Consecutive cycles of “whole class” Lesson Study
A format for development of shared teacher knowledge in preservice teacher education
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Consecutive cycles of “whole class” Lesson Study
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Abstract
An analysis of three lesson study cycles of the same research lesson carried out by 16 pre-service lower secondary teachers. The process of lesson planning and revision is displayed and it is shown how the pre-service teachers develop knowledge about critical details of the lesson, its contents and pupils’ learning.

Research Questions

How is knowledge gained from each research lesson and post-lesson reflection incorporated in subsequent re-teaching? What are the benefits and drawbacks of large group sizes in pre-service teacher lesson study?

Context, method and theory
In 2015, a group of 16 students attending a Danish teacher education in which Lesson Study in small groups is common, were asked to plan one research lesson collectively. The development over three cycles of a lesson plan (for a grade 8, 2X45minutes) were subjected to document analyses. The lessons and reflections were observed by the author (note-taking and video recording). All material was indexed using NVivo10 and subjected to praxeological analysis in the sense of the anthropological theory of the didactic (Chevallard & Sensévy, 2014).

Knowledge development

Initial task type (T) put to the pupils, anticipated techniques (θ)
T1: Who in the class is most likely to be selected to pick up milk.
T2: Investigate who of three pupils are most likely to be the one pick up milk, if they use two coins.
T3: Make a combinatorial argument to answer T2.

After first revision
T1: Given one crooked die, who should do the dishes? What rules to make a fair game?
T2: Investigate who of three pupils are most likely to be the one pick up milk. if they use two coins.
T3: Perform a class discussion based on prior experiences.

After second revision
T1: What happens if two or more crooked dice are used? What rules to make fair game in this situation?
T2: Perform a class discussion based on “intuition” about how an irregular die will perform.
T3: Perform physical simulation, sample frequency as good probability.

Reasons (θ) for tasks and techniques.
θ1: Pupils should become of subjective beliefs about probability.
θ2: Pupils become aware of statistical probability.
θ3: Pupils aware that statistical probability variation decreases.
θ4: Pupils become aware of combinatorial probability.

Associated didactic techniques (τ)
τ1: Use of familiar context engages the pupils.
τ2: Watch video instruction about how to do simulation.
τ3: Draw a schematic of sample space.

Reasons (θ) for tasks and techniques.
θ1: Pupils should become of subjective beliefs about probability in basis of prior experience.
θ2: Pupils realise the value of statistical probability to determine probability.
θ3: Investigate a more complex situation using statistics.
θ4: Make a connection to combinatorial probability.

Associated didactic techniques (τ)
τ1: Use of crooked dice to make lesson more oriented towards problem solving.
τ2: Use of crooked dice generates a true need for statistic probability.

Background
Lesson study is usually done in small teams up to around five teachers. This is reasonable in an in-service perspective, but might be impractical (and costly) in ordinary pre-service education where one teacher educator has to manage 15 students or more. Lesson study collectively performed by greater group sizes is largely unexplored. Another issue is that literature reporting on consecutive re-teaching of a refined lesson plan is scarce, although some exist (Robinson & Leikin, 2012). The mechanism for improving instructional performance and teacher knowledge has been suggested to be rooted in the reflective practice inherent to lesson study (Warwick, Vriks, Vermunt, Mercer, & van Haalen, 2016) However, as most studies end with the first reflection session, it is difficult to gauge how the reflections impact on subsequent practice.

Concluding Remarks

- Knowledge that the lesson does not work optimally are firstly sought remedied with minor didactic changes, before major changes are attempted.
- A “knowledgeable other” is crucial to overcome reluctance to make major changes.

References

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References