The Upgrade: Easing Into Technology Integration
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The administrative suggestion that a teacher "integrates technology" into his or her classroom is often met with resistance – resistance caused by the confusion and fear that comes with doing something completely new. If school leaders look only at technology as a tool for "transforming" pedagogy – moving from those practices and activities with which teachers are practiced and comfortable to those which are radically different – it's little wonder they resist.

One study (1) shows that while 70% of teachers are using technology for administrative tasks, only 54% "integrate computers into their daily curriculum." This is not surprising given that most administrative tasks are ones with which teachers are familiar – communicating with parents, keeping grades, and doing attendance. I would argue that "familiarity" is an overlooked variable in the instructional use of technology.

Constructivists say that you can't learn something for which you have no frame of reference. One way to help teachers ease their way into integrating technology into their curricula is to help them take something they already do, and add a technology "upgrade." Find below twelve common activities that classroom teachers may be already doing and some ways technology can be used to "upgrade" the learning process.

Current activity	Technology upgrade	Benefits
1. Teacher lecture	Computer presentation program (*PowerPoint, HyperStudio, Keynote*)	Graphics, sounds, movies, and photographs clearly illustrate concepts and heighten student interest. Easier for students to take notes.
2. Student writing	Word-processed, desktop published.	Easily edited, spell-checked, handwriting-proof. Added illustrations or graphics. On-line peer review and commentary.
3. Student research	Use electronic or on-line resources such an electronic encyclopedia, magazine index, Internet resources.	Quickly accessed. Notes can be copied and pasted into rough draft. Sounds and pictures can be used in multimedia reports. Large number of resources means narrower focus on topic, adding interest.
4. Book reports	Use database with fields for title, author, publisher, date, genre, summary and recommendation.	All students contribute to database. Concise reports can be used as a reader's advisory by future classes. Easily printed and distributed to class.
5. Math problems	Use a spreadsheet to set up some basic math story problems.	Formulas and operations clearly visible. Charting and graphing capabilities. Data from original surveys converted into understandable information.
6. Plays, skits or debates	Videotape the presentations.	Record for later analysis, sharing with parents. Editing possible. Save as exemplar for future classes.
7. Create a timeline	Use *Timeliner, Inspiration,* or drawing program.	Fast, simple and easy to read. Possible to add graphics and modify time segments.
8. Student speeches, demonstrations or lessons.	Videotape. Students use multimedia to accompany presentations..	Record for later analysis, sharing with parents. Editing possible. Save as exemplar for future classes. Graphics, sounds, movies, and photographs can be used to more clearly illustrate concepts, increase audience attention. Use slides in place of notes.
9. Drawings to illustrate concepts or accompany writing	Use drawing or paint program.	Use features of drawing program to create meaningful original illustrations or modify clipart. Edit and use digital camera images or scanned images with writing for improved meaning.
10. Class syllabus and recommended readings	Use a webpage creator and upload to school webserver.	Easily and quickly modified. Direct links to Internet readings. Can be accessed from home by parents.
11. Class discussion	Create a class blog with discussion questions.	Students can contribute outside of class time. Shy students might be more likely to contribute. Longer, more thoughtful responses may be given.
12. Games or simulations.	Use computerized simulations	Computer provides more realistic scenarios and visuals

such as *SimCity* or a title from the *Choices, Choices* series.	in simulations.

The key to a successful upgrade, of course, it that there is *genuine* benefit to using the technology – not just adding for its own sake.

From the examples above, some of the key "technology upgrade" benefits include:
1. Helping the teacher address multiple learning styles by allowing extensive use of multimedia in lessons.
2. Motivating reluctant students.
3. Allowing students to add elements of creativity, especially visually to their work.
4. Allowing anytime/anyplace learning and access to information.
5. Allowing student performance to be reviewed and critiqued more easily and by the students themselves.
6. Increasing the audience for student work.
7. Increasing participation by reluctant students

A final piece of practical advice for "easing into technology integration" is to make sure that technology integration is first implemented in units that are currently less than successful, rather than effective units that students and teachers already enjoy.

An old adage says that the way to eat an elephant is one bite at a time. The technology upgrade can be that first nibble teachers take to successfully and completely integrate technology into their classrooms in positive ways.

1. Sharma, Dinesh C. Study: Teachers coming to terms with computers, CNET News, August 29, 2005. <http://news.com.com/2100-1032_3-5844057.html>.