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## The EduT<sub>E</sub>X TUG working group

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### Abstract

This note introduces the EduT<sub>E</sub>X working group and sketches goals for the startup period.

### Introduction

The EduT<sub>E</sub>X working group is concerned with extended usage of T<sub>E</sub>X designed to support student learning. We have a wiki at <http://edutex-wiki.tug.org> and a mailing list (see <http://lists.tug.org/edutex>). This note is a brief introduction; see the wiki for more detail and an explanation (if you need one) of why T<sub>E</sub>X is the best setting for this.

### Learning environments

The core objective is a setting for producing learning environments that masquerade as tests. These objects *are* tests in the sense that they are used for assessment, but the main reason for presenting them this way is to provide motivation, and lure students into an environment where they can be given feedback and easy access to resources.

### Startup

Initial development of EduT<sub>E</sub>X is constrained by objectives specified in the grant from the National Science Foundation. So, our concerns for now:

- a focus on mathematics;
- creating educationally effective functionality;
- avoiding exciting but ineffective functionality.

Rigid educational constraints are out of place in a software user group. After startup (i.e., when the funding runs out) we will separate the software and educational threads. We anticipate a continued rich interaction between the two, but the software thread will follow its own interests with more freedom.

### Clever new machines, clever new software, same old brains

This is the guiding thought for my approach to education. The point is that human learning uses primitive (or at least undeveloped) facilities and is haphazard and highly variable. Thus:

- Software design driven by needs of human children often seems dull and boring from a technology point of view.
- Software that seems exciting and powerful to experienced users rarely connects with the needs of real-life learners, and is often counterproductive.

Two examples:

**Video and animations** In the Math Emporium at Virginia Tech (<http://www.emporium.vt.edu>) we have found that video clips and animations almost always put students into spectator mode. They may be interested, amused, even “engaged” while in this mode, but are essentially incapable of real learning.

We surmise this is because they have had much more practice being spectators than learners. Further, the entertainment industry has taught them to suspend critical faculties, and the advertising industry has taught them to resist learning while being entertained.

**Distraction** Modern students tend to have short attention spans. Distractions such as pictures, cute illustrations, unnecessary links, anything that moves, and vague or unfocused discussion, tend to break attention focus and impede learning. Effective learning environments tend, therefore, to be drab and boring to those who are not actually learning.

For these reasons the startup period will focus on core functionality. Once the core is solidly in place we can be more adventurous.

### Contribute?

Comments, suggestions, pointers to useful materials, and any other contributions are very welcome. In particular, significant sub-projects that need fleshing out are on the ‘Functionality’ page of the wiki.

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