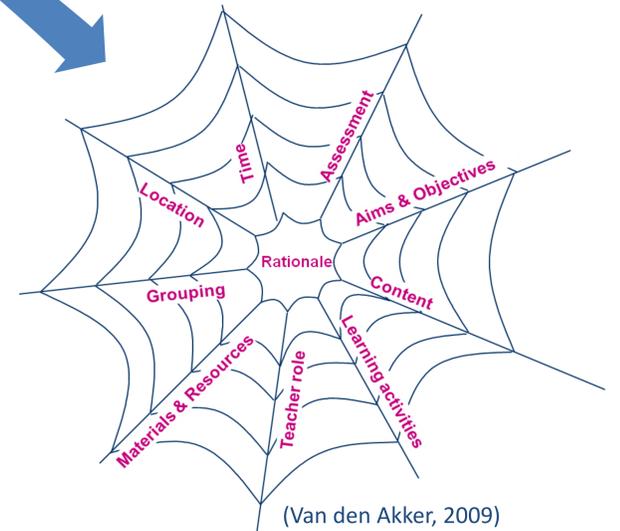
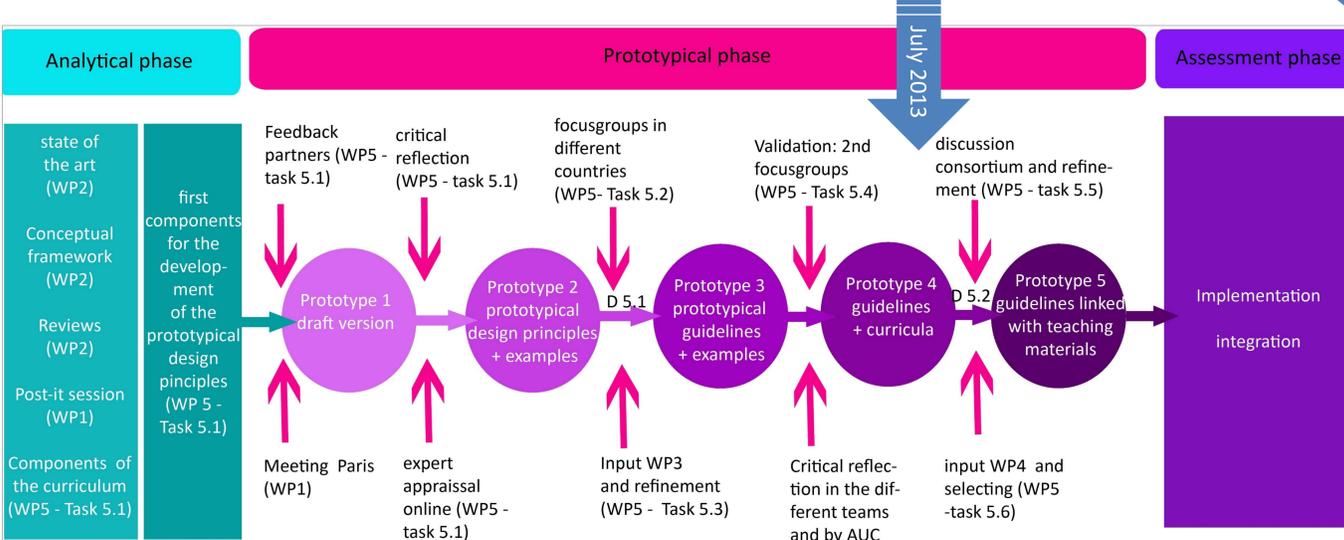


Design of a set of guidelines for teacher education



teacher education curriculum design creativity
 Enabling Creativity through Science and Mathematics in Preschool and First Years of Primary Education

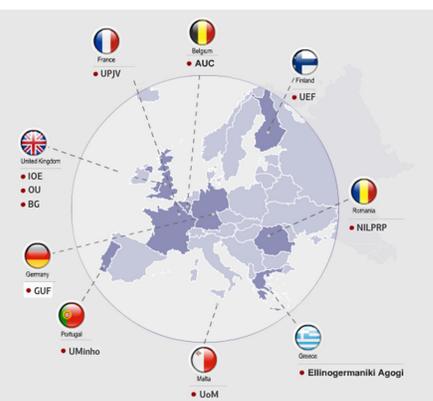
Teachers (incl. student teachers) foster creativity based approaches to science and mathematics learning in preschool and the first years of primary school.



Model to design a set of directions for both initial teacher education and continuous professional development Model based on the methodology of 'curriculum design research' (Plomp, 2009)

A CONCEPTUAL FRAMEWORK/ANALYTICAL PHASE

- 1 Development of a **conceptual framework** (Creative Little Scientists, 2012) based on four review studies.
 - ✓ science and mathematics education in preschool and early years of primary school
 - ✓ creativity in education
 - ✓ teacher training for early years educators and primary teachers
 - ✓ comparative education
- 2 The use of the **'spider web' model** described by Jan van den Akker (2009) as instrument for structuring ideas, developing the prototypical design principles.
- 3 **Draft version of design principles (prototype 1)** was made through **negotiation**, taking into account following elements:
 - ✓ Important issues from the conceptual framework
 - ✓ Important issues from the state-of-the-art
 - ✓ Combining with the 10 components of the spider web
 - ✓ The views of the consortium partners
 - ✓ Further feedback of the consortium partners



FINDINGS/PROTOTYPICAL PHASE

- 1 In a first cycle the draft version (prototype 1) is adjusted to prototypical design principles (prototype 2) for teacher education by using a **web-based expert appraisal panel** (experts = consortium partners), more specific during an asynchronous discussion group
- 2 **Adjustment** after the expert appraisal, by actions bellow:
 - ✓ rephrased according to the written proposals to change them
 - ✓ Greater details were provided
 - ✓ some principles were split up
 - ✓ new issues were presented
- 3 Finally, **60 curriculum design principles** were proposed (prototype 2)

CONCLUSION

- 1 Prototype 2 is associated with social-constructivist vision on learning and instruction, more specific with **inquiry-based science education**.
- 2 It will be necessary to provide **information about**:
 - ✓ the spider web instrument related to curriculum design research.
 - ✓ the advantages of prototyping design principles in educational contexts.
 - ✓ the impact of the starting situation/competences of the (student)teacher.
 - ✓ why and how designing a curriculum starting from guidelines.
 - ✓ the described examples and practices and their possible time, local or cultural bound, so the context has to be described. The criteria for exclusion or inclusion of examples and practices has also to be mentioned.



Creative Little Scientists aims to bring together creativity and science and mathematics in preschool and first years of primary education (up to the age of eight). It will provide a clear picture of existing and possible practices, as well as their implications and the related opportunities and challenges. Based on this, the project will propose guidelines, curricula and exemplary materials for relevant teacher training in the various European contexts.