How does the influence of Lesson Study impact on the learning of teacher education students to teach primary science?

Barbara Black

Site Based Science Teacher Education (SBSTE)

- Pre-service teachers'(PST) fears in having to teach science - their memories of secondary school science are often very negative ones.
- the lack of science teaching that pre-service teachers observe in primary schools.
- Secondary school students are disengaged with science and this in turn reduces the number of students who are enrolling in university science classes
- PST preparation is seen as a key part of science education reform
- SBSTE approaches enable PSTs to develop skills, knowledge and understandings of effective teaching to a much higher degree in a much shorter time(Eckersley, et. al., 2011).
- The theme of Theory-to-Practice is seen as one of the strengths of the site-based program (Jeffery & Pollock, 2010).

Lesson Study Process

Reference: Doig & Groves, 2011).

The Lesson Study Process at Site B

Participants in the process at Site B

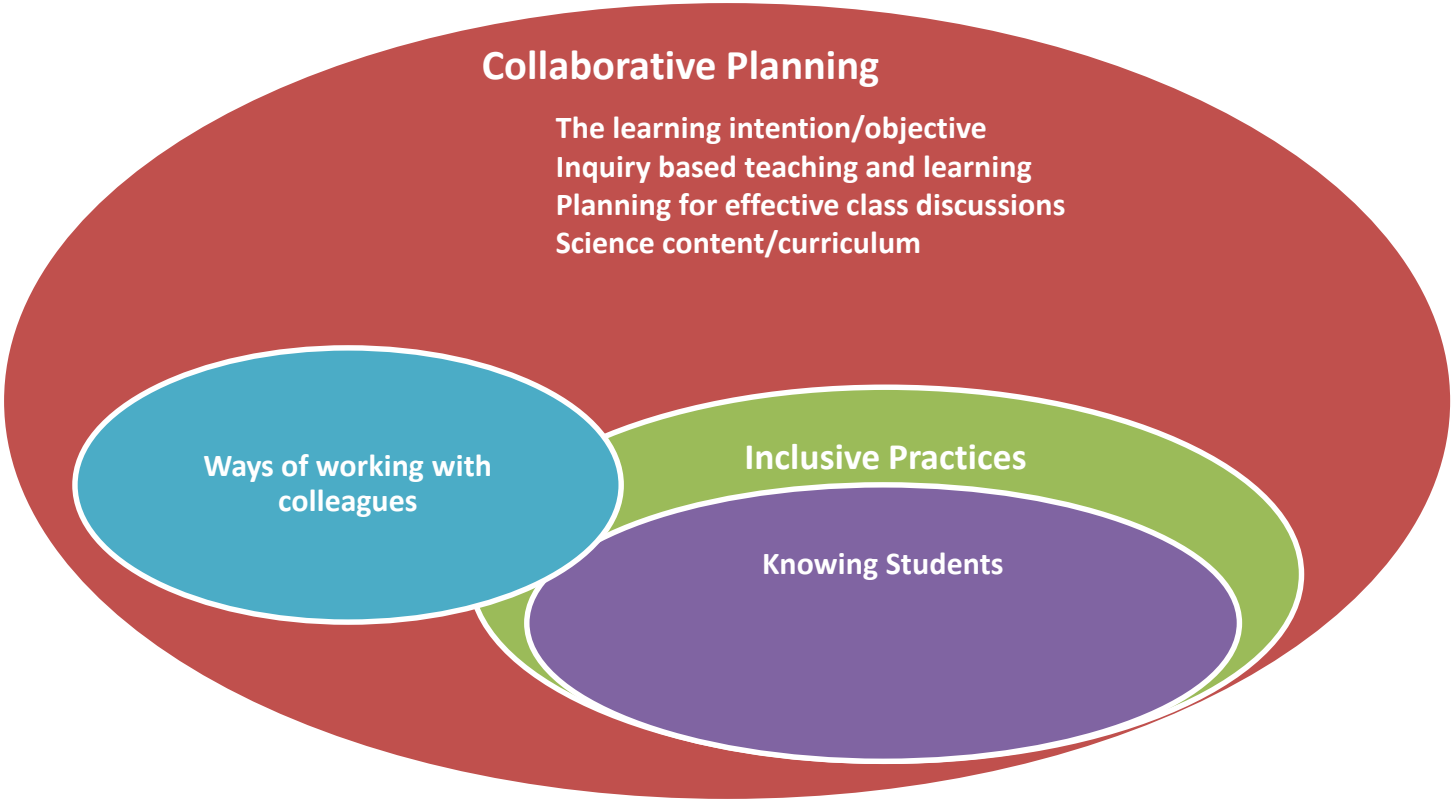
LS Process	Grade	Planning Participants	Taught By	Observers	Debriefing Participants
RL **Topic: carbon footprint**	6A	BRO BRE BIA BET – UC RESEARCHER	BRO	BRE BIA BEV BET – UE RESEARCHER	BRE BIA BEL BEV BET – UE RESEARCHER
RRL **Topic: carbon footprint**	5B	BRO BRE BIA	BRE	BRO BIA BEL BET – UE RESEARCHER	BRE BRO BIA BEL BET – UE RESEARCHER
RRRL **Topic: carbon footprint**	5C	BRO BRE BIA	BIA	BRO BRE BRU BET – UE RESEARCHER	BIA BRO BRE BRU BET – UE RESEARCHER

