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A.1 Current position

Assistant Professor of Early Mathematics Education, Department of Early Childhood Education, National and Kapodistrian University of Athens, Greece.

A.2 Education

- 2009** Phd in Basic and Applied Cognitive Science,
Department of Philosophy and History of Science, National and Kapodistrian University of Athens, Greece
Thesis: ["Conceptual Change in Mathematics – The case of Algebra" \(in Greek\)](#)
Supervisor: [Prof. Stella Vosniadou](#)
- 2001** MSc. in Science Education,
Center for Science Education, University of Glasgow, U.K.
Thesis: *"Difficulties in Solving Algebra Story Problems with Secondary Pupils"*
Supervisor: Prof. Norman Reid
- 1999** B.S. in Mathematics,
Faculty of Sciences, Aristotle University of Thessaloniki, Greece

A.3 Scholarships

2002-2004 Scholarship of the Graduate Program in Basic and Applied Cognitive Science. Department of Philosophy and History of Science, National and Kapodistrian University of Athens, Greece

A.4 Research Programs

2025-present Researcher in a research project implemented in collaboration with the Department of Early Childhood Education at the University of Ioannina.

Project: Starting Early, Progressing Differently: Developing a Learning Trajectory to Mitigate Conceptual Change Difficulties in the Transition from Natural to Rational Numbers (*RECONCEPTUALIZE*), funded under the 3rd Call for Research Projects of the Hellenic Foundation for Research and Innovation (EΛ.ΙΔ.Ε.Κ.) for the support of faculty members and researchers.

2014 Research Program “Cultivating Future Mathematical Minds”, funded by the Academy of Finland.

2012-2013 Research Program «Teaching Interventions to Help Students Remedy Misconceptions about the Number Concept», funded by the Special Account for Research, University of Crete.

2011-2012 Research Program «Students’ Misconceptions with Mathematical and Scientific Concepts and Teaching Interventions», funded by the Special Account for Research, University of Crete.

2008-09 Research Program “ANALOGY: Human-The Analogy Making

2009-10 Species”, funded by the FP6 NEST Program of the European Commission.

2004-2006 Research Program “The Problem of Conceptual Change and its Implications in Mathematics Education” PYTHAGORAS I, funded by E.U. and National Funds EPEAEK II.

A.5 Academic positions

- 2026-present **Assistant Professor** at the Department of Early Childhood Education, National and Kapodistrian University of Athens, Greece.
- 2022-2026 **Assistant Professor** at the School of Early Childhood Education, Aristotle University of Thessaloniki, Greece.
- 2020-2022 **Associate Professor** at the Department of Early Childhood Education, University of Western Macedonia, Florina, Greece.
- 2018-2020 **Assistant Professor** (tenured) at the Department of Early Childhood Education, University of Western Macedonia, Florina, Greece.
- 2014-2018 **Assistant Professor** at the Department of Early Childhood Education, University of Western Macedonia, Florina, Greece.
- 2009-2014 **Lecturer** (with contracts) at the Department of Primary Education, University of Thessaly and University of Crete.

A.6 Teaching Experience in Higher Education Institutes

Undergraduate Courses

- 2026-present fall & spring semester** Department of Early Childhood Education, National and Kapodistrian University of Athens, Greece.
- Fundamental mathematical concepts in early childhood education
 - Logical-mathematical relationships and number concepts in early childhood education
 - Materials and Activities for Teaching Mathematics: Practical Exercises
 - New Approaches to Early Childhood Mathematics Education.
- 2022-2026 fall & spring semester** School of Early Childhood Education, Aristotle University of Thessaloniki.
- Mathematics education in pre-school years
 - Research in Mathematics Education in pre-school years
- 2014-2021 spring semester** Department of Preschool Education, University of Western Macedonia, courses:
- Designing Learning Activities for Early Mathematics
 - New Trends in Mathematics Education
- 2014-2021 fall semester** Department of Preschool Education, University of Western Macedonia, courses:
- Early Mathematical Concepts

- Developing the Number Concept
- 2014-2013** Department of Preschool Education, University of Western Macedonia,
fall semester courses:
- Early Mathematical Concepts
- 2012-2013** Department of Primary Education, Faculty of Education, University of Crete,
spring semester courses:
- New Methods for Teaching Mathematics in Primary School (teaching course)
 - School Teaching Practice (level III, mathematics)
- 2012-2013** Department of Primary Education, Faculty of Education, University of Crete,
fall semester courses:
- New Methods for Teaching Mathematics in Primary School (seminar course)
 - School Teaching Practice (level II, mathematics)
- 2011-2012** Department of Primary Education, Faculty of Education, University of Crete,
spring semester courses:
- Descriptive Statistics in Educational Science
 - Teaching Mathematics Using Alternative Teaching Methodologies
- 2011-2012** School of Pedagogical and Technological Education, course
spring semester
- New Technologies in Education
- 2010-2011** Department of Primary Education, Faculty of Education, University of Crete,
spring semester courses:
- Teaching Pre-school Mathematical Concepts
 - Aspects of the History and Philosophy of Mathematics
- 2010-2011** Department of Primary Education, Faculty of Education, University of Crete,
fall semester courses:
- Descriptive Statistics in Educational Science
 - School Teaching Practice (level IV, sciences & mathematics)
- 2010- spring semester** School of Pedagogical and Technological Education, course
- New Technologies in Education
- 2009-2010** Department of Primary Education, University of Thessaly, course:
fall semester
- Educational Methodologies
- 2009- spring semester** School of Pedagogical and Technological Education
- New Technologies in Education
 - Using Multimedia in Education
- 2007** First Regional Center for Adult Education of Athens
- Learning Theories

