Numbered list of outputs referenced in the End of Award Report for the following project:

Enhancing students' proof competencies in secondary mathematics classrooms (RES-000-22-2536-A)

Andreas J. Stylianides
University of Cambridge

PUBLICATIONS

Journal Articles:

1. **Stylianides, A. J.**, & Al-Murani, T. (2010). Can a proof and a counterexample coexist? Students' conceptions about the relationship between proof and refutation. *Research in Mathematics Education, 12*(1), 21-36.

2. **Stylianides, A. J.** (2009). Breaking the equation "empirical argument = proof". *Mathematics Teaching, 213*, 9-14.

   <u>Note</u>: The NRICH project republished the article at its open-access website having obtained permission from the Association of Teachers of Mathematics, which publishes Mathematics Teaching. The republished article at the NRICH website (http://nrich.maths.org/public/viewer.php?obj_id=6664) is accompanied with excerpts from an interview given by Andreas Stylianides to Jenny Piggott about ideas in the article (http://nrich.maths.org/public/viewer.php?obj_id=6664&part=note).

Invited Article in Conference Proceedings (Plenary Lecture):

3. **Stylianides, A. J.** (2009). Towards a more comprehensive "knowledge package" for teaching proof. In J. H. Meyer & A. van Biljon (Eds.), *Proceedings of the 15th Annual Congress of the Association for Mathematics Education of South Africa (AMESA)* (Vol. 1, pp. 242-263). University of the Free State, Bloemfontein, South Africa.

Conference Articles:

4. **Stylianides, A. J.**, & Stylianides, G. J. (2010). Toward the design of instructional interventions in the area of proof. In, *Proceedings of "Mathematics education research at the University of Cyprus and the University of Cambridge: A symposium"*. Nicosia, Cyprus. (in press)

   <u>Note</u>: Publications co-authored with Gabriel J. Stylianides are discussing findings or theoretical constructs that are common between the present ESRC project and one of our prior, collaborative projects funded by the Spencer Foundation. That prior project was conducted as a four-year design experiment (2004-2007) and aimed to address similar objectives as the present ESRC project but in a different cultural context (American) and with a different student population (undergraduate students).

5. **Stylianides, A. J.**, & Al-Murani, T. (2009). Can a proof and a counterexample coexist? A study of students' conceptions about proof. In, *Proceedings of the 6th Congress of the European Society for Research in Mathematics Education*. France, Lyon. (in press)

6. **Stylianides, A. J.**, & Stylianides, G. J. (2008). "Cognitive conflict" as a mechanism for supporting developmental progressions in students' knowledge about proof. *Article available at the website of the 11th International Congress on Mathematical Education (ICME), under Topic Study Group 18 (http://tsg.icme11.org/tsg/show/19)*. Monterrey, Mexico.

Chapters in an Edited Volume:

7. **Stylianides, A. J.**, & Stylianides, G. J. (in press). Mathematical reasoning and proof (Part 1 of 2: student edition). In P. Palhares (Editor and translator of the chapter from English to Portuguese), *Complements of mathematics for primary teachers*. Lidel.

8. **Stylianides, A. J.**, & Stylianides, G. J. (in press). Mathematical reasoning and proof (Part 2 of 2: instructor's guidance). In P. Palhares (Editor and translator of the chapter from English to Portuguese), *Complements of mathematics for primary teachers*. Lidel.

INVITED RESEARCH LECTURES/PRESENTATIONS

9. (2010, June). Classroom-based design experiments in educational research: a study on the "cognitive conflict" approach to mathematics teaching. *Invited research presentation at the E-Learning Research Group Seminar Series,* Department of Education, University of Oxford, Oxford.

10. (2009, July). Towards a more comprehensive "knowledge package" for teaching proof. *Invited plenary lecture at the 15th Annual Congress of the Association for Mathematics Education of South Africa (AMESA),* University of the Free State, Bloemfontein, South Africa.

    <u>Note</u>: The lecture addressed an audience of more than 800 South African teachers, teacher educators, researchers, policy makers, and curriculum developers.

11. (2009, June). The "cognitive conflict" approach to mathematics teaching: The case of proof. *Invited research presentation at the Tshwane University of Technology,* South Africa.

OTHER RESEARCH PRESENTATIONS

12. (2009, November). (w/ E. Demosthenous). What might be involved in the development of a credible picture of students' understanding of proof? *Presentation at the Conference of the British Society for Research into Learning Mathematics (BSRLM),* Loughborough University, Loughborough.

13. (2009, March). Students' conceptions about the relationship between proof and refutation in mathematics. *Presentation at the 2009 Annual CamERA Research Conference,* University of Cambridge, Cambridge.

14. (2009, January). (w/ G. J. Stylianides). The "cognitive conflict" approach to mathematics teaching. *Presentation at the Mathematics Education Colloquium Series,* University of Cambridge, Cambridge.

SEMINARS/WORKSHOPS

15. (2010, June). Enhancing students' proof competencies in secondary mathematics classrooms. *Workshop to about 30 secondary mathematics mentor teachers who work with secondary mathematics teacher trainees enrolled in the Secondary Mathematics PGCE Course,* University of Cambridge Faculty of Education, Cambridge.

16. (2010, May). (w/ S. Hennessy). Design-based research. *Workshop to about 30 MEd students enrolled in the Research Methods Course,* University of Cambridge Faculty of Education, Cambridge.

17. (2010, April). (w/ K. Russell). Introducing secondary school students to the notion of proof in mathematics. *Workshop to about 40 researchers, teachers, teacher educators, curriculum developers, and policy makers at the 7th British Congress of Mathematics Education (BCME),* University of Manchester, Manchester.

18. (2010 & 2009, February). Design experiments in educational research. *Workshops to a total of about 90 MPhil students enrolled in the Core Research Training Course,* University of Cambridge Faculty of Education, Cambridge.

19. (2010, January). The teaching and learning of proof in secondary school mathematics. *Workshop to about 30 secondary mathematics teacher trainees enrolled in the Secondary Mathematics PGCE Course,* University of Cambridge Faculty of Education, Cambridge.

20. (2008, June). (w/ T. Al-Murani). Proof in secondary school mathematics. *Workshop to about 25 secondary teachers, secondary teacher trainees, and researchers as part of the University of Oxford Mathematics Education Seminar Series,* University of Oxford, Oxford.