Findings

Lesson Study influenced the learning of pre-service teachers in four categories

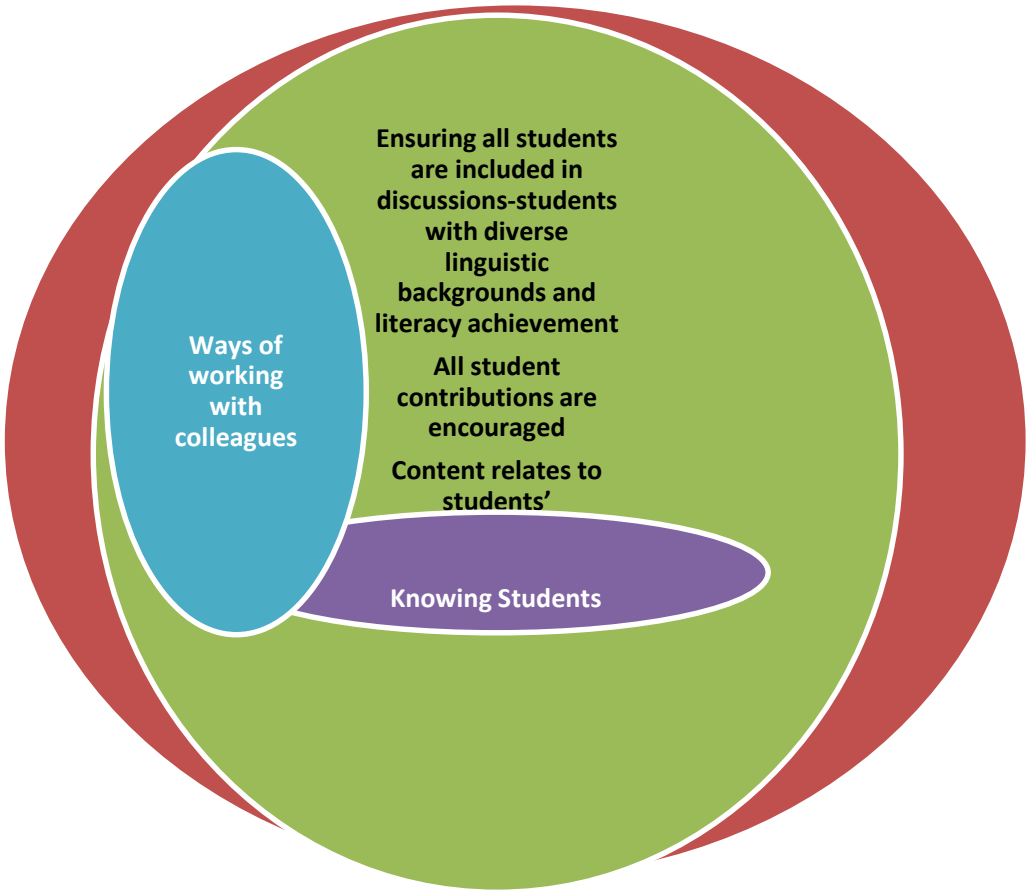
Figure 8: PST *learning in primary science*