Postgraduate courses

- 2024-2025** Postgraduate Programme “Education Sciences: Research and Practice in Changing Learning Environments,” School of Early Childhood Education, Aristotle University of Thessaloniki.
- From Idea to Implementation: Educational Design
- Co-taught with a team of instructors
- 2023-present fall semester** Interdepartmental Master’s Programme “Didactics of Mathematics,” University of Western Macedonia.
- Course taught:
- Students with Learning Difficulties and Affective Factors in Mathematics Education
- Co-taught with Professor C. Lemonidis and Professor I. Agaliotis.
- 2015-present fall semester** Inter-university & Interdisciplinary Postgraduate Program Studies in Mathematics Education, University of Western Macedonia, course teaching:
- Development of mathematical thinking: Development of concepts, perceptions and representations
- 2015-present fall semester** Inter-university & Interdisciplinary Postgraduate Program Studies in Mathematics Education, University of Western Macedonia, course teaching:
- Research Methodology in Mathematics Education
- 2014-2013 fall semester** Postgraduate Program Studies in “Didactic Methodology and Curriculums”, Department of Preschool Education, University of Western Macedonia, course:
- New trends in Mathematics Education
- 2011-2012 fall semester** Postgraduate Program Studies in «International Medicine-Health Crisis Management», National and Kapodistrian University of Athens, School of Medicine, course:
- Research methodology
- 2010-2011 spring semester** Inter-university & Interdisciplinary Postgraduate Program Studies in Mathematics Education, Department of Mathematics, National and Kapodistrian University of Athens, University of Cyprus, course:
- Cognitive Psychology in Mathematics Education
- 2010-2011 spring semester** Postgraduate Program Studies in «International Medicine-Health Crisis Management», National and Kapodistrian University of Athens, School of Medicine, course:
- Research Methodology – How to Write a Scientific Paper
- 2010-2011 2015-2018** Inter-university & Interdisciplinary Postgraduate Program Studies in Mathematics Education, Department of Mathematics, National and Kapodistrian University of Athens, University of Cyprus, course:
- Psychology of Learning- Cognitive Psychology

A.7. Academic Writing

A.7.a Doctoral Thesis

1. **Christou, K. P.** (2009). *Conceptual Change in Mathematics – The case of Algebra* (Unpublished Doctoral Thesis) (Supervisor: prof. Stella Vosniadou), Basic and Applied Cognitive Science. Department of Philosophy and History of Science, National and Kapodistrian University of Athens, Greece. (in Greek)

A.7.b Master Thesis

2. **Christou, K. P.** (2001). *Difficulties in solving algebra story problems with secondary pupils*. (Unpublished master's thesis) (supervisor: prof. Norman Reid), Centre for Science Education, University of Glasgow, U.K.

A.7.c Publications in International Scientific Journals

3. **Christou, K. P., & Vellidou, E.** (2026). First graders' understanding of variables: Learning trajectories in a function machine environment. *The Journal of Mathematical Behavior*, 81, 101295. <https://doi.org/10.1016/j.jmathb.2025.101295>
4. **Maris, D. T., & Christou, K. P.** (2025). Teaching mathematics for labour emancipation: an autoethnography of a math teacher in Mykonos. *Journal of Humanistic Mathematics*, 15(1), 60-86. <https://doi.org/10.5642/jhummath.FBEN8921>
5. **Christou, K. P., Pollack, C., & Karagiannidou, E.** (2024). Erroneous examples in refutational text to address the phenomenal sign misconception in equations and inequalities. *Instructional Science*, 315-335. <https://doi.org/10.1007/s11251-024-09688-2>
6. **Christou, K. P. & Vamvakoussi, X.** (2023). Natural number bias on evaluations of the effect of multiplication and division: the role of the type of numbers. *Mathematics Education Research Journal*, 35(3), 427-443. <https://doi.org/10.1007/s13394-021-00398-3>

7. **Christou, K. P.**, Kyrvei D. I., & Vamvakoussi, X. (2022): Interpreting literal symbols in algebra under the effects of the natural number bias, *Mathematical Thinking and Learning*, DOI: <https://doi.org/10.1080/10986065.2022.2128276>
8. Georgiades, V & **Christou, K. P.** (2021). Concept Mapping to Measure Mathematical Experts' Number Sense. *International Journal for Research in Mathematics Education*, 10(3), 6-26. doi: <https://doi.org/10.37001/riperm.v10i3.2619>
9. **Christou, K. P.**, Pollack, C., Van Hoof, J., & Van Dooren, W. (2020). Natural Number Bias in Arithmetic Operations With Missing Numbers—A Reaction Time Study. *Journal of Numerical Cognition*, 6(1), 22-49. doi: <https://doi.org/10.5964/jnc.v6i1.228>
10. **Christou, K. P.**, & Prokopou, A. (2020). Using refutational text to address the Multiplication Makes Bigger misconception. *Educational Journal of the University of Patras UNESCO Chair*. 7(1), 125-140, doi: <https://doi.org/10.26220/une.3210>
11. Vamvakoussi, X., **Christou, K.P.**, Vosniadou (2018). Bridging psychological and educational research on rational number knowledge. *Journal of Numerical Cognition*, 2018, Vol. 4(1), 84–106, <https://doi.org/10.5964/jnc.v4i1.82>
12. **Christou, K. P.** (2017) Students' interpretation of variables and the phenomenal sign of algebraic expressions, *MENON: Journal of Educational Research*, 4, 161-175.
13. **Christou, K. P.** (2015) Natural number bias in operations with missing numbers. *ZDM Mathematics Education*, 47(5), 1-12. doi: <https://doi.org/10.1007/s11858-015-0675-6>
14. **Christou, K. P.** (2015) The dual aspect of Natural Number Bias in Arithmetic Operations, *Mediterranean Journal for research in Mathematics Education*, 14, 107-121
15. **Christou, K. P.** & Vosniadou, S. (2012). What kinds of numbers do students assign to literal symbols? Aspects of the transition from arithmetic to algebra. *Mathematical Thinking and Learning*, 14(1), 1-27.
<https://doi.org/10.1080/10986065.2012.625074>
16. Vamvakoussi, X., **Christou, K. P.**, Mertens, L., & Van Dooren, W. (2011). What fills the gap between discrete and dense? Greek and Flemish students' understanding of density. *Learning and Instruction*, 21(5), 676–685.
<https://doi.org/10.1016/j.learninstruc.2011.03.005>

