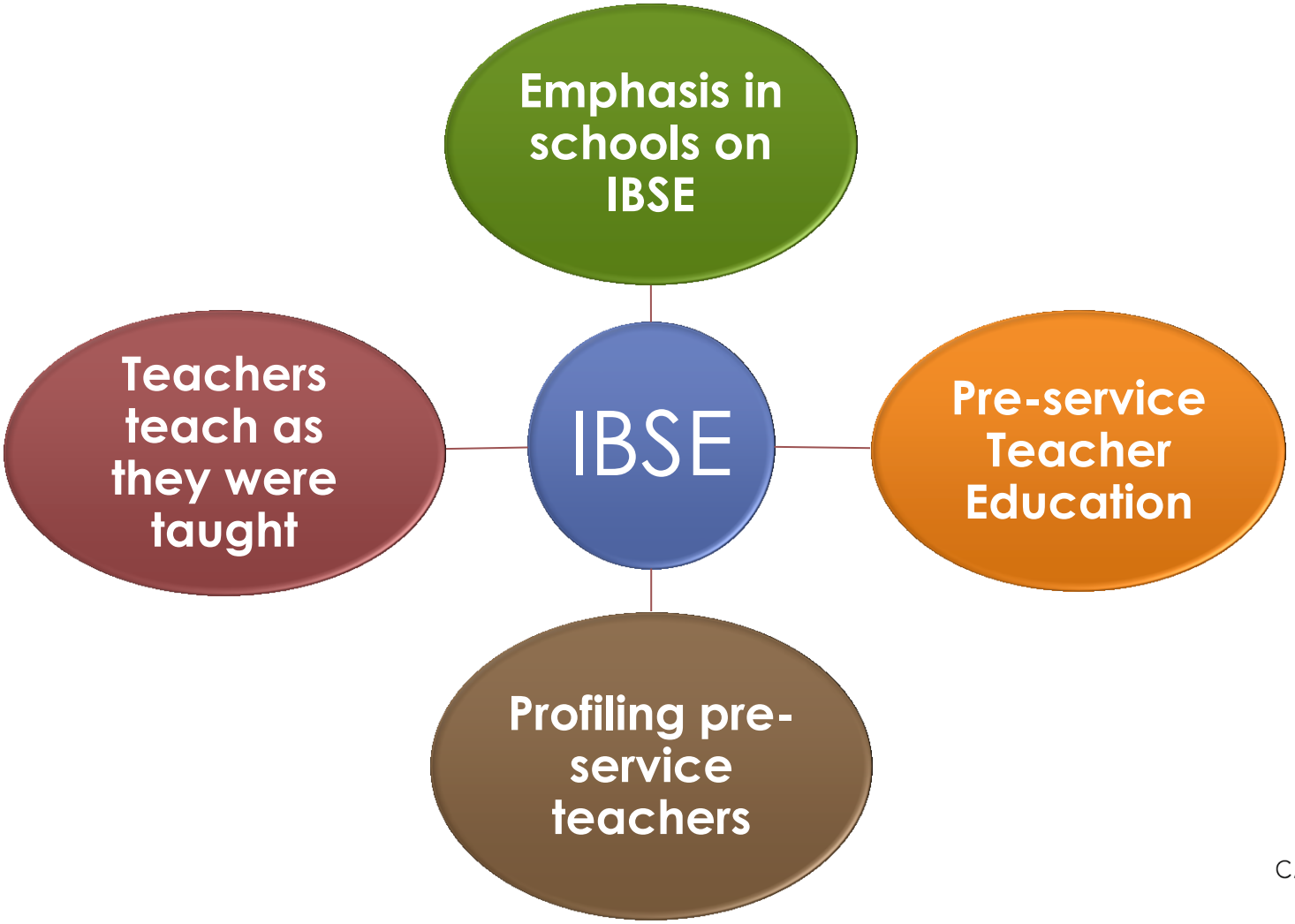
The Views of Pre-service teachers towards IBSE

