During my time as a teacher, it was always the informal chats with colleagues that proved to be the most useful: a worksheet shared at the photocopier; an idea shared at the classroom door; an aside during a department meeting or a conversation over coffee in the staff room. Commencing my PhD with the school of education in Trinity College Dublin, I had initially planned to research classroom interactions between teachers and students. However, while trawling through countless academic journals, it became apparent that there was a gap in the literature that focused on teachers’ interactions with one another as professionals and as subject experts. From this point I became interested in researching communities of practice and was introduced to the professional development practice of ‘lesson study’.

Community often evolves naturally as people engage with one another on practices and norms. A community of practice is made up of members who share a concern, a set of problems, or an enthusiasm for a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis (Wenger, McDermott, & Snyder, 2002). These interactions become defined and refined on an ongoing basis through the collaboration of members and thus develop into practices of the community.

Many subject departments in Irish post-primary schools are already communities of practice, but conversations often revolve around the necessary planning of assessments, schemes of work and class-groupings. However, these communities of practice hold the possibility of becoming environments where teachers share and construct knowledge and where members’ subject and pedagogical content knowledge can be improved. Teachers can engage in professional development with their subject department colleagues while situated in school, constructing and collaborating on resources that are specifically relevant to their own students.

The Japanese practice of lesson study is one which allows subject teachers an opportunity to work with one another while engaging with their course content. In lesson study, teachers agree on a particular objective for their students while discussing various teaching practices and exploring different approaches to topics. In lesson study, teachers agree on an overall aim for the school year that can provide a focus for lessons during the year. Teachers then discuss topics they wish to focus on and agree to plan a specific lesson on one topic. Teachers then work together and decide on how to teach this specific lesson, particularly focusing on students’ engagement and experience with the content and activities. When the lesson is planned, one teacher teaches it to a class while other members of the community observe. Teachers then meet to reflect on the lesson and may agree to re-teach it to another class after making some changes, or can decide to begin the cycle for a new topic.

It is important to note that the objective of lesson study is not about building a set of brilliant lesson plans (although this may be a positive outcome of the practice), but is rather based on how professional colleagues work and learn from one another. In other countries where this practice has been researched, it has been found that participating teachers’ subject knowledge and pedagogical knowledge improves through their engagement in the process (Fernandez, 2002; Lewis, 2000; Lewis, Perry, & Hurd, 2009; Noriyuki, 2010). As another positive outcome of the practice, lesson study has also been shown to improve teachers’ focus on student questions and student engagement during lessons (Fernandez & Chokshi, 2004).

The lesson study cycle can be summarised in the following diagram:

![Lesson study cycle diagram](image_url)

(Lewis, Perry, & Murata, 2006)

Irish teachers score above average in their participation in professional development (OECD, 2009); however this type of professional development is mainly experienced in the form of courses and workshops. Irish teachers engage much less in other types of professional development such as: informal dialogue to improve teaching, professional development networks, individual and collaborative research, mentoring and peer observation and observation visits to other schools. Lesson study may provide opportunity to encounter different models of professional development that are practised in many other countries (OECD, 2009).

While much has been written about lesson study and communities of practice, such a model has not generally been experienced within a school subject department in an Irish post-primary school. This research hopes to provide information on how Irish post-primary teachers may benefit from structured in-school practices that improve mathematical content knowledge and pedagogical content knowledge (Shulman, 1987; Shulman & Shulman, 2004) and may thus provide an alternative model of professional development for teachers. The research also intends to focus on the meaningful dialogue between teachers during their...
lesson study meetings, in order to highlight the constructive moments where differing opinions find a common ground or where ideas are shared and extended.

While this specific research project is based within the mathematics departments of two schools, the model may also be trialled in other subject departments and would presumably hold similar advantages to both teachers and students in this subject. Teachers participating in lesson study build an archive of lesson plans and resources that are relevant to their specific students and schools, while sharing ideas and content with their colleagues.

As increasingly more is demanded from teachers’ time, the practice of lesson study may provide teachers with a constructive and positive opportunity to collaborate with their colleagues while engaging in professional development which is relevant to their classroom. Of course, the lesson study cycle is demanding of teachers’ time, but perhaps existing schemes of teachers working in school could be utilised in this focused and collaborative manner.

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Nano Superhero School Competition

CRANN and Science Gallery, Trinity College Dublin are excited to announce this year’s ‘nanoscience schools’ competition—“Design your nano superhero”

We are extending the superhero theme from Science Gallery’s “Magical Materials” exhibition with this national competition. Students should use what they have learnt about nanoscience from CRANN’s ‘Nano in my Life’ modules to design a nano superhero.

The top 3 winning entries will be featured in an international nanoscience conference, EuroNanoForum, taking place in the Convention Centre, Dublin in June 2013. These 3 winning superheroes will be brought to life by a professional cartoon artist.

For any questions regarding the competition contact anishui@tcd.ie

Students should enter by:

- Designing and naming their own superhero
- Listing his/her unique powers as a result of nanoscience
- Depicting their superhero in a poster or a video

More details on the competition can be found in the attached PDF. Additional prizes include, 1st prize—iPad (individual winner), or iPod nano (group), 2nd prize—€100 and 3rd prize—€50.