Collaborative Planning



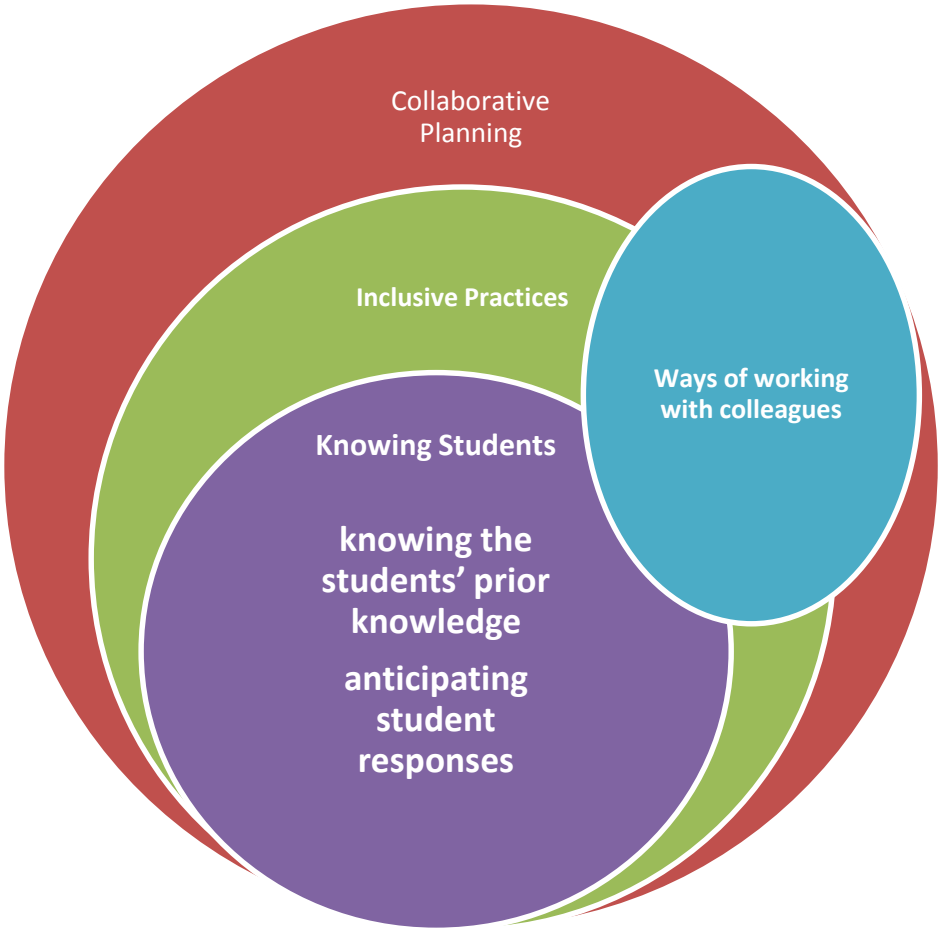
"….definitely have activities that they get to feel and touch things, use all their senses ... if you just had a photo or something it would have been totally different. It wouldn't have been as interesting for them because they have got to hold the light bulb ….
I think they benefited a lot from like, self-discovery, not just me telling them everything" (BIA:FI)