A.7.d Publications in Greek Scientific Journals

17. **Christou, K. P.**, & Kandyli, A. (2024). Mia didaktiki paremvasi vasismeni sto paichnidi gia tin proimi katanoisi tis diairesis metrisis [A play-based teaching intervention for the early understanding of measurement division]. *Erevnontas ton Kosmo tou Paidiou*, 20, 142–155. <https://doi.org/10.12681/icw.36065>
18. **Christou, K. P.** (2022). Multiplication always makes bigger? A case of learning with conceptual change in mathematics. *Psychology: The Journal of the Hellenic Psychological Society*, 27(1), 32–47. <https://doi.org/10.12681/psychps.30685>
19. Maris, D., & **Christou, K. P.** (2019). I mathimatiki logotechnia os ergaleio gia tin katanoisi ton riton arithmon [Mathematical story telling as a tool for understanding rational numbers]. *Erevna sti Didaktiki ton Mathimatikon*, (13), 46–67. <https://doi.org/10.12681/enedim.21967>
20. Lemoni, I., & **Christou, K. P.** (2019). Stratigikes noerou ypologismou se prosthesi kai afaresi me akeraious [Mental calculation strategies for addition and subtraction with integers]. *Erevna sti Didaktiki ton Mathimatikon*, (13), 25–45. <https://doi.org/10.12681/enedim.21965>
21. Dimitrakopoulou, S. A., & **Christou, K. P.** (2018). Ta grammata-metavlitites: Pos ta katanoooun oi mathites kai pos emfanizontai sta vivlia mathimatikon tou gymnasiou [Letters as variables: How students understand them and how they are presented in lower secondary mathematics textbooks]. *Erevna sti Didaktiki ton Mathimatikon*, (11), 31–52. <https://doi.org/10.12681/enedim.18938>

A.7.e Publications in Conference Proceedings with Reviewing Process

22. **Christou, K. P.**, Pollack, C., & Karagiannidou, E. (2025). Employing erroneous examples in refutational text to address misconceptions in equations and inequalities. In M. Bosch, G. Bolondi, S. Carreira, C. Spagnolo, & M. Gaidoschik (Eds.), *Proceedings of the Fourteenth Congress of European Research in Mathematics Education (CERME14)* (pp. 494–501). Free University of Bozen-Bolzano and ERME.

23. Sougari, M., & **Christou, K. P.** (2024). Paidagogiki gnosi periechomenou ton ekpaideftikon gia tis paranoiseis ton mathiton sti chrisi ton grammaton stin algebra [Teachers' pedagogical content knowledge of students' misconceptions about the use of letters in algebra]. In *Proceedings of the 10th Panhellenic Conference of the Greek Association for Research in Mathematics Education: Mathematics education and citizenship* (pp. 347–356). Greek Association for Research in Mathematics Education.
24. Karagiannidou, E., & **Christou, K. P.** (2024). Lanthasmena paradeigmata gia tin antimetopisi tis paranoisis tou fainomenikou prosimou se exisoseis kai anisoseis [Erroneous examples for addressing the phenomenal sign misconception in equations and inequalities]. In *Proceedings of the 10th Panhellenic Conference of the Greek Association for Research in Mathematics Education: Mathematics education and citizenship* (pp. 378–388). Greek Association for Research in Mathematics Education.
25. Tiga, S., & **Christou, K. P.** (2024). Paranoiseis kai epipeda vevaiotitas mathiton dimotikou sti sygkrisi dekadikon arithmon: Mia didaktiki paremvasi me anatreptiko keimeno [Primary school students' misconceptions and confidence levels when comparing decimals: A teaching intervention using refutational text]. In *Proceedings of the 10th Panhellenic Conference of the Greek Association for Research in Mathematics Education: Mathematics education and citizenship* (pp. 410–420). Greek Association for Research in Mathematics Education.
26. Melissanidou, I., Markos, A., & **Christou, K. P.** (2024). Anaptyxi syntomou ergaleiou metrisis proimis mathimatikis gnosis: Mia pilotiki efarmogi [Development of a brief measure of early mathematical knowledge: A pilot study]. In *Proceedings of the 10th Panhellenic Conference of the Greek Association for Research in Mathematics Education: Mathematics education and citizenship* (pp. 486–496). Greek Association for Research in Mathematics Education.
27. Koptsi, I., **Christou, K.P.**, & Vamvakousi, X. (2022). Dividing fractions: an alternative approach. An alternative approach. In H. Stathopoulou, T. Triantaphyllides, K. Hadjikyriakou, A. Chronaki, & V. Chrysikou (Eds.), *Proceedings of the 9th Panhellenic Conference of the Association of Researchers of Mathematics Teaching: Mathematics education facing new and old challenges*. (pp. 326-335). Volos: ENEDIM. (in Greek)

28. Kyrvei, D., Vamvakousi, X., & **Christou K. P.** (2022) The dual effect of natural number bias on variable understanding - The integrity and phenomenal sign of algebraic representations. In H. Stathopoulou, T. Triantaphyllides, K. Hadjikyriakou, A. Chronaki, & V. Chrysikou (Eds.), *Proceedings of the 9th Panhellenic Conference of the Association of Researchers of Mathematics Teaching: Mathematics education facing new and old challenges*. (pp. 356-365). Volos: ENEDIM. (in Greek)
29. Georgiadis, V. H, & **Christou K. P.** (2022) Conceptual maps for the measurement of number sense. In H. Stathopoulou, T. Triantaphyllides, K. Hadjikyriakou, A. Chronaki, & V. Chrysikou (Eds.), *Proceedings of the 9th Panhellenic Conference of the Association of Researchers of Mathematics Education: Mathematics education facing new and old challenges*. (pp. 336-355). Volos: ENEDIM. (in Greek)
30. Kyrvei, D. & **Christou, K. P.** (2021). Natural numbers bias in understanding variables – The integrity and the phenomenal sign effect. In M. Inprasitha, N. Changsri, & N. Boonsena (Eds.). *Proceedings of the 44th Conference of the International Group for the Psychology of Mathematics Education*, Vol. 1, pp. 150-157. Khon Kaen, Thailand: PME.
31. Dimitrakopoulou, S., & **Christou, K. P** (2018) Natural Number Bias in understanding variables in algebra – the role of mathematics textbooks. In *The Book of Abstracts of the 11th International Conference on Conceptual Change – Epistemic Cognition & Conceptual Change* (pp. 72), Klagenfurt, Austria.
32. Van Dooren, W., Pollack, C., Vannuten, S., Van Hoof, J. **Christou, K. P** (2018) Natural Number Bias when Reasoning about the Effect of Operations. In *The Book of Abstracts of the 11th International Conference on Conceptual Change – Epistemic Cognition & Conceptual Change* (pp. 97), Klagenfurt, Austria.
33. **Christou, K. P.**, (2018). The natural number bias in arithmetic operations: the case of the representational form of the number. In Bergqvist, E., Österholm, M., Granberg, C., & Sumpter, L. (Eds.). (2018). *Proceedings of the 42nd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 267-274). Umeå, Sweden: PME.
34. **Christou, K. P.** (2017) Natural Number Bias in operations – Beyond the size of numbers. In *Proceedings of the 7th National Conference of Greek Association of*

