IncluSMe
Intercultural learning in Science and Mathematics
initial teacher education

IO2   CULTURE-RELATED CONTEXTS FOR MATHEMATICS AND SCIENCE

WHAT IS Intellectual output 2?

IO2

To prepare future teachers for teaching in cultural diverse classrooms, acknowledging and appreciating the cultural background (including subcultures and personal cultures) of their students.

Students will perform better in science and mathematics when the central concepts are grounded in contexts that can be recognized from daily life – which is dependent on the cultural background of the students and the (prospective) teachers.

In the module we developed student-teachers ITE (initial teacher education) at lower secondary level are introduced to the role and the use of culture-related contexts for the teaching and learning of mathematics and science.

Content of the Module:

→Module outline

The module consists of three face-to-face sessions of 60-90 minutes. Homework assignments are scheduled between sessions.
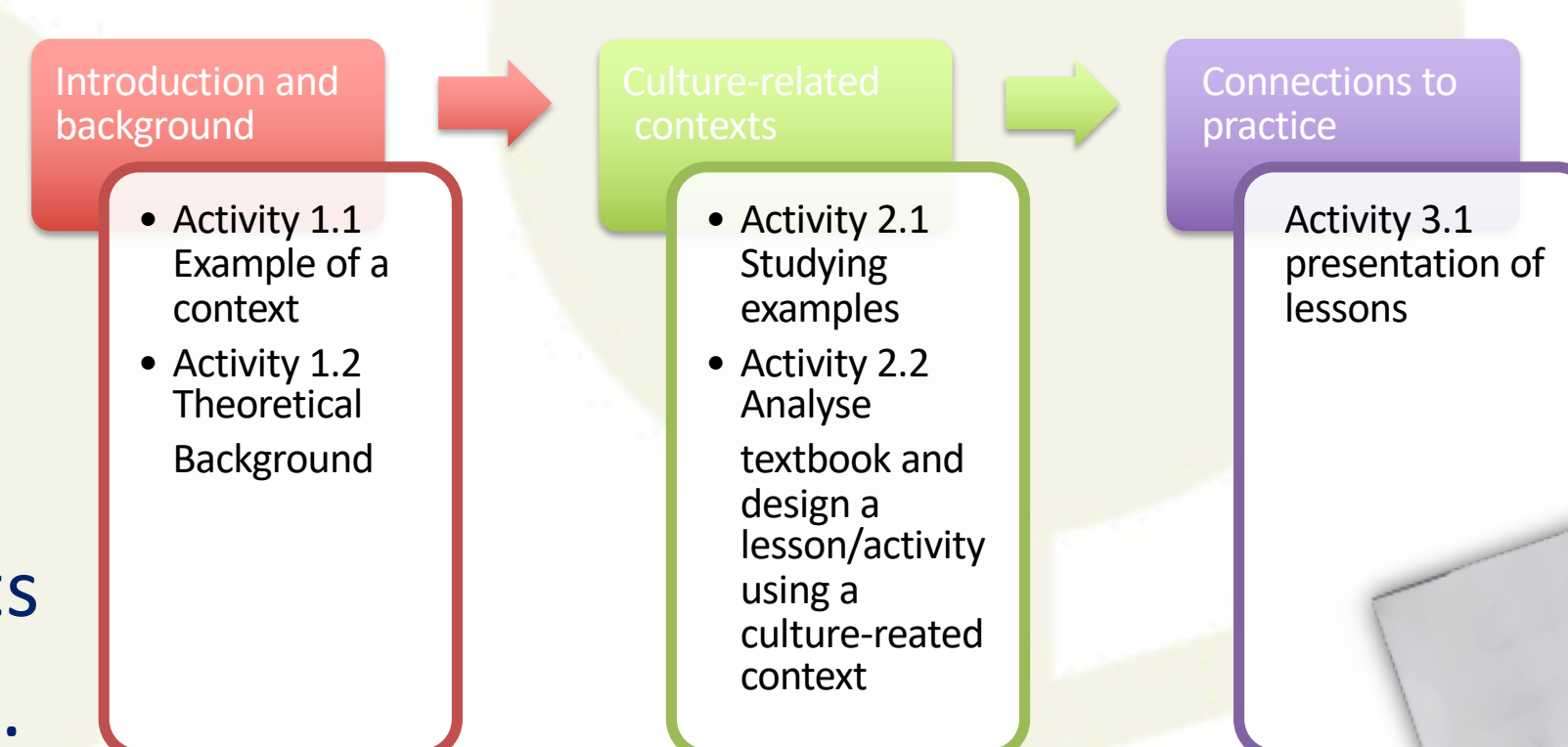
The sessions include interactive presentations, group discussions, debates, small group design activities and student presentations.

→Session 1

Introduction and background

To deepen their knowledge pre-service teachers receive some theoretical background on the use, the benefits, characteristics and sources of culture-related contexts. Exploring (and discussing) their own opinions and practice expressing their beliefs.

→ Session 2

Culture-related contexts

Eight culture-related context are presented. The pre-service teachers (small groups) will choose 2-4 examples to analyze and reflect on basis of these aspects:

- Relation to STEM-subject, -content or – concepts
- Possibilities for intercultural teaching/learning
- Connection to the ALL students' interests and background (personal identity)
- Practical issues to deal with when using each context
- Culture-related reflection and personal appreciation of the context

In single-subject groups similar analysis will take place on the context provided in the textbooks.

