

Paper Number: 897

Launch of the 'Sand on a sill' international collaborative research project

King, C.¹

¹Emeritus Professor of Earth Science Education, Keele University, UK; International Geoscience Education Organisation Senior Officer; Director of the Earth Science Education Unit, chrisjking36@gmail.com.

A seminar focussed on geoscience educational research was held as part of GeoSciEd VII, the International Geoscience Education Organisation (IGEO) conference held in Hyderabad, India in 2014. During the seminar, discussion focussed on developing an international collaborative research initiative, and the result is the 'Sand on a sill' project.

The 'Sand on a sill' activity was deliberately developed as a discussion-based activity, focussed on rock cycle processes, that could be run by any teacher for any age of pupils in any classroom around the world, and evaluate the result – thus encouraging the teachers to become action researchers too. The details of the activity have been published on the Earthlearningidea website ^[1].

The objective of the initiative is for teachers around the world to:

- carry out the discussion-based activity with one or more groups of pupils, giving them minimal and prescribed prompts;
- evaluate the activity through a questionnaire;
- feed their own data into a growing bank of web-based data, to judge their feedback against an international picture and see how their feedback affects the overall result;
- see the developing research-based rationale for this form of teaching.

This approach has been developed from previous research into discussion-based teaching and the development of thinking skills, particularly by Bloom ^[2], Vygotsky^[3], Adey et al.^[4], and Bennett et al.^[5].



A 2 mm diameter grain of yellow-coloured sand on a windowsill with a circle drawn around it (*Chris King*)

As of January 2016, the teaching strategy had been shown to be effective in Australia, Germany, Portugal and the UK. The questionnaire is currently under test. The web-based data collection methodology has still to be devised – but should be ready for the launch of the project at the 35th International Geological Congress in Cape Town in August 2016. It is hoped that the launch will kick-start this international

collaborative research project involving teachers/researchers worldwide.

References:

- [1] 'Sand on a sill' on the Earthlearningidea website: http://www.earthlearningidea.com/home/Research_project.html and http://www.earthlearningidea.com/PDF/219_Sand_on_sill.pdf
- [2] Bloom, B. S. (ed.) (1956) *Taxonomy of Educational Objectives, the classification of educational goals – Handbook I: Cognitive Domain* New York: McKay.
- [3] Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- [4] Adey, P., Shayer, M., & Yates, C. (2001). *Thinking Science: The curriculum materials of the CASE project* (3rd ed.). London: Nelson Thornes.
- [5] Bennett, J., Hogarth, S., Lubben, F., Campbell, B., and Robinson, A. (2009) Talking science: the research evidence on the use of small-group discussions in science teaching. *International Journal of Science Education*, 32.1, 69-95.

