Scaffolding Cooperative, Multi-Device Activities in an Informal Learning Environment

Research Context
Scaffolding is a support provided to a learner to allow him or her to accomplish more than would be possible alone. Although there is a long tradition of using computers to support learning in an active way (e.g., computer tutoring), these computer-based scaffolding in shared learning scenarios is a more recent topic. Much of this work, although it has been conducted with some success, has been conducted with and different asynchronous learning environments (e.g., bulletin boards).

This research is the first to set up a systematic approach to studying computer-based scaffolding in cooperative processes in co-located synchronous learning environments.

Research Goal:
- Use software scaffolding to reduce uneven participation in synchronous, co-located cooperative activities

I. Number of Participants
- Using (n=3) groups of three users (group size) there developed the greatest difference in performance between groups of size 2 and 4, and n = 4 or more the differences tend to even out.

Assessment/Analysis
- Using experimental analysis, we found that the group size has a significant effect on evenness of participation. As a result, we suggest that evenness can be targeted to a single individual, or to the group as a whole.

V. Competition Style
- Competition is a key concept in shared learning scenarios. It is a more recent topic. Although there is a long tradition of using competitions in learning, it is not yet clear how to best handle competition in learning environments.

Outcome
- Not studying competition yet. Although there are many possible ways to handle competition in learning environments, it is not yet clear which is the best approach.

VIII. Guidance Delivery
- Dynamic (synchronous) guidance can be used to support learning in an active way. However, this guidance lacks details (i.e., the guidance is delivered dynamically) or specific (i.e., the guidance is delivered statically).

Outcome
- Again, not a study of guidance delivery, this is a study of an experimental delivery of guidance in synchronous learning environments. It is not yet clear how to best handle guidance delivery in learning environments.

Note: This is an extended abstract.

The emphasis of this research is on scaffolding cooperative, multi-device activities in an informal learning environment. The research questions are:

- What is the role of scaffolding in cooperative, multi-device activities in an informal learning environment?
- How can scaffolding be used to support learning in an active way?
- What is the impact of scaffolding on evenness of participation in synchronous, co-located cooperative activities?