Researchers in Mathematics Education (ENEDIM) (pp. 931-942). Athens, Greece, EN.E.D.I.M., (in Greek)

35. Kourti, S. K, Triantafillakos, A., **Christou, K. P.** (2017) Natural Number Bias as intuitive reasoning – A study of students’ feel of certainty. In *Proceedings of the 7th National Conference of Greek Association of Researchers in Mathematics Education* (ENEDIM) (pp. 837-847). Athens, Greece, EN.E.D.I.M., (in Greek)
36. Korda, M.A., Micha, I., **Christou K.P.** (2017) The Natural Number Bias in operations between natural numbers and fractions. In F. Gousia (Ed.) *Proceedings of the 4rth Conference of Neos Paidagogos*, (p. 824-832). Athens, Greece (ISBN: 978-618-82301-2-5).
37. **Christou, K.P.** (2016) The Natural Number Bias in Arithmetic Operations: Beyond the size of the numbers. In the Book of Abstracts of the 3rd International Conference - Education across Borders|| Education and Research across Time and Space, (p. 546-553), Bitola, FYROM.
38. **Christou, K.P.**, Pollack, C., Vannuten, S., Van Hoof, J., Van Dooren, W. (2016) Testing the Number Navigation Game with Mathematics Educators. In *The Book of Abstracts of the 10th International Conference on Conceptual Change - Conceptual Change Meets Other Disciplines* (pp. 72), Florina, Greece.
39. Dimitriadis, T.E., **Christou, K. P.**, (2016) The Natural Number Bias in Arithmetic Operations when Negative Numbers are Introduced. In *The Book of Abstracts of the 10th International Conference on Conceptual Change - Conceptual Change Meets Other Disciplines* (pp. 73), Florina, Greece.
40. Kemos, A., **Christou, K. P.**, Vamvakoussi, X., (2016) Testing the Number Navigation Game with Mathematics Educators. In *The Book of Abstracts of the 10th International Conference on Conceptual Change - Conceptual Change Meets Other Disciplines* (pp. 46-47), Florina, Greece.
41. **Christou, K. P.** (2015) The Dual Aspect of Natural Number Bias in Arithmetic Operations. In *The Book of Abstracts and Extended Summaries of the 16th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 270-271), Limassol, Cyprus.

42. **Christou, K.P.**, McMullen, J., Van Dooren, W., Verschaffel, L., Lehtinen, E., (2015) The Rational Number Navigation Game - A Serious Game for Developing Rational Number Knowledge. In *The Book of Abstracts and Extended Summaries of the 16th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 655-656), Limassol, Cyprus.
43. **Christou, K. P.** (2015) The effect of Natural Number Bias in operations, size and the density of the rational numbers In *Proceedings of the 6th National Conference of Greek Association of Researchers in Mathematics Education (ENEDIM)* (pp. 688-697). Thessaloniki, Greece, EN.E.D.I.M., (in Greek)
44. Dimitrakopoulou S. & **Christou, K. P.** (2015) Literal symbols as variables in Algebra - How students understand them and how they are presented in the mathematics schoolbook. *Proceedings of the 32nd National Conference of Greek Mathematics Society* (pp.273-284), E.M.E., Kastoria, Greece (in Greek)
45. Gatsioura, K., Zografou, K., Makarina, A., Michailidou M., **Christou, K.P.** (2015) An experiential activity of learning to construct frequency charts in the kindergarten, In *the 2nd Educational Conference on Innovation, Creativity, Interdisciplinarity in the School* (pp.50-51), Florina, Greece.
46. Dimitrakopoulou S. & **Christou, K. P.** (2014) How students interpret literal symbols and how they appear in the greek high school. In *Mathematics in School and Everyday Life - Proceedings of the 5th National Conference of Greek Association of Researchers in Mathematics Education (ENEDIM)* (pp. 1-10). Florina, Greece, EN.E.D.I.M., ISSN: 1792-8494. (in Greek)
47. **Christou, K. P.** (2014) The Natural Number Bias in arithmetic operations. In *Mathematics in School and Everyday Life - Proceedings of the 5th National Conference of Greek Association of Researchers in Mathematics Education (ENEDIM)* (pp. 1-10). Florina, Greece, EN.E.D.I.M., ISSN: 1792-8494. (in Greek)
48. **Christou, K.P.**, McMullen, J., Van Dooren, W., Verschaffel, L., Lehtinen, E., (2014) Mind the Gap! Considerations in the Development of a Rational Number Navigation Game, In "the 1st Meeting on Research on Domain-Specific Serious Games" of the International Scientific Research Community: WO.008.14N on Developing competencies in learners: From ascertaining to intervening. Leuven, Belgium.

