Findings arising from an evaluation of learning in the new Charles Perkins Centre Hub teaching laboratories show that aspects of these innovative spaces foster communication skills and student autonomy in their learning of science. These outcomes form part of a larger ongoing evaluation of new learning spaces, intended for collaborative and transdisciplinary learning and teaching at the University of Sydney.

Learner activity has been observed and documented in the Charles Perkins Centre Hub spaces and compared with observed behaviours in older discipline-specific teaching laboratories to obtain a clearer understanding of any potential benefits associated with design features of the new learning spaces. This particular study focussed on the acquisition of scientific and more generic communication skills through student participation in laboratory-based activities. Communication skills were observed here as the ability to articulate, convey and discuss science concepts in ways that reflect scientific practices.

Three key aspects of the new learning spaces were found to promote students’ communication skills:

- physical design of spaces that maximises lines of sight between students and instructors, and enables opportunities to reconfigure equipment;
- design of tasks that utilise tools for communication such as whiteboards and whitewalls, as well as technological innovations afforded by the information and communication technologies in the Charles Perkins Centre Hub; and
- social design of instruction practices that facilitate student engagement.

Together these design elements work to optimise interaction between students and instructors, increasing engagement in activities, and consequently communication of science processes and concepts as they are learnt.

The full study will be published online in the International Journal of Innovation in Science and Mathematics Education in October 2014, in conjunction with the 20th Australian Conference on Science and Mathematics Education (Sept 29-30, 2014), to be held at the University of Sydney.

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