Stretching Your Technology Dollar
Educational Leadership, ASCD
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As my district's technology director I love getting the maximum bang for my educational buck. Maybe it's because that as a former classroom teacher I know of other ways to spend money than on wires and chips. It could be my Midwestern hard-headedness insists that only fools use two mules when one mule will do. And I *know* it's a deep-seated distrust of anybody who wants to make a profit on selling to schools.

Schools in the U.S. spend a lot of money on educational technology – estimated soon to be $56 billion dollars – 36% of that in K-12 education. (Nagel, *"Education Technology Spending To Top $56 Billion by 2012,"* T.H.E. Journal, 9/18/2008.) That's about $400 per student per year.

As district budgets shrink, technology departments will most certainly be impacted. How will clever technology directors manage to keep up with increasing demands for technologies and services when our financial resources don't?

Here are ten strategies to help you make the most of your technology dollar:

1. Use effective budgeting techniques
Finance in schools is a zero-sum game. Districts have a finite amount of money, so any funds expended on technology are funds not spent to reduce class sizes, to buy science lab equipment, or to train teachers. Good technology budgets should be not just practical, but moral as well, clearly showing how every dollar spent directly or indirectly improves educational opportunities for students.

A good technology budget has some common elements:
- **Alignment to goals.** Budgets ought to be a sub-set of a larger technology plan that in turn is tied directly to district and building goals.
- **Transparency.** My tech department's budget is available district-wide in a GoogleDocs spreadsheet. Arranged by major categories and account codes, each purchase order is listed with its vendor, dollar amount and brief description of item or service purchased. The beginning balance of each account is listed and a running, current balance is shown. Transparency also depends on the budgeter using language that is understandable to educators and the general public.
- **Specificity.** I do zero-based budgeting every year. This means starting from scratch and itemizing every technology expense that needs to be met in the coming school year. Every

expense.

- **Stakeholder input.** An advisory committee is a great help for the technology budget-maker. A good advisory committee will also insist on some kind of budget assessment that helps answer the question "Did expending funds in this way have the result that was anticipated?"

A well-thought out budget will improve the use of technology in a district even it is not fully funded. By relating expenditures to goals, by prioritizing purchases, and by soliciting stakeholder input, money will not just be well-spent, but best-spent.

2. The (buying) power of groups.
While technology products and services can be expensive, the industry is also intensely competitive. Savvy educators can use that competitive environment to their advantage.

For any purchase over a few dollars, getting two or more quotes is standard operating procedures. Our state requires that we go through a formal closed bid process for any procurement of over $100,000.

Intermediate service agencies (ECSUs, AEAs, BOCEs, etc.) often offer consortium purchasing of goods and services. Our district takes advantage of discounted costs for Internet connectivity, educational resource subscriptions, and hardware purchases provided by our regional telecommunications cooperative. State government contracts can provide discounted costs for equipment and may eliminate the legal need for getting quotes or bids on products. Districts can even take advantage of "group" discounts when entering a district-wide contract for resources rather than each building purchasing them.

3. Sustainable technology
Schools can and should practice "sustainable technology." This practice involves:
- **Not purchasing more technology than can be regularly maintained, upgraded and replaced.** Johnson Middle School has 500 students and 20 classrooms. We want a computer in each classroom (20) and a 4:1 student computer ratio throughout the school (125). That's 145 computers in the building. Computers much more than 5 years old become unreliable. If I am going to replace my computers every 5 years, 20% of them need to be purchased new every year. Therefore, Johnson Middle School's computer budget needs to be (.20 replacement rate X 145 computers X $1000) or $29,000. This year *and* every year from now on. If you don't maintain, you get unreliable computers teachers won't use.
- **Rotating the technology.** Let's give almost everyone a new computer for the price of a single lab. Here's how it works: the tech ed department buys new machines with the RAM and fast processors needed to run its CAD software. The replaced tech ed machines go to the business department where they will be used to do some desktop publishing, presentations and office

practice. The library gets the hand-me-downs from the business department for research and multimedia use. And finally the oldest machines go from the library to the English department's writing lab. Sell the oldest machines to marine supply stores to use as boat anchors.