49. **Christou, K. P.** (2013) Whole numbers bias in calculations with missing numbers – another chance for conceptual change. In *The Book of Abstracts and Extended Summaries of the 15th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 565-566), Munich, Germany.
50. **Christou, K. P.** (2012). Helping students remedy the phenomenal sign bias: The case of a refutational lecture. In C. Prachalias (Ed.) *Proceedings of the 8th International Conference on Education* (pp. 643-648). Samos, Greece.
51. Arampatzis, K., & **Christou, K. P.** (2011). In M. Kaldrimidou & X. Vamvakoussi (Eds.), *The transition from Arithmetic to Algebra, Solving and Categorizing Equations and Inequalities - Proceedings of the 4th National Conference of the Greek Association of Research in Mathematics Education* (pp. 85-94). Ioannina, Greece. (in Greek)
52. **Christou, K. P.**, Vamvakoussi, X., & Van Dooren, W. (2011). Kinds of number values that variables can (not) represent - Greek and Flemish students responses. In M. Kaldrimidou & X. Vamvakoussi (Eds.), *Proceedings of the 4th National Conference of the Greek Association of Research in Mathematics Education* (pp. 539-548). Ioannina, Greece. (in Greek)
53. Vamvakoussi, X., Mertens, L., **Christou, K. P.**, & Van Dooren, W. (2011) Greek and Flemish students' conceptual difficulties in the shift from (discrete) natural to (dense) rational numbers. In *The Book of Abstracts and Extended Summaries of the 14th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 1426-1427). Exeter, UK.
54. **Christou, K. P.**, & Vosniadou, S. (2011) Changing the way students interpret the phenomenal sign of algebraic expressions: The effect of direct instruction. In *The Book of Abstracts and Extended Summaries of the 14th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 648-649). Exeter, UK.
55. Vamvakoussi, X., **Christou, K.P.**, & Van Dooren, W. (2010). Greek and Flemish students' understanding of the density of rational numbers: More similar, than different. In M.M.F. Pinto & T.F. Kawasaki (Eds.), *Mathematics in different settings – Proceedings of the 34th Conference of the International Group for the Psychology in Mathematics Education* (Vol. 4, pp. 249-256). Belo Horizonte, Brazil: PME.

56. Van Dooren, W., **Christou, K.P.**, & Vamvakoussi, X. (2010). Greek and Flemish students' interpretation of the literal symbols as variables. In M.M.F. Pinto & T.F. Kawasaki (Eds.), *Mathematics in different settings – Proceedings of the 34th Conference of the International Group for the Psychology in Mathematics Education* (Vol. 4, pp. 257-264). Belo Horizonte, Brazil: PME.
57. **Christou, K. P.** & Vosniadou, S. (2009). The misinterpretation of the phenomenal sign of algebraic expressions - A teaching intervention. In F. Kalavassiss, S. Kafoussi, M. Chionidou-Moskofoglou, G. Fesakis, (Eds.), *Proceedings of the 3rd National Conference of Greek Association of Researchers in Mathematics Education* (pp. 229-308). Athens, Typothito. (in Greek)
58. **Christou, K. P.**, & Vosniadou, S. (2009). Misinterpreting the use of literal symbols in Algebra. In M. Tzekaki, M. Kaldrimidou & H. Sakonidis (Eds.), *Proceedings of the 33rd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 329-339). Thessaloniki, Greece: PME
59. **Christou, K. P.**, Vosniadou, S., & Vamvakoussi, X. (2007). Interpreting the sign of algebraic expressions. In D. S. McNamara & J. G. Trafton (Eds.), *Proceedings of the 29th Annual Cognitive Science Society* (p.1723). Austin, TX: Cognitive Science Society.
60. Arampatzis, K., Skiadaressis, P., & **Christou, K. P.** (2007). Conceptual change from equations to inequalities with no solution or with real number solution. In C. Sakonides, D., Desli, (Eds.), *Typical and non-Typical mathematics: Characteristics, relationships, characteristics, relationships and interactions within the mathematics education, Proceedings of the 2nd National Conference of Greek Association of Researchers in Mathematics Education* (pp. 637-638). Athens, Typothito. (in Greek)
61. **Christou, K. P.** & Vosniadou, S. (2007). How students understand the use of literals in mathematics. In C. Sakonides, D., Desli, (Eds.), *Typical and non-Typical mathematics: Characteristics, relationships, characteristics, relationships and interactions within the mathematics education, Proceedings of the 2nd National Conference of Greek Association of Researchers in Mathematics Education* (pp. 279-289). Athens, Typothito. (in Greek)
62. **Christou, K. P.**, & Vosniadou, S., (2007). Students' difficulties with algebraic expressions containing literal symbols. In S. Vosniadou, D. Kayser, & A. Protopapas

- (Eds.), *Proceedings of the 2nd European Cognitive Science Conference (EuroCogSci07)* (p. 881). East Sussex, UK: Lawrence Erlbaum Associates.
63. **Christou, K. P.**, & Vosniadou, S. (2006). Students' Interpretation of the Use of Literal Symbols in Algebra – A conceptual change approach. In J. Novotná, H. Moraová, M. Krátká, & N. Stehlíková (Eds.), *Proceedings of the 30th Conference of the International Group for the Psychology of Mathematics Education* (Vol 1, pp. 171-172). Prague:PME.
64. Vosniadou, S., Vamvakoussi, X., & **Christou, K. P.** (2005). What can we gain from a conceptual change approach to the learning and teaching of mathematics? In A. Gagatsis, F. Spagnolo, G. Makrides & V. Farmaki (Eds.), *Proceedings of the 4th Mediterranean Conference on Mathematics Education* (Vol. 2, pp. 435-446). Palermo, Italy.
65. **Christou, K. P.** & Vosniadou, S. (2005). How students interpret literal symbols in algebra: A conceptual change approach. In B. G. Bara, L. Barsalou & M. Bucciarelli (Eds.), *Proceedings of the XXVII Annual Conference of the Cognitive Science Society* (pp. 453-458). Stresa, Italy.
66. **Christou, K. P.**, & Vosniadou, S. (2004). Conceptual change in the transition from arithmetic to algebra. In S. Vosniadou, C. Stathopoulou, X. Vamvakoussi, & N. Mamalougos (Eds.), *Conceptual Change: Philosophical, Historical, Psychological and Educational Approaches - Proceedings of the 4th European Symposium on Conceptual Change* (pp. 115-117). Athens: Gutenberg Press
67. **Christou, K. P.** & Vosniadou, S. (2004). Cognitive barriers in understanding the use of symbols of algebra. In N. Makris, & D. Desli (Eds.), *Current trends in cognitive psychology: Bridges for the study of cognition - Proceedings in the National Conference of Cognitive Science*, (pp. 303-306). Athens: Dardanos (In Greek)
68. **Christou, K. P.**, Reid, N., & Vosniadou, S., (2003). Difficulties in solving algebra story problems. In Schmalhofer, F., Young, R.M., Katzz, G. (Eds.), *Proceedings of the European Cognitive Science Conference 2003* (p.378). Osnabrück: University of Osnabrück.

