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Active Learning of Algebra Supported by Video-classes

Students enrolled in Community College programs frequently lack sufficient mathematics preparation. Learning Centers offer them assistance, but there are some restrictions that may be of crucial importance for a typical Community College student. Time is a very scarce resource for most of them, because usually community college students are enforced to combine studying with making their living.

Usually, assistance is not always available immediately, because of limited resources in most Learning Centers. Typically, a student is asked to set specific time, and is placed on waiting list. Application for assistance requires a referral from an advisor that implicitly labels a student as unsuccessful. Arrangement for assistance can be cumbersome. Lack of familiarity with the English language can negatively impact the tutoring experience.

In this paper I suggest a tool aimed at improving this situation. I proposed to provide students with a combination of *commercially available*

- video-lectures covering topics from prealgebra through intermediate algebra, and

- a series of algorithmically generated computer-based exercises and tests.

In this paper, a *problem set* is referred to as *exercises*, if a Correct/Incorrect reaction of a system follows student's input immediately, or as a *test*, if the system's response is provided after all problems have been solved.

It is proposed that a student experiencing problems with learning a specific unit:

- individually views a 15-minute video-lecture that she or he can repeat several times both in full and in part;

- practices by performing multiple-choice exercises in the topic;

- takes a computer-based multiple-choice test that provides an opportunity of self-evaluation.

Video-classes, exercises, and tests may be made available either on Blackboard, or on Learning Center server, or on library CD/DVD's. Students can use them

- *without any declaration* of their problems;
- at *any time* convenient for them;
- as *many times* as they need.

Suggested computer-based interactive assistance tool is aimed at increasing the efficiency of the face-to-face lecturing in the classroom and tutoring at the learning center.

Eventually, it will help better performance on the CUNY COMPASS tests and help resolve the problem of student retention.

The idea of providing students with these tools is the result of our experience in teaching courses in Prealgebra and Elementary Algebra in Hostos Community College. Selected topics were tested with a group of students and they responded very positively to this experiment.

Suggested approach is in line with digital books proposed recently by Sony Corporation.