> Do *not* keep computers going that are at end of life. Our district uses computers just about forever (our last Apple IIe left a kindergarten teacher's classroom in 2010), but once a computer is more than five years old, we don't fix it. Put the old machines that will be recycled when they break into "non-mission critical" places.

4. Purchase the right tool for the right job.

My rule of thumb for buying a computer or other piece of technology has been: buy as powerful a machine as you can afford to keep it from becoming rapidly obsolescent. You can never be too rich, too thin, or have too much bandwidth was my motto. But the model is changing.

Computer speed, processing memory and hard drive capacity have reached the point where even fairly low-end machines are fast enough for most purposes. Memory can be added to most computers when needed and servers are becoming scalable. Bandwidth can be monitored and regulated with packetshapers. The new rule is: buy what you need for today's purposes, but make sure it can be upgraded.

Nobody wants to buy a semi when a pickup truck will do for the task at hand. To prevent "over-buying," I try to ask these questions:

- **Is this a job for technology at all?** Will a set of regular books do at less cost what a subscription to e-books and a set of reading devices would do? Can a print test measure as much as a computerized test? Will the cost of digitizing paper records be offset by fewer secretarial hours? There are only two reasons to implement a technology in schools: to do a task less expensively or to do something important than can be done no other way. Technology for the sake of technology is both stupid and immoral.
- **What exactly will be users be doing with the equipment?** If the only use of a computer is to write papers and access the Internet, one does not need the most powerful computer on the market. Does the camera need to be 10 megapixel when all the images produced will be going on the web at a low resolution? As schools use the Internet for both file and application storage are a large hard drive or a CD/DVD drive needed? Do employees need a smart phone with a data plan or just a cell phone? Do not buy over-juiced equipment "just-in-case." Base purchases on actual tasks.
- **Where will the machine be used?** Laptop computers have a high TCO (total cost of ownership). They often cost more initially, break more often, need replacement batteries, and have a shorter life span. Does a classroom teacher need a laptop or will a less expensive desktop do the job?
- **Will a reconditioned machine do as well as a new one?** We've been finding that reconditioned

computers that come with a 5-year warrantee cost us half the price of new computers. If you purchase reconditioned machines, use a reputable vendor, get a warrantee, and make sure each order is made up of the same model and make of machine.

- **Is this something families rather than the school can provide?** As the cost of netbooks, tablets and smart phones drop, asking parents to provide such devices for their children becomes reasonable. Watch as BYOD (Bring Your Own Device) programs pop up around the country.

5. Free is good.

One easy place to save a good deal of money in the technology budget is on software. And I'm not advocating becoming a pirate. Instead, take a serious look at some high quality software that is now available -- at *no* cost. There are basically three types of no cost software:

- Open source software uses code that the creator has placed in the public domain and that a large body of users then re-writes and adds to. The Linux operating system is probably the most famous open source product available.
- Minimally-featured versions of commercial products are made available by a producer who then hopes that features or capacity available only in the purchased version will sell the software. Animoto and Dropbox work this way.
- Web-based software applications that derive revenue from advertising are growing in popularity. Yahoo mail uses that economic model.

Use *School Computing Wikis Best Free or Open Source Software* <tinyurl.com/3uoxbfu> as a reliable guide to free programs.

One "free" technology to think very carefully about is donated equipment. Many businesses and individuals with the best of intentions offer to give computers and other equipment to schools. Too often this is equipment that is old, incompatible or in need of repair and licensure. Unless the items are needed and have at least two years of life, pass on the offer and avoid the recycling fee.

6. Head to the cloud

Cloud computing relies on applications and file storage that reside on the Internet with minimal resources stored on the local computer's hard drive. Since both applications and one's files reside on a network rather than on a specific computer, a major advantage of cloud computing is that one can work on any project, anywhere regardless of the computer being used.