A.7.f Book Chapters

69. **Christou, K. P.** (2026). Mathimatika sto nipiagogeio? I simasia tis proimis mathimatikis ekpaidefsis [Mathematics in kindergarten? The importance of early mathematics education]. In A. Dimitriou, A. Lenakakis, & M. Pavli-Korre (Eds.), *Epistimes tis agogis kai tis ekpaidefsis se dialogo: 40 chronia TEPAE APTH* [Education sciences in dialogue: 40 years of the School of Early Childhood Education, Aristotle University of Thessaloniki] (pp. 493–508). School of Early Childhood Education, Aristotle University of Thessaloniki. <https://doi.org/10.12681/sece-auth.273>
70. **Christou, K. P.** (2019). Conceptual change and the Natural Number Bias effect in understanding the concept of variable. In N. Kyriakopoulou & E. Skopelitis (Eds.), *Cognition and learning in the light of Conceptual Change: Contemporary research and reflections* (pp: 163-184): Gutenberg Publications.
71. **Christou, K. P.** Vosniadou, S., & Vamvakoussi, X. (2007). Students' interpretations of literal symbols in algebra. In S. Vosniadou, A. Baltas & X. Vamvakoussi (Eds.), *Re-Framing the Conceptual Change Approach in Learning and Instruction* (pp. 283-297): Elsevier Press

A.7.f Edited Books

1. Clements, D., H., & Sarama, J. (2023). *Learning and Teaching Early Math: The Learning Trajectories Approach*. Greek Edition (X. Vamvakoussi & **K. P. Christou**, Eds.). (p. 990) Athens: Gutenberg.
2. **Christou, K. P.** & Eshach. H. (Eds.) (2016). *Conceptual Change Meets Other Disciplines - Abstracts of the 10th International Conference on Conceptual Change*, Florina: UOWM (p. 110).

A.7.g Conference Proceedings

1. Maris, M., & **Christou, K. P.** (2025, July). Mathimatika kai ergasiaka dikaiomata: Mia aftoethnografiki meleti sti Mykono [Mathematics and labour rights: An

- autoethnographic study in Mykonos]. In *Book of abstracts of the 5th Panhellenic Conference on Critical Education: Critical education in social struggles*. Thessaloniki, Greece.
2. Van Dooren, W., Van Hoof, J., Halme, H., **Christou, K. P.**, Wijckmans, N., & Hoekx, C. (2024, August). Not realizing natural-number-based errors: A conceptual replication of Halme et al. (2023). In *Book of abstracts of the 13th International Conference on Conceptual Change: Conceptual change in the era of digital transformation* (p. 50). Munich, Germany.
 3. Melissanidou, I., Markos, A., & **Christou, K. P.** (2023, September). Pilotiki efarmogi enos neou ergaleiou gia ti metrisi tis proimis mathimatikis eparkeias [Pilot implementation of a new instrument for measuring early mathematical competence]. In *Book of abstracts of the 6th Panhellenic Conference on Cognitive Science* (pp. 56–57). Xylokastro, Greece.
 4. Kandyli, A., & **Christou, K. P.** (2023, May). Mia didaktiki paremvasi vasismeni sto paichnidi gia tin proimi katanoisi tis diairesis metrisis [A play-based teaching intervention for the early understanding of quotitive division]. In *Book of abstracts of the 13th Panhellenic OMEP Conference* (p. 63). Thessaloniki, Greece.
 5. Kandyli, A., & **Christou, K. P.** (2023, September). A game-based teaching intervention for early understanding of measurement division. In the book of abstracts of the 6th Panhellenic Conference on Cognitive Science, (pp. 75-76), Xylokastro: Greece. (in Greek)
 6. Melissanidou, I., Markos, A., & **Christou, K. P.** (2023, September). Piloting a new tool for measuring early mathematical proficiency. In *Proceedings of the 13th Understanding the measurement divide in early childhood*, (pp. 56-57), Xylokastro: Greece. (in Greek)
 7. **Christou, K. P.** & Kandyli, A. (2023, August). Early understanding of measurement division: the effects of a minimal intervention via game activity. In *The Book of Abstracts of the 20th Biennial Conference of the European Association for Research on Learning and Instruction*, (p. 106), Thessaloniki, Greece.
 8. Koptsi, I., **Christou, K. P.** & Vamvakoussi, X. (2023, August). Implementing conceptual change principles for mathematics instruction: the case of fraction division. In *The Book of Abstracts of the 20th Biennial Conference of the European*

Association for Research on Learning and Instruction, (p. 475), Thessaloniki, Greece.

