Online Resource ESM2: Examples of citations from teachers' discourse that were classified to each of the ten PCK components:

1. The teaching domain.

i) Knowledge and beliefs about teaching strategies: Knowledge and beliefs about the ways a teacher should teach. In other words: the teaching technique. For example Teacher B said at a lesson during the second stage: "My strategy is to insert in to my lesson stories that are not connected to the subject matter. That way my students think: 'Oh! This is not connected to learning, we better listen.'"

ii) Knowledge and beliefs about assessment of related contents: Knowledge and beliefs about the dimensions of scientific literacy that are important to be assessed and knowledge of the methods by which that learning can be assessed. For example, Teacher C wrote a question via email to the moderators regarding to developing an entrepreneurial in bioethics: "I don't know how we can assess students' argumentations."

iii) Knowledge and beliefs about the curriculum: Knowledge of the curriculum, including knowledge of the general learning goals of the curriculum as well as the activities and materials to be used in meeting those goals. This category includes also the goals for teaching science at a particular grade level due to specific curricular demands. For example, Teacher B said while presenting her rationale for the development of her materials in bioethics to the other teachers: "It's a demand of the curriculum to teach bioethics, but teachers don't have materials."

iv) Knowledge and beliefs about available teaching facilities: knowledge and beliefs about the availability of appropriate resources for teaching. This category
contains physical recourses like a projector, computers or teaching time and content knowledge recourses such as the need to be up-dated with new biological knowledge and the over load of new teaching programs. For example, Teacher A said during one of the first meetings of the workshop: "We will never have enough time to teach all this innovations in science."

2. The learning domain.

v) Knowledge and beliefs about students' meaningful learning: Knowledge and beliefs about the factors that promote meaningful learning in the students' mind. For example, Teacher C wrote in an assignment during stage three: "The adapted article helped the students establish their prior knowledge. They learned in the genetics lessons about PCR, now when reading the article they understand what is the use and implications of PCR in the real world".

vi) Knowledge and beliefs about students' motivation to learn biology Knowledge and beliefs about factors that influence student's motivation to learn specific themes or contents in biology. For example, while developing the bioethics materials Teacher B said to Teacher C: "I think that curiosity reinforces students' will to learn."

vii) Knowledge and beliefs about the influence of biology learning on the students' future life: Knowledge and beliefs about the influence of the topics learned in class on the students' future life. For example, Teacher A said to the other teachers and the researchers while presenting her materials design and implementation during the fourth stage: "I think that if we will elevate interest in biology the students will learn science in the university and may become researchers."
viii) **Knowledge and beliefs about students' prior knowledge:** Knowledge and beliefs about the knowledge and conceptions that students bring with them to the lessons. For example, Teacher C said during a workshop meeting in stage three: "That’s why we can teach bioethics only in high school, after the students learned genetics."

ix) **Knowledge and beliefs about students’ thinking skills:** Knowledge and beliefs about students' thinking skills while learning and their possible ability to use high order thinking skills. For example, in stage four, Teacher A wrote in the final assignment: "In laboratory lessons students often don't understand why they have to set the control category. Therefore, high order thinking skills should be taught."

x) **Knowledge and beliefs about students' interest outside of the school context:** Knowledge and beliefs about students' concerns, hobbies or activities during their after school hours that may affect learning. For example, Teacher A said during a workshop meeting in the first stage: "We forget that this is a new generation. They are very individualists. Each one is staying at home with his computer or MP3. They barely meet after school. Collaborative learning will be difficult."