

Synthesizing CSCL Perspectives on the Theory, Methods, Design, and Implementation of Future Learning Spaces

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Abstract: This pre-conference workshop brings together a number of leading learning scientists, as well as talented younger researchers, working in an emerging, but fragmented line of research focused on ‘Future Learning Spaces’ (FLSs). Significant advances in this area of scholarship have been made in recent years, spurred by billions of dollars of investments into building or re-designing educational spaces — both physical and digital, formal and informal — to accommodate learning in a networked society. To advance our theoretical understanding on the role of space in learning, vital work remains to be done to frame concepts, synthesize dispersed research agendas and share the results of work that is relevant to the broader FLSs project. To do this, this workshop is organized in four themes that address current challenges and opportunities for FLSs research: Theory, methods, design, and implementation. The workshop includes a combination of invited presenters and key contributors who have advanced research in this area; and active participants, who are interested in deepening their understanding through active participation in the workshop. The objectives of this symposium are to (1) deepen participants’ understandings of current FLSs research; (2) cross-fertilize related threads of inquiry for mutual gain; (3) rise above the individual threads to develop syntheses between them; and (4) build collaborative partnerships for future work.

Keywords: CSCL; design; future learning spaces; research-practice-partnerships

The challenge for research on future learning spaces

The accelerating rate of cultural change, spurred by technological innovations, has made the idea of future learning spaces (FLSs) more relevant today than at any time in the past (Adams, Becker, Freeman, Giesinger, Cummins, & Yuhnke, 2016). This comes in the context of the second educational revolution - the first having occurred when brick and mortar schools arose in the industrial age, and the second as society currently transitions from the industrial to the networked society (Collins & Halverson, 2009). Whereas in the past 150 years learners needed textbooks or direct interaction with experts to give them access to specialized knowledge, digital communication technologies have made such access nearly instant. Instructionism — characterized by prescribed curricula, similar assignments for all students, lecturing as the dominant mode of teaching, and externally evaluated standardized exams (Sawyer, 2014) — is being challenged by increasing demands to customize education for the learner. Mass collaboration environments such as Scratch and Wikipedia (Cress, Moskaliuk, & Jeong, 2016), open online courses (e.g., MOOCs, Kahn Academy), the use physical and digital tools for fabrication (e.g., Makerspaces, fablabs) and collaboration (e.g, Knowledge Forum) as well as mobilities between these environments are all widening the space-time dimensions of the prevalent “classroom-as-container” metaphor (Leander, Phillips, & Taylor, 2010). The notion of FLSs represents this shift, whereby learning spaces are conceptualized given the new tools and cultural practices of the networked society.

While there is often a great deal of hype in popular media about new educational architectures and technologies, such ideas frequently overvalue the roles of physical and digital spaces without giving sufficient consideration to computer-supported collaborative learning (CSCL) (Eberle, Lund, Tchounikine, & Fischer,

2015). Over the past several decades, research in CSCL has provided new insights that have significantly shaped our understanding of how people learn. One of the cornerstones of CSCL is its commitment to conducting research that has an impact on practice through research on learning as it happens in real-world contexts, and not in laboratory settings (Barab, 2014). As a result, concepts derived from CSCL are relevant to educational practice, such as learners should be active, collaborative, reflective, and engaged in supportive learning communities and at the same time be provided with sufficient scaffolding or guidance (Vogel, Wecker, Kollar, & Fischer, 2016). Constructing or re-designing learning spaces must surely be informed by the best of what it is that we know about how people learn (e.g., Kimmerle, Thiel, Gerbing, Bientzle, Halatchliyski, & Cress, 2013; Kollar, Pilz, & Fischer, 2014). For this symposium, we aim to bring together a range of expertise from this applied body of research.

CSCL does not only offer a vital body of knowledge that should serve as foundation for FLSs, it also provides a theoretical perspective that brings together the ideas of “future” and “learning” with “spaces”. Specifically, a main thrust of CSCL has been an approach that emphasizes every day, culture-dependent social interactions and their role in learning (Lave & Wenger, 1991). From this sociocultural perspective, learning is seen as a process of becoming a full member of a knowledge building community. If we want to prepare students to take their place as professionals in the age of innovation, then we need to facilitate their participation in authentic collaborations, to creatively resolve complex problems, through learning activities that provide access to authentic professional practices (Radinsky, Bouillion, Lento, & Gomez, 2001). Traditional schooling has developed its own culture, with practices such as standardized tests and homogenous grouping, which are founded upon strong but often unsubstantiated assumptions of learning (Brown & Campione, 1994). As a result, students often acquire knowledge and practices that are useful to succeed in schools, but have little relevance to what they do in the professional world (Brown, Collins, & Duguid, 1989). Socioculturally based educational designs, such as collaborative learning, productive failure, inquiry-based, problem-centered learning or learning communities, are central to bringing the innovation age into the classroom and should therefore be used to guide the design of FLSs (Hod & Sagy, 2016; Loibl & Rummel, 2015).