9. Karagiannidou, E., Pollack, C, & **Christou, K. P.** (2023, August). An intervention with erroneous examples to address misconceptions in equations and inequalities. In *The Book of Abstracts of the 20th Biennial Conference of the European Association for Research on Learning and Instruction*, (p. 476), Thessaloniki, Greece.
10. Kandyli, A., & Christou, K. P. (2023, May). A game-based instructional intervention for early understanding of measurement division. In 13th OMEP Panhellenic Conference, (p. 63), Thessaloniki, Greece: Greece. (in Greek)
11. **Christou, K. P.** & Moisiadou, S. (2022, August). What is the sign of the numbers the students tend to associate with the algebraic expressions? In *The Book of Abstracts of the 12th International Conference on Conceptual Change – Epistemic Cognition & Conceptual Change* (p. 25), Zwolle, Netherlands.
12. **Christou, K. P.** & Kyrvei, D. (2021, August). *NNB in understanding the concept of variable - the role of integrity and the phenomenal sign*. In *The Book of Abstracts of the 19th Biennial Conference of the European Association for Research on Learning and Instruction*, (p. 190), Online Conference hosted by University of Gothenburg, Swede.
13. Van Dooren, W., **Christou, K. P.**, Depaepe, F., Inglis, M., Määtä, S., McMullen, J., Obersteiner, A., Ribeiros, P.H., Van Hoof, J., Triantafyllou, M., Vamvakoussi, X., Verschaffel, L., Wittman, G., Wollacott, B (2019, August). Tackling the natural number bias – A comparative textbook analysis. In *The Book of Abstracts of the 17th Biennial Conference of the European Association for Research on Learning and Instruction*, (p. 84), Aachen, Germany.
14. **Christou, K. P.**, & Prokopou, A. (2019, August). Using refutational text to remedy the Multiplication Makes Bigger misconception. In *The Book of Abstracts of the 18th Biennial Conference of the European Association for Research on Learning and Instruction*, (p. 84), Aachen, Germany.
15. **Christou, K. P.**. (2019, May). Does Multiplication always makes bigger? A case of learning with conceptual change in mathematics. Paper presented at the 17th Panhellenic Congress of Psychological Research of the Hellenic Psychological

Society, as part of the invited symposium of the Cognitive Psychology Branch, (pp. 378-379), Alexandroupolis, Greece. (in Greek)

16. **Christou, K. P.** (2017, August). The natural number bias also affects the representational form of arithmetic operation results. In *the Book of Abstracts and Extended Summaries of the 17th Biennial Conference of the European Association for Research on Learning and Instruction* (p. online edition), Tampere, Finland.
17. Pollack, C., **Christou, K. P.**, Vannuten, S., Van Hoof, J., & Van Dooren, W. (2017, August). Natural Number Bias when reasoning with rational numbers and unknown operands. In *the Book of Abstracts and Extended Summaries of the 17th Biennial Conference of the European Association for Research on Learning and Instruction* (p. online edition), Tampere, Finland.
18. Dimitrakopoulou, S., & **Christou, K. P.** (2018, August). Natural Number Bias in understanding variables in algebra – the role of mathematics textbooks. In *The Book of Abstracts of the 11th International Conference on Conceptual Change – Epistemic Cognition & Conceptual Change* (p. 72), Klagenfurt, Austria.
19. Van Dooren, W., Pollack, C., Vannuten, S., Van Hoof, J., & **Christou, K. P.** (2018, August). Natural Number Bias when reasoning about the effect of operations. In *The Book of Abstracts of the 11th International Conference on Conceptual Change – Epistemic Cognition & Conceptual Change* (p. 97), Klagenfurt, Austria.
20. Bambi, K., **Christou, K. P.** (2017) Natural Number Bias in operations with integers. In *Proceedings of the 7th National Conference of Greek Association of Researchers in Mathematics Education (ENEDIM)* (pp. 950). Athens, Greece, EN.E.DI.M., (in Greek)
21. Pollack, C., **Christou, K. P.**, Van Hoof, J., Van Dooren, W., (2017) Natural Number Bias when Reasoning with Rational Numbers and Unknown Operands. In the Book of *Abstracts of the 17th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 206), Tampere, Finland.
22. **Christou, K. P.**, (2017) The Natural Number Bias also affects the representational form of arithmetic operation results. In *The Book of Abstracts of the 17th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 233), Tampere, Finland.

23. **Christou, K.P.**, McMullen, J., Van Dooren, W., Verschaffel, L., Lehtinen, E., (2015, August) The Rational Number Navigation Game - A Serious Game for Developing Rational Number Knowledge. In *The Book of Abstracts and Extended Summaries of the 16th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 655-656), Limassol, Cyprus.
24. **Christou, K. P.** (2015, August) The Dual Aspect of Natural Number Bias in Arithmetic Operations. In *the Book of Abstracts and Extended Summaries of the 16th Biennial Conference of the European Association for Research on Learning and Instruction* (pp. 270-271), Limassol, Cyprus.
25. **Christou, K. P.**, Pollack, C., Vannuten, S., Van Hoof, J., Van Dooren, W., (2016, June). New Insights on Natural Number Bias in Arithmetic Operations. In K.P. Christou & H. Eshach (eds.) *Conceptual Change Meets Other Disciplines - Abstracts of the 10th International Conference on Conceptual Change*, (pp. 72), Florina: UOWM.
26. Dimitriadis, T. E., **Christou, K. P.**, (2016, June) The Natural Number Bias in Arithmetic Operations when Negative Numbers are Introduced. In K.P. Christou & H. Eshach (eds.) *Conceptual Change Meets Other Disciplines - Abstracts of the 10th International Conference on Conceptual Change*, (pp. 73), Florina: UOWM.
27. Kemos, A., **Christou, K. P.**, Vamvakoussi, X., (2016, June) Testing the Number Navigation Game with Mathematics Educators. In K.P. Christou & H. Eshach (eds.) *Conceptual Change Meets Other Disciplines - Abstracts of the 10th International Conference on Conceptual Change*, (pp. 46-47), Florina: UOWM.
28. **Christou, K.P.**, McMullen, J. Van Dooren, W., Verschaffel, L. Lehtinen, E., (October, 2014) Mind the Gap! Considerations in the Development of a Rational Number Navigation Game, In the Proceedings of the Research on domain-specific serious games: state-of-the-art and prospects Workshop Leuven, 2014.
29. **Christou, K. P** (2013, August). Whole numbers bias in calculations with missing numbers – another chance for conceptual change. Paper presented at the 15th Biennial Conference of the European Association for Research on Learning and Instruction, Munich, Germany.
30. Arambatzis, K., **Christou, K. P.**, & Vosniadou, S (2010, May). The Transition from Arithmetic to Algebra: Categorization and Solving of Equations and Inequalities

Paper presented at the 7th Biennial Meeting on Conceptual Change. Leuven, Belgium.

