Electronic Supplementary Material (ESI) for Chemistry Education Research and Practice

Appendix 1: Interview questions, about a month after termination of the PD

Part A

1. Describe a recent chemistry lesson that took place in your class. In what ways this lesson is a typical one?
2. As a chemistry teacher, what is your vision? What do you do to make your vision a reality? Are there other things you wish to do as a chemistry teacher?
3. As a chemistry teacher, what are your practical goals? Can you rank them according their importance?
4. Do you agree to the statement that "the teacher is the source of knowledge in the class"? Are there situations which this statement is not true? Can you provide examples? (Here according to the teacher answers' the interviewer may ask more specific about students constructing their own knowledge, small group work, peer learning, peer review etc.)
5. Today "student-centered" teaching and learning become a common slogan. How this slogan is manifested in your classes?
6. Do you plan to integrate collaborative learning in your classes in the future? How?

Part B

7. Describe your daily use of ICT (Here the interviewer may mention mail, facebook, searching for information, shopping and paying bills, working with school feedback platforms) Do you describe yourself as an early adopter of new applications? Can you give me examples?

8. What is your understanding of "pedagogy in the era of technology"? Can you describe you past experience with integrating computers in your instruction? What kind of computerized activities do you wish to implement in your classes? What conditions and resources do you need to implement these activities?
9. With proper support – would you use Wikis in your classes? Why?
10. Refer to your experience with Wiki as part of the PD, what did you like? What didn't work well for you?

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Supplemental: An overview of the professional development program

	1st semester	2nd semester	3rd semester	4th semester
Scientific/ Chemistry topic (CK) (*)	Quantum mechanics and chemical bonding	Chemistry of food and health related issues	Energy in the 21st century	Biochemistry
Chemistry Education topic (PCK)	Explicit instruction of the cognitive skill of comparison in the topic of chemical bonding 4 levels of chemistry understanding (Micro-Macro-Symbol-Process)	Explicit instruction of the cognitive skill of reasoning in the topic of food chemistry	Teaching the topics of energy, equilibrium, kinetics and thermodynamics to chemistry majors How can we encourage students to ask 'good' questions?	Teaching the biochemistry unit to chemistry majors
Wiki activity (TPACK)	Creating Wikipedia pages on "bonding-related concepts" including classroom activities	Co-writing of 2 articles on food chemistry to the chemistry teachers journal	Students' mutual survey Preparing an expert panel on chemistry education Designing and Leading international chemistry year activities	Co-writing of Proteopedia pages including creating visual dynamic models of proteins (also including classroom activities
Leadership workshop	leadership in Education – Theory and practice	Analysis of real case studies of chemistry teachers role in their community	Knowing myself better Designing and Leading international chemistry year activities	Mentoring other teachers Designing and Leading international chemistry year activities

(*) all topics were selected to meet the needs of the new curriculum in chemistry education in Israel. The teachers learned the scientific topics on a higher level than required by the curriculum.