

Lesson study as a format for collaborative instructional change[†]

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Abstract

In our experience, most of the teaching at university level in Denmark is planned and carried out by individuals rather than a group of teachers, and teaching is in some ways a relatively private affair, particularly for junior staff members. “Lesson studies” is a format for instructional change based on a conception of teaching as a collaborative enterprise. In this article, we describe the method, report the outcome of a pilot lesson study cycle, and discuss the merits and potential of the method for instructional and educational change.

Keywords: *Lesson study, educational change, teacher knowledge, conceptions of teaching*

Introduction

Bringing about educational improvement in research-intensive environments such as the university is not an easy task. Teaching is perceived by many staff members as less prestigious and worthy of serious attention than research, and employment procedures, at least in Denmark, tend to enforce this view (although teaching capabilities have been the subject of focus in recent years). Most research in the pharmaceutical sciences is conducted in collaborative research groups. Thomas Kuhn made a strong case for scientific research being necessarily a social product, and new knowledge being produced through discussions in a research community (Kuhn, 1969). Such communities share and gradually refine and extend their understanding of basic values and models to account for new phenomena. Although much of the knowledge created in research is (and remains) tacit, it is not private; it is public in the sense that it is shared by many members of the research community (Polanyi, 1974). But when it comes to teaching in research-intensive environments, the particular

knowledge involved in planning, conducting and evaluating specific lessons often remains private. The subject matter is given, but the whole planning process is left to the individual teacher. There is a need for increased knowledge-sharing of “teacher knowledge” among university teachers—not only concerning general pedagogical principles, but also about how to make students learn specific subjects in the best way; a need to make teacher knowledge public. In the following, we will present the idea of lesson studies as a way in which the collaborative approach we see in research can be mimicked with respect to teaching. Lesson studies as a method for instructional change could be useful in paving the way for a conception of teaching as a community effort rather than an individual enterprise.

Lesson study is a format for teacher-led instructional change, originating in Japan, in particular Japanese primary mathematics education. The basic idea of the lesson study format is illustrated in Figure 1. A group of teachers with substantial insight into the specific subject matter in question collaboratively

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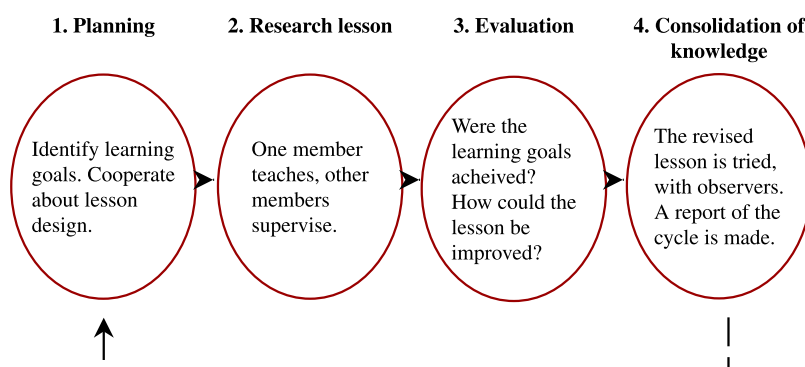


Figure 1. The four stages of a lesson study.

discuss the overall goals and plans for a specific lesson or set of lessons (phase one). It is absolutely crucial that the teachers have sufficient professional insight into the subject matter to be able to contribute substantially to the design.

In the “research lesson” one of the team members teaches, while the other team members supervise, collect data on student experiences, learning and behaviour, evaluate fulfilment of goals and so on. In the third phase, the findings of the observers and the teacher’s experiences are analysed and the lesson is revised. Finally, the lesson is re-taught, evaluated and a small report of the lesson study is made (including the lesson plan, student data and reflections of what was learned) (Lewis, 2002).

Why can a format developed for studying elementary mathematics teaching in Japan be useful for studying university pharmaceutical education? Firstly, undergraduate curriculum in pharmacy education is characterized by a relatively fundamental curriculum, not unlike the relatively fixed

curriculum in mathematics education. Even though most teachers change lectures and activities from year to year, undergraduate curriculum is nonetheless relatively stable. The question is, therefore, not so much what the curriculum should be, but how students should learn this particular subject matter. Secondly, junior staff members in particular (PhD students and assistant professors) hold only temporary positions and only a minority of them will continue at the university in the long term (as associate professors or similar). Therefore, from a “system perspective” it is important that the knowledge created in the planning of teaching and in actual teaching is somehow maintained within the institution. Lesson study is a way to document teaching and contribute to the development of a shared knowledge base of teaching. Thirdly, lesson study is a way for teachers to reflect upon and develop their teaching skills.

We report here a trial lesson study cycle performed at the Faculty of the Pharmaceutical

Table I. Description of the pilot lesson study cycle.

| Stage | Headline | Result |
|-------|--|---|
| 1 | Planning Study curriculum and formulate goals | The team formulated a new set of goals for the lessons. The new goals were formulated after discussions based on available experiences and materials from earlier versions of the lessons. The original planes for teaching were redesigned via discussions based on the Theory of didactical situations Brousseau (1997). |
| 2 | The research lesson | The person from the team, who should do the actual teaching, produced new sheets and materials for the lesson. The material was sent to the other two members of the team and refined. The lesson was carried out under observation. There was a short evaluation of the lesson of the observer and the students. The evaluation was recorded digitally for subsequent analysis. |
| 3 | Evaluation Discussing the lesson | Both the students and the team found that the overall lesson goals and the student learning outcomes as formulated in stage one described the teaching and learning experiences—but also that there was room for improvement. A number of changes were decided based on the student evaluations and observations from the team. The time allotted to the student problems was changed, and the teachers’ introduction to the problems was refined. The team also decided to change the physical layout of the tables in the classroom, in order to facilitate the communication between students in the groups. |
| 4 | Consolidating knowledge | The teaching was repeated for a new class with the changes decided in stage three. The new teaching was observed and again evaluated with the students. The team found that the changes made in step 3 markedly improved the lessons. The team produced a report afterwards (in Danish). Next year the lessons will probably be held by a different teacher. |

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Description of programme

The selected lessons were class-based and repeated seven times every year with approximately 25 students in each class. The subjects of the lessons were quantitative research and design of multiple choice questionnaires. The lessons were already functioning well but with room for improvement. The fact that the same lessons were held many times in a row made it almost ideally suited for a lesson study, because it was possible to see the effect of changes almost immediately.

The process was divided into four stages, as described in Table I.

Evaluation and future plans

When evaluating the lesson study cycle, the teacher group agreed that it was a more fruitful learning experience to develop the lessons within the team as opposed to individually. The teachers drew upon each others experience with respect to designing teaching situations and organizing curriculum and classroom activities. In this way they expanded their “shared teaching repertoire” (Wenger, 1998). Most importantly,

it was not only the teachers who benefited from the method. The student evaluations showed that the specific lessons were improved and that the objectives of the lessons were fulfilled.

More than anything, lesson studies implies a change in the dominant way of thinking about teaching (a relation between a teacher and a group of students). By changing the focus from the individual teacher to a group of teachers, lesson studies has the potential to increase the shared knowledge base of teachers and could lead to a less vulnerable educational system. Based on the pilot study we recommend that larger scale tests with lesson studies in pharmaceutical education are performed, for instance as part of teacher training or quality assurance programmes.

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