31. **Christou, K. P.**, Vamvakoussi, X., VanDooren, W. (2010, May). Students' Ways to Interpret Literal Symbols in Algebra – A Comparison Between Greek and Flemish Students. Paper presented at the 7th Biennial Meeting on Conceptual Change. Leuven, Belgium.
32. Vamvakoussi, X., **Christou, K. P.**, VanDooren, W. (2010, May). How many numbers are there in an interval? Greek and Flemish 9th graders struggling with the density of numbers. Paper presented at the 7th Biennial Meeting on Conceptual Change. Leuven, Belgium.
33. **Christou, K. P.**, & Vosniadou, S. (2009, August). Students' Tendency to Think of Literal Symbols as Natural Numbers. Paper presented at the 13th European Conference on Research in Learning and Instruction. Amsterdam, Netherlands.
34. **Christou, K. P.**, & Vosniadou, S. (2009, August). Transgressing the Barriers of Thinking with Natural Numbers in Understanding Variables in Algebra. Paper presented at the 13th European Conference on Research in Learning and Instruction. Amsterdam, Netherlands.
35. **Christou, K. P.**, & Vosniadou, S. (2008, July). Natural numbers and their interference in students' interpretations of literal symbols in algebra. Paper presented at the XXIX International Congress of Psychology. Berlin, Germany.
36. **Christou, K. P.**, & Vosniadou, S. (2008, August). Understanding the concept of variable – a teaching intervention to foster conceptual change. Paper presented at the 6th International Conference on Conceptual Change. Turku, Finland.
37. VanDooren, W., Vamvakoussi, X., **Christou, K. P.** & Ellen Gillard (2008, August) Unravelling the cognitive obstacles in mathematical reasoning. Paper presented at the 6th International Conference on Conceptual Change. Turku, Finland.
38. **Christou, K. P.**, & Vosniadou, S. (2007, August). Students' interpretations of algebraic expressions in inequalities. Paper presented at the 11th European Conference on Research in Learning and Instruction. Budapest, Hungary.
39. **Christou, K. P.**, & Vosniadou, S. (2006, July). Students' Interpretation of the Use of Literal Symbols in Algebra – A conceptual change approach. In J. Novotná, H.

Moraová, M. Krátká, & N. Stehlíková (Eds.). Paper presented at the 30th Conference of the International Group for the Psychology of Mathematics Education. Prague, Czech Republic.

40. **Christou, K. P.** & Vosniadou, S. (2006, August) Students' interpretations of the use of literal symbols in inequalities. Paper presented at the 5th International Conference on Conceptual Change. Stockholm, Sweden.
41. **Christou, K. P.,** & Vosniadou, S. (2005, August). Conceptual change in understanding the use of literal symbols in algebra. Paper presented at the Symposium "Conceptual Change in Mathematics: A Closer Look" In the 11th European Conference on Research in Learning and Instruction. Nicosia, Cyprus.
42. **Christou, K. P.,** & Markidis, K. (2004, April). Une analyse socio-didactique du passage du calcul arithmétique à l'algèbre. Paper presented at the 7e Biennale de l'Eduaction et de la Formation. Lion, France.

A.8 Organizing Scientific Conferences and Symposiums

- 2023** Organiser of the invited symposium "Designing Learning Environments for Conceptual Change in Mathematics," presented at the *6th Panhellenic Conference on Cognitive Science* Xylokastro, Greece.
- 2019** Organiser of the invited symposium "Learning with Conceptual Change in Professional Working Life and Teacher Training," presented at the *18th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, 12–16 August 2019, Aachen, Germany.
- 2018** Chair of the *11th International Conference on Conceptual Change – Epistemic Cognition and Conceptual Change*, August 2018, Klagenfurt, Αυστρία.
- 2017** Co-organiser of the invited symposium "Broadening the Scope of Conceptual Change: Conceptual Change Meets Other Disciplines?" presented at the *17th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI)*, 29 August–2 September 2017, Tampere, Finland.

- 2016** Chair of the organizing committee of the *10th International Conference on Conceptual Change – Conceptual Change Meets Other Disciplines*, June, Florina, Greece.
- 2016** Co-organiser of the symposium “Digital Games and Game-Based Learning to Promote Learning in Science and Mathematics,” presented at the 10th International Conference on Conceptual Change, Conceptual Change Meets Other Disciplines, 9–12 June 2016, Florina, Greece.
- 2016** Organizing the 1st Summer School for Junior Researchers “*1st PhD Summer School on Conceptual Change*”, 7-9 June, 2016, Florina, Greece
- 2008** Co-organiser of the symposium “Instructional Implications of Conceptual Change Research in Mathematics,” presented at the 6th International Conference on Conceptual Change, Turku, Finland.
- 2009** Co-organiser of the symposium “Barriers to the Development of Mathematical Knowledge: Just What Kind of Barriers?” presented at the 13th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI), Amsterdam, the Netherlands. Published in the online edition of the conference proceedings.
- 2007** Organizing Committee of the 2nd European Cognitive Science Conference 2007. Delphi, Greece.
- 2004** Organizing Committee of the 4th International Conference on Conceptual Change, Delphi, Greece.

A.9 Scientific Associations

- Partner of the European Association for Learning and Instruction EARLI [Centre for Innovative Research (E-CIR)] "Conceptual change", (2017-2020).
- European Association for Research on Learning and Instruction
- Cognitive Science Society (International, European, Hellenic)
- Hellenic Association for Research in Mathematics Education
- Hellenic Mathematical Association
- Hellenic Psychological Association

A.10 Other Academic Activities

- Member of the Editorial Board of *Dialogues! Theory and Practice in Education Sciences*, the annual journal of the School of Early Childhood Education, Aristotle University of Thessaloniki.
- Reviewer in the Journal for Learning and Instruction, Elsevier, the ZDM-Mathematics Education, Springer, the MENON: Journal of Educational Research, Memory and Cognition, the Journal: Noesis, the journal: Psychology, the e-Journal: Theory and Research in Education.
- Scientific Expert of the Education, Audiovisual and Culture Executive Agency (EACEA), EU.
- Scientific Expert of the National Organization for the Certification of Qualifications and Vocational Guidance (EOPPEP), Greece.