subject Didactics.
- Coppola, C., Di Martino, P., Pacelli, T., & Sabena, C. (2013). Primary teachers' beliefs and emotional disposition towards mathematics and its teaching. In B. Di Paola (Ed), *Quaderni di ricerca in didattica (mathematics), Issue 23.1*, pp. 217-226 . Torino, July 22-26, 2013.
- Coppola, C., Di Martino, P., Mollo, M., Pacelli, T., & Sabena, C. (2013). Pre-service primary teachers' emotions: the math-redemption phenomenon. In A. M. Lindmeier & A. Heinze (Eds.), *Proceedings of the 37th Conference of the International Group for the Psychology of Mathematics Education* (vol 2, pp. 225-232). Kiel, Germany: PME.
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- Sabena, C., Robutti, O., Ferrara, F., Arzarello, F. (2012). The development of a semiotic frame to analyse teaching and learning processes: examples in pre- and post-algebraic contexts. In Coulange, L., Drouhard, J.-P., Dorier, J.-L., Robert, A. (Eds.), *Recherches en Didactique des Mathématiques, Numéro spécial hors-série, Enseignement de l'algèbre élémentaire: bilan et perspectives* (pp. 231-245). Grenoble: La Pensée Sauvage.
- Coppola, C., Di Martino, P., Pacelli, T. & Sabena, C. (2012). Primary teachers' affect: a crucial variable in the teaching of mathematics. *Nordic Studies in Mathematics Education*, 17(3-4), 107-123.
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- Arzarello, F., Ascari, M., & Sabena, C. (2011). A model for developing students' example space: the key role of the teacher. *ZDM Special Issue on 'Examples in Mathematical Thinking and Learning from an Educational Perspective'*, vol. 43, n° 2, pp. 295-306.
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International Group for the Psychology of Mathematics Education (vol. 2, pp. 49-56), Ankara, Turkey: PME.

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