**Guidance, experience, & assistance - Working group**
**ICT Workshop on Intelligent Lifelong Learning Companions**
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Summary

Most generally, when it comes to providing support for a learner, three basic decisions must be made: (1) *what* knowledge is needed by the learner, (2) *when* to intervene or provide help, and (3) *how* to go about it. Deciding *what* can come from a variety of places, such as a curriculum, a student model, or even the learner him/her-self (in the case of self-directed learning). Deciding *when* is more complex. When a system decides to act *unsolicited*, it is basically making a claim that the student needs something now and will provide it unilaterally. On the other hand, learners often do *not* know what is best for them nor when they need help (they are classic poor self-assessors), so clearly a lifelong learning companion would need this ability. Real risks exist when explicit help is provided when it is not wanted or needed, for example. Finally, deciding *how* to provide support is quite possibly the most complex question of the three. Approaches as simple as pointing the learner to a resource (e.g., a book or class), to helping the learner accomplish a needed task, or as complex as configuring and managing an *experience* that targets a knowledge gap and provides a memorable, interactive narrative (such as those imagined in *The Diamond Age*). This working group should focus on these questions, the demands of these activities on a lifelong learner model, and the AI-power necessary to pull them off.

Participants
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Potential discussion questions
- What is the full current space on AI systems capabilities to manufacture learning *experiences*? How large can you see this space becoming?  (e.g., one possible answer is a movie through to the holodeck)
- What are the demands on a learner model to provide individualized support? What domain independent properties would be most useful and re-usable to provide guidance, experience, and/or assistance?
- It has been suggested that a learning companion could evolve into a decision-making aid that is aware of one's tendencies and patterns. What would this evolution look like?
- What techniques are available to promote the development of metacognitive skills (e.g., reflection, self-assessment, self-monitoring)?  How could a lifelong learning companion track such growth and teach such skills?