→ Session 3

Develop a lesson plan using pedagogical approaches which promote an unprejudiced, open minded and appreciative attitude in their classroom practices. Presentations and peer feedback from all pre-service teachers.

AIMS of the module

Introduction into the use of (culture-related) contexts for STEM

→ by studying concrete examples
→ by reflecting on theory
→ by discussing sources

Connection to your educational practices

→ by analyzing textbooks
→ by talking to STEM colleagues and students
→ by designing (and trying out) a lesson/activity

Development of the module

First draft

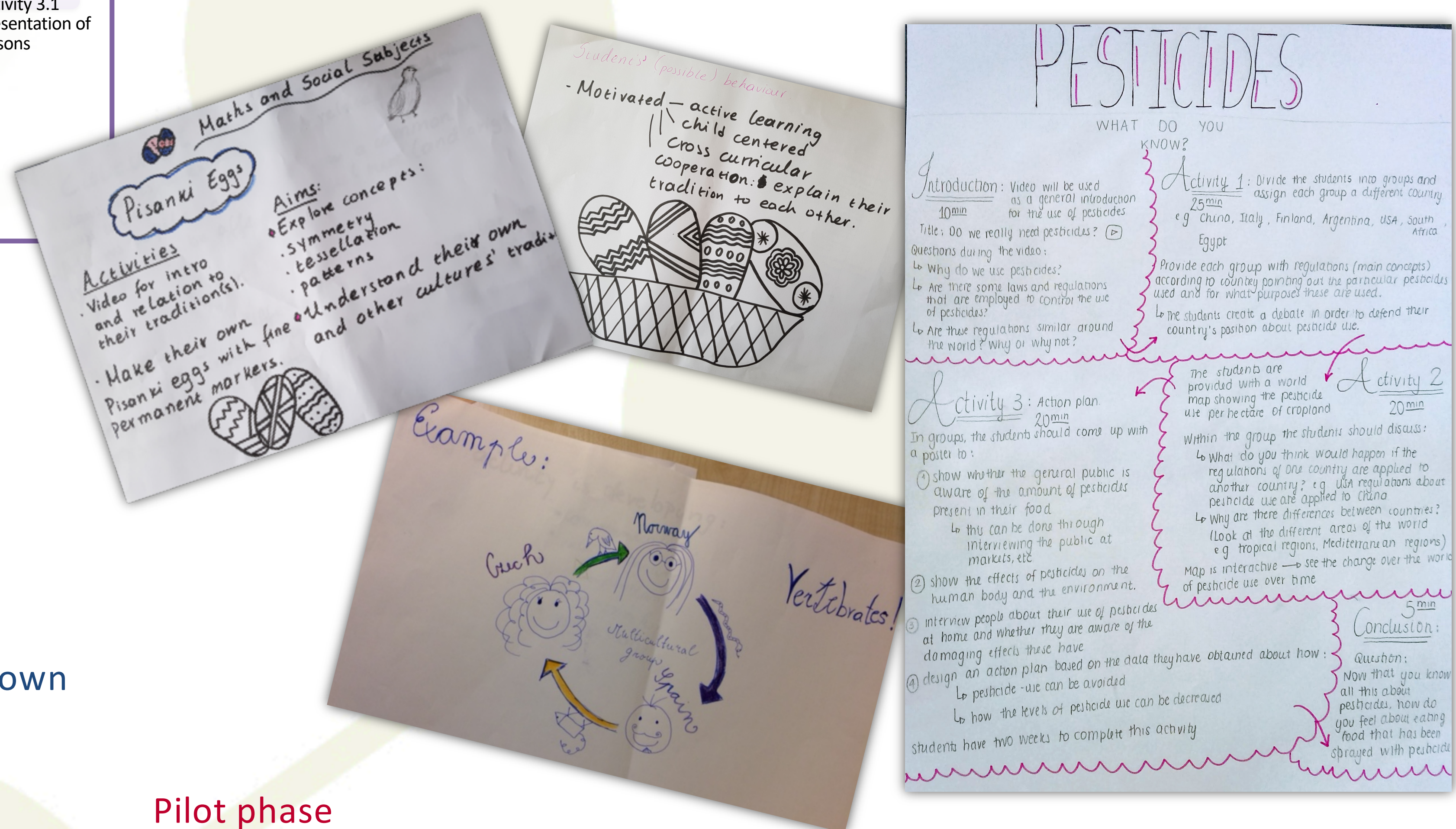→ Reviewed by three countries involved in the IncluseMe project

Second draft

→ Pilot in ITE setting for feedback teachers and Students

RESULTS:

By students at the end of the module

→ Lesson plan containing culture-related contexts.

Pilot phase

International (InclusMe) summer school Prague 2018, ITE in the Netherlands, Germany and Prague.

In total we collected 3 teacher evaluation forms and about 35 forms of students. The overall conclusion from the pilots is that the content of the module was well received in all pilot groups. Most shared comments were about:

-The "heavy" theoretical load of the first session (and the difficulty of the English texts!), a wish to supply more examples accompanying the theory.

-The attractive, practical and helpful examples in session two

-The module serving as an eye-opener for (sub)cultural diversity in their classrooms.

-The final assignment that was perceived as very insightful and fun to experiment with intercultural contexts in their subject or in interdisciplinary groups.

Future process and development

- More examples to accompany the texts and illustrate the theory

- Introduce more activating ways of working

- How to handle different settings of ITE

CONTACT US!

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ICSE
International Centre for STEM Education