Innovative CSCL research in FLSs, grounded in these perspectives, is already underway (e.g., Hod et al., 2016). For example, Lui and Slotta (2014) turned an ordinary classroom into a virtual rainforest so that students could engage in the types of collaborative activities and practices of evolutionary biologists. Zhang and colleagues (2015) developed new digital tools that support distant classroom communities to engage in shared knowledge building on topics such as climate change and human body systems. Despite its immense practical implications, this topic remains on the periphery of the field. The main research journal (ijCSCL), has scarcely published any articles related to FLSs. Furthermore, scholarship on this topic is dispersed and fragmented, leading to slow progress in both theory and practice (Ellis & Goodyear, 2016). It is therefore our intention to use this workshop, not only as a shared venue for collaboration, but as a way to build a serious line of inquiry in FLSs within the broader CSCL community.

Workshop themes, structure, and goals

Themes of FLS research for this workshop

This workshop aims to synthesize perspectives from CSCL on FLSs around four main themes of research, each with three focal questions, to be addressed at the workshop (see table 1).

Table 1: Main workshop themes and related questions

Theme	Key questions
<i>Theory</i>	How do we conceptualize key FLS constructs like future, learning, and space? What theoretical or conceptual frameworks do we have to think about FLSs?
<i>Methods</i>	What methods can be used to investigate FLSs? What can different methods tell us, and what are the limitations of each method? What are the key challenges when we look across these methods?
<i>Design</i>	What counts as a FLS? What are the different designs of FLSs, and how can we rise above the variations to categorize them? What are key principles in the design of FLSs so they support learning?
<i>Implementation</i>	What frameworks do we have to best think about implementing local FLSs and scaling ups? What is unique about research-practice partnerships for FLSs compared with other domains, such as educational technologies? How can it be ensured that new FLSs prioritize equity and give access to all?

Workshop structure

The workshop is organized in the following four sections, supported by activities before and after the face-to-face meeting:

Section 1 - Building Community

The group will engage in an ice-breaking experience and sharing activities to (a) explore everyone's interest and background on the topic; (b) build group cohesion; and (c) make sure that new members are given a legitimate place in the group.

Section 2 - Advancing Knowledge about Future Learning Spaces

The group will engage in orchestrated activities with the purpose of (a) giving all the participants a chance to deepen their knowledge about each topic and discuss relevant issues; and (b) providing each theme-based group with extensive feedback and ideas for how to advance. Specifically, members of each theme will present the central ideas and challenges related to their topic. Following discussion and feedback, there will be several rounds of cross-theme interaction between groups so that members of each theme can provide feedback and advance their knowledge on different topics. After several rounds, groups will return to their original themes to collate feedback, discuss issues, and present collective advancements in their topic.

Section 3 - Reflections and Plans for the Future

The group will engage in a whole group discussion as well as closing activity to (a) reflect on what has been learned, both individually and collectively, and (b) to plan future activities.

Workshop goals

This workshop has three interdependent goals, at the micro-, meso-, and macro-levels. At the micro-level, the goal is to advance the FLSs research of the participants. Invited presenters and key contributors will leave the workshop with articulated strengths and challenges for future research. Active participants will leave with questions and concrete ideas for new research. At the meso-level, we will put together a proposal for a special issue in a CSCL-related journal on the topic of FLSs. This will help to establish collaborative activities after the workshop and guide future activities that contribute to the scientific landscape of FLSs. The special issue will be used as a springboard into further collaborations at the macro-level. Specifically, we are committed to an international FLSs effort, aimed at bringing together dispersed FLSs researchers from across the world around this line of inquiry. We have allocated time in this workshop to ensure that these goals are advanced (section 3 of the agenda). This includes plans for collaborative research between individual researchers, as well as at the institutional levels for continued collaboration. For example, we aim to explore a partnership between the Canadian, Israeli, German, Australian, and American scholars involved in the workshop.

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