

LUCE Activity Brief

SPACE

SPACE is a new (under development) software tool for creating public routines of sharing, critique, reflection, and revision amongst students and teachers in a school. For teachers, it is an opportunity to clarify expectations, both for material work and for practices around that work, to better monitor students' progress, and simply to improve organizational practices. For students, it provides automatic organization of work in progress, new and improved opportunities to collaborate with, and learn from, peers and teachers, and more opportunities to understand teachers' expectations through access to exemplars of others' prior work. For the entire school community it can be a catalyst to sustain a common language and activities as they are connected to project and problem based work.

Core Problems of Practice Addressed

Supporting Improved Student Organizational Practices

As students move, physically and mentally, from class to class and task to task, they must juggle a large number of books, notes, assignments, and other materials. They are tasked with creating and maintaining complex schedules that include near-term and far-off deadlines. We believe that a place where we can make significant improvements in students' school lives is by automatically coordinating much of this scheduling for them, by creating timelines of assignments that display intermediate deadlines and expectations at those deadlines. We intend this to help students develop more metacognition around their own language, planning, and comprehension concerning how the elements of their work at any given moment fits the scope of, and supports, their goals for longer running work.

Planning, Investigating, Synthesizing, Publishing

The teachers and administration of our partner school, The North-Kenwood Oakland Charter School, have begun to develop a framework for student work that is organized around a cycle of Planning, Investigating, Synthesizing, and Publishing. They intend to develop public routines and language that incorporate and fulfill each of these steps. The SPACE tools will support participation in these routines. For example, the school's science fair, the pilot activity for SPACE, rather than being a one-shot performance, is a multi (twelve) step process with many intermediate deadlines and social practices. Students move from choosing a broad topic, to picking a project type (a research paper, an experiment, or a "mini-center"), to narrowing their area of investigation into a chunk doable within the time allotted. Then, they conduct research, develop their methodologies, conduct their experiment, analyze data, and write it up. Only after all this is done does the fair happen. At each of these steps, SPACE offers guidance. It provides guiding text that walks students through each step of the project process. For each step, exemplars of prior successful completion of the

step are provided. Students' peer critique is guided by public standards (typified by exemplars) for what counts as good critique. Because students' progress on each step is electronically tracked, teachers will be able to more carefully monitor students' work, providing individual attention that would be otherwise unavailable in a large school environment.

Focusing Teacher Attention

With more information about students' progress available, it becomes increasingly necessary to lend computer support to teachers' decision-making about where, and to whom, to direct attention and, what kind of help to give. One can easily imagine a sort of information overload where teachers' are given too much information about what is going on, with little ability to discern patterns in the data. Even if data can be easily managed, it can be hard to use when working under busy or stressful conditions. Therefore, a crucial part of our SPACE development will be developing computational mechanisms that prioritize and direct attention to information that requires immediate action. At the same time, we must allow teachers access to data that supports their long term planning.

Key Features and Functions of SPACE

SPACE walks students through a cycle of create, submit for feedback, and revise using a series of linked teacher defined tasks. It breaks long-running activities into discrete deadline-specified steps. At each step, the student is presented with an overview of the step, guide text that explains what must be done and how it will be evaluated, and access to exemplary prior work on that step. As a student completes each step, he or she submits it for peer critique. Once some (teacher defined) number of peers has critiqued the work, the teacher offers a critique as well. Each critique is a mix of text and numerical scores along a number of teacher-defined, step-specific dimensions. A teacher can, as part of his or her critique, require that the student revise the work and re-submit it. In current form SPACE is focused on student submission and community critiques of textual work products. However as it grows over the coming months, it will support the use of other media like video and audio as they are used in the project process.

Anticipated Value Added by SPACE

SPACE will be one of a suite of tools in the effort to support regularized activity and talk school-wide when it comes to projects-based work. As a design and research effort, SPACE aims to provide a platform to explore how new tools can encourage a school community to work in concert on long term open-ended work. It is hoped that SPACE will provide a common venue for teachers across disciplines to explore how the tasks of the project cycle are unfolding for students. It could for example show some students are consistently strong in the research aspects of projects while flagging in tasks like the writing or other documentation associated with publishing. Unlike some other efforts in the IIS suite, SPACE is not building from established social practice. So as a matter of general design research exploration, SPACE offers the opportunity to study how

tools co-evolve with social practices. As the work unfolds we will likely broaden our design explorations and associated expertise.