Laura Barron, Odilla E.Finlayson, Eilish McLoughlin

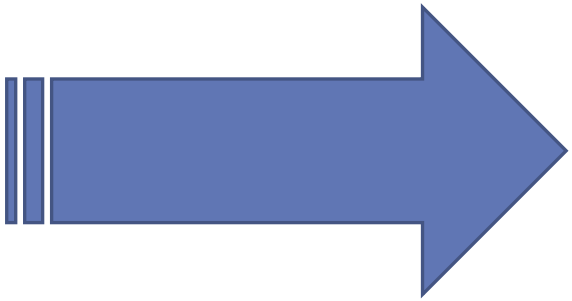
CASTeL,
Dublin City University,
Ireland

Inquiry Based Science Education



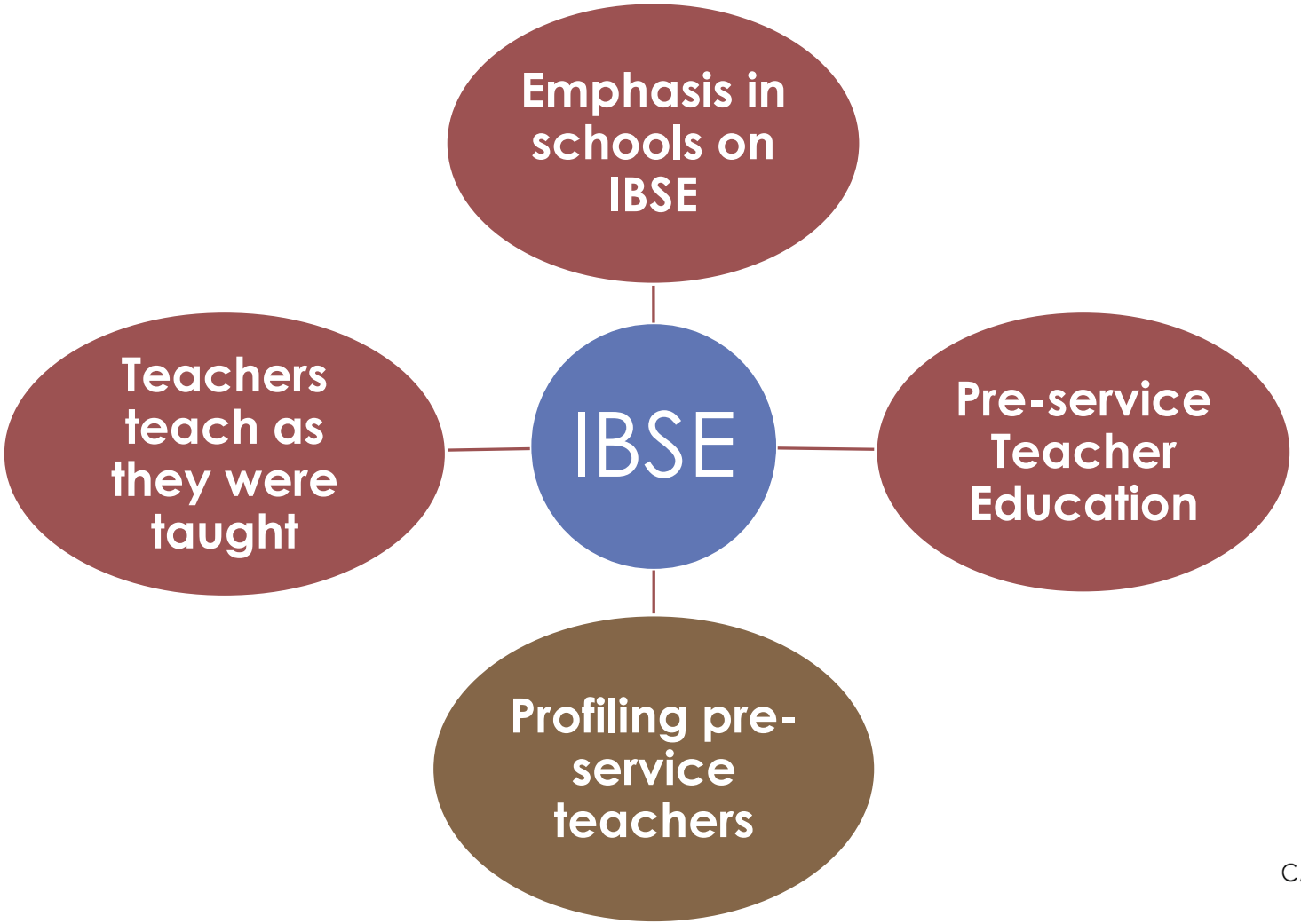
Pre-service Teachers have…

- their own experiences
- their own belief system
- Attitudes to change
- Attitudes towards Education
- Attitudes towards teaching and teaching science
- Attitudes towards science and the nature of science