Inclusive Practices



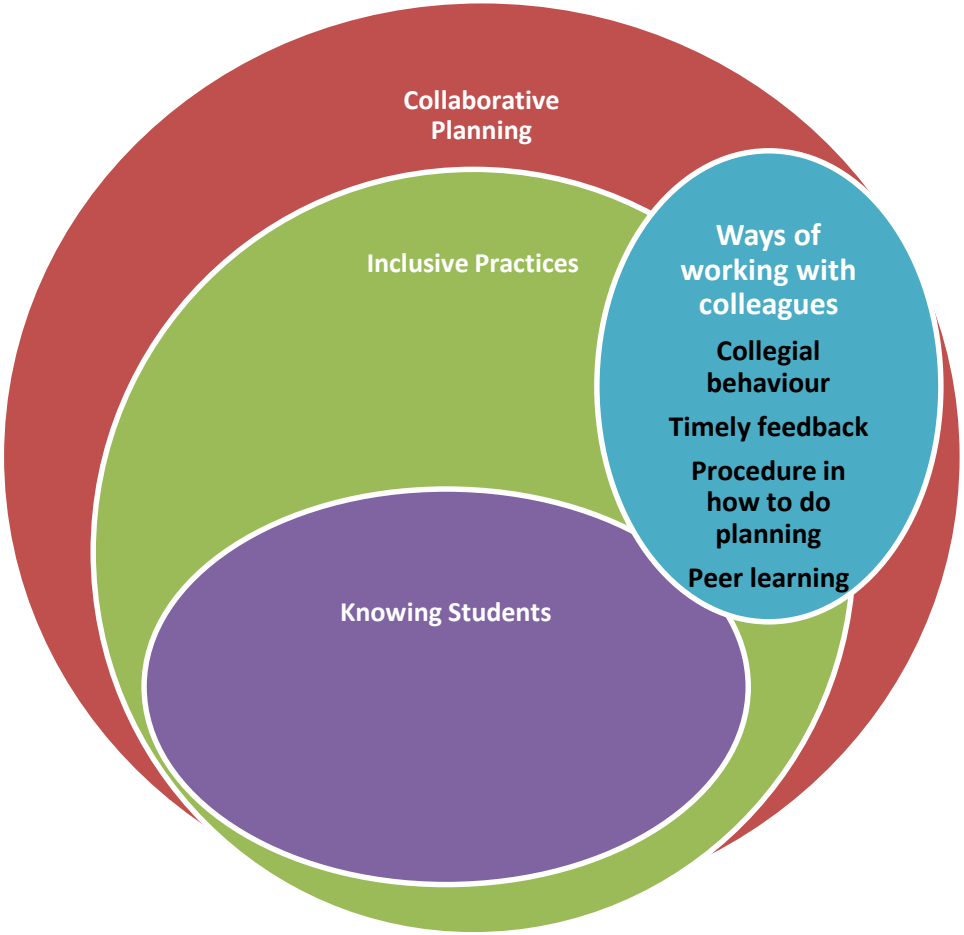
"In the modified questionnaire the students were only asked questions about their carbon foot-print which were relevant to their lives and ones over which they had control to change such as: How do you get to school? How much TV do you watch a day"? (BRO: FI).

Knowing Students



Don't settle on the first answer a student gives. Encourage them through questioning to elaborate on their answers (BIA: LP: S/A).

Ways of Working With Colleagues



“The planning of lessons [contributed to my learning] which I found quite difficult doing it with two other people. Because I’m so used to being in my timeline which means, you know, finishing the lesson plan by 10 PM the night before the lesson. So, it kind of like helps me working in a group environment” (BRE:FI).

Collaborative Planning contributed to the learning of the PSTs in the specific categories of:

- Science content
- Science curriculum
- Inquiry based teaching and learning
- Collegial behaviour
- Peer learning
- Knowing the students you teach

The **Research** lesson including both the **teaching and observation** contributed to the learning of the PSTs in the specific categories of:

Class discussions – particularly in the following:

- inclusive practices of including all students in discussions and activities;
- all student contributions being encouraged and acknowledged
- relating content of the lesson to students' experiences/ lives
- including students with diverse linguistic backgrounds and literacy achievements
- Knowing the students you teach– particularly in the prior knowledge of students and anticipating student responses

Debriefing phases contributed to the learning of the PSTs in the specific categories of:

- Class discussions - particularly in the inclusive practices of including all students in discussions and activities;
- all student contributions being encouraged and acknowledged
- relating content of the lesson to students' experiences/ lives
- including students with diverse linguistic backgrounds and literacy achievements
- using effective and or appropriate teaching strategies for science inquiry lessons which respond to the different learning needs of different students
- Peer learning
- Knowing the students you teach – particularly in the prior knowledge of students and anticipating student responses

Planning/Revising the Research lesson contributed to the learning of the PSTs in the specific categories of:

- **Planning** for effective class discussions – particularly in the amount of new scientific vocabulary introduced in a lesson
- Not spending too long on class discussions
- Changing the group size for effective and engaging discussions
- Designing questions which prompt students to draw their own conclusions
- Peer learning
- Knowing the students you teach

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