

**Implementation, interoperability, and scaling**  
**Working group**  
**ICT Workshop on Intelligent Lifelong Learning Companions**  
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Summary

The realities of building an intelligent lifelong learning companion could very well be the most challenging hurdle of all. The huge number of systems, courses, instructional materials, and social influences that bombard a learner are both motivation for building a learning companion in the first place, but also intensely challenging to manage automatically. Intelligent tutoring systems have made great strides in isolated learning contexts, including supporting learning over semester-long periods in a single subject. However, the leap to supporting multiple subjects and integrating modeling techniques across domains and over time (both in modeling expert knowledge and student learning) represent major hurdles. In addition, the reasoning required by a lifelong learning companion, as Minsky et. Al (2004) have discussed, imposes further demands on the representation of knowledge and scaling up of any kind of tutoring or assistant technology.

Participants

Maria Bauer, RDECOM  
Dave Gomboc, ICT  
W. Lewis Johnson, Alelo TL  
Eric Roberts, IDA (group leader)  
Milton Rosenberg, ICT  
Tim Smith, Psychology Software Tools, Inc.  
Sergey Sosnovsky, Pitt

Potential discussion questions

- What approaches are currently used by learning management systems and adaptive hypermedia systems that allow them to track learning over extended periods of time?
- What approaches have been most successful to help these systems interoperate and re-use knowledge about domains and about the learner? How do they use this knowledge?
- What are the most scalable and reusable intelligent tutoring technologies that exist today? What key advances are needed to help them take “a step up”?
- How might a lifelong learning companion be informed of new resources? What are the requirements needed for “teaching” the companion enough to enable it to, in turn, work with a learner to benefit from the resource?