All of these influence their use of and experience with Inquiry

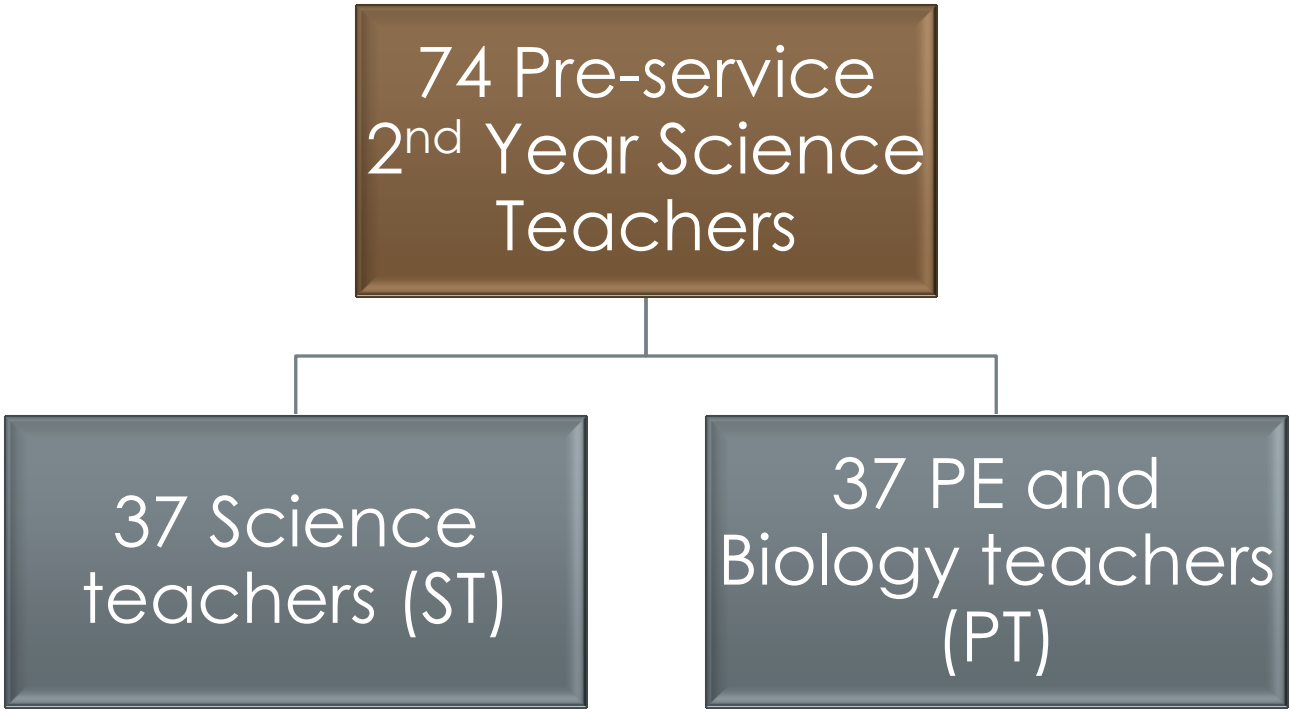
Inquiry Based Science Education



Development of Profiling Tool

- Constructivist Learning Environment Survey (CLES)
- Principles of Scientific Inquiry – Teacher (PSI-T)
- Views of the Nature of Science (VNOS)
- Teaching Science by Inquiry (TSI)
- Teaching and Learning International Survey (TALIS)

Participants



Inquiry is the intentional process of…

- diagnosing problems,
- critiquing experiments,
- distinguishing alternatives,
- planning investigations,
- researching conjectures,
- searching for information,
- constructing models,
- debating with peers,
- and forming coherent arguments

(Linn & Davis 2004)

Results

- Questioning skills
- Making science relevant
- Understanding and use of inquiry
- Classroom management
- Teaching Science

Questioning skills

Sample Items from Questionnaire:	
Good teachers ask higher order questions.	76% Agreed
I am unsure how to ask students higher order questions that promotes thinking.	62% disagreed
Good teachers allow students to develop their own investigation/research questions.	95% agreed
Good teachers use student questions to guide their teaching.	88% agreed
I would be uncomfortable with asking questions, in my class, where I am unsure of the answer myself.	73% agreed

Making science relevant

Sample Items from Questionnaire:	
I want my students to know about the latest developments and applications of science and engineering.	89% agreed
I can easily relate scientific concepts in the curriculum to phenomena beyond the classroom.	62% agreed
Good teachers show students the relevance of science in industry	91% agreed
Good teachers help students understand the importance of science and technology for our society.	93% agreed

Understanding and use of IBSE

Sample Items from Questionnaire:	
I don't fully understand inquiry based science education.	60% disagreed
Inquiry will never be my main teaching method.	63% unsure or agreed

Teaching Science

Sample Items from Questionnaire:	*Overall group*	*PT*	*ST*
My goal is to transfer factual knowledge to the students.	41% disagreed	27% disagreed	54% disagreed
Students need to know a lot of facts before they can participate in inquiry activities	72% disagreed		
If a student investigation leads to an unexpected result I should always tell the student the right answer/result.	26% agreed	35% agreed	16% agreed
I have sufficient knowledge of science to implement an inquiry lesson effectively	48% agreed		
I am uncomfortable teaching areas of science I have limited knowledge of.	65% agreed		

Classroom Management

Sample Items from Questionnaire:	Overall group	PT	ST
Teaching is more effective when all students are doing the same activity at the same time.	39% agreed	27% agreed	55% agreed
I would find it difficult to manage a classroom where each student group is doing different activities.	27% disagreed	35% disagreed	19% disagreed

Conclusions

- Knowledge of IBSE → Use of IBSE?
- Training to improve questioning skills?
- Contexts from concepts
- Student oriented classrooms
- Confidence is essential.

More to come…

- More questionnaires will be administered and subsequently analysed in the future as part of the ESTABLISH project.

- National and International data.