But cost savings are also important. Unlike software that resides on computer hard drives, web-based applications that perform a wide-array of productivity tasks are often provided at no cost to the user. Tools such as GoogleApps for Education often have a surprisingly full feature set and are compatible with commercial programs.

A school district's computing costs can be lowered using inexpensive computers just to access the cloud. Netbooks are inexpensive, file storage is free, and basic applications are free. Just appearing are netbooks that run the Chrome operating system that require virtually no maintenance, lowering support costs.

I estimate that by adopting GoogleApps for Education, our district of 7300 students and 3000 computers saves about $200,000 a year in hardware, software, storage, printing and support costs.

7. Enforce standardization through single point purchasing

As a rule, I am against educational monocultures. I've yet to see one activity, one teaching style or even one type of schooling work for everyone. But technology standardization has some definite advantages, including cost-savings. Standardizing on technology equipment, software and services:

- Increases bulk purchase discounts.
- Decreases inventory of supplies and parts.
- Increases the amount of time devoted to training on multiple products.
- Decreases the need for technical support.
- Increases the likelihood of compatibility with legacy systems.

Having an enforced policy that all technology purchases need to be made through a single department is the only way to create such standardization.

8. Maximize your E-rate funding

For the past dozen years, the Universal Service Fund (E-rate), has made a major contribution in helping many school districts, including ours, pay their technology bills. Administered by the Federal Communications Commission, the applications, regulations, and allowable services are all rather byzantine and make federal income tax guidelines seem like Dick and Jane in comparison. Given the amount of money involved and the complexity in properly obtaining and using these dollars, I would recommend:

- *Using an E-rate consultant.* Like a good tax preparer, a reliable specialist will help make sure you apply for all the services for which you are eligible, prepare the documentation completely and in a timely manner, and help answer any auditing questions that might arise. Our consultant has earned her fees many times over.
- *Working with regional telecommunication consortia.* A number of our services are purchased through a regional consortium that then becomes the E-rate applicant. The consortium has expertise that the local district may not - as well as increased buying clout.
- *Saving everything.* In case your district is audited, keep all service contracts, all

communications from the Schools and Libraries Division, along with any reports related to school demographics, public hearings and other requirements.

- *Taking the process seriously.* There are very strict deadlines and documentation for submitting applications and documentation for E-rate. Rules change on a yearly basis. Make E-rate a priority, read all updates, and attend any training offered by your state or region on E-rate. Respond quickly and completely if questioned by the SLD.
- *Lobbying your U.S. Representative and Senators.* This is one federal program that is worth letting your congressional delegation know is worth attention. It needs to stay solvent given the increased reliance education has on its networks and telecommunication infrastructure.

9. Stop supporting obsolete technologies.
While these devices may need to be ripped from some teachers' hands, they are no longer viable classroom technologies:

- 16mm film projectors
- filmstrips
- cassette tape players
- opaque projectors
- MicrosoftWorks and Appleworks software

I would add that we should be phasing these obsolescent technologies out

- overhead projectors
- CRT television sets
- VHS tapes and players
- desktop, rather than web-based, software

I just felt a great collective shudder in education-land from those who use, value and understand how difficult obtaining many of these resources have been. Budgets, however, need to be focused on technologies that still have a long lifespan, not propping up those that are dying.

10. Tech without training is money wasted
How can you make the most powerful and expensive technology worth absolutely nothing? Drop it? Spill coffee on it? Let an eighth grader hack into it? While those things do often work, a far more common and effective way to stress your educational budget and get nothing in return is to buy a new system, hardware or software and not provide sufficient training in its use.

Technology training has three simple but important components. Every device, every application, ever system needs to come with instructions on:

- Why it is useful
- How to use it

- How to use it to support teaching and learning
  If serious, formal training with teacher stipends, trainer salaries, and accountability systems isn't a part of your technology budget, don't worry much about the rest of it. The shiny things won't get used well anyway.