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Open Source for Education

Teachers to IT Departments: You have Network and Back-End Programming HomeworkIt is an ethical question. When teachers know that students can't (or won't) complete homework assignments, should teachers "pile" the homework on anyway?A similar issue exists where school district's Instructional/ Information Technology (IT) Department is concerned.

Is it ethical for teachers to assign homework to the school district's IT Department when they know that the department can't (or won't) complete the homework?"King of the Hill" or Self Preservation?Sometimes school district departments, such as the IT Department, play the child's game, "King of the Hill." In this brinkmanship/ brinkswomanship scenario, one player attempts to gain and hold a position of dominance.

Of course it is "stupid" and self-defeating for IT Departments to play this game because the school district's mission (i.e., teaching children),SidebarUnfortunately, this "King of the Hill" game is often also played (ruthlessly and powerfully) by the school district's Business Office staff, with predictable, loss of benefits to the district's students.

Sometimes this game is played by the school district's superintendent and school board. Ditto for the negative impact that trickles down (or for the needed benefits that fail to trickle down) to the district's students.

Why won't the IT Department do its Homework?In other cases, the IT Department works as a team, understands instruction, knows the needs of the students; but cannot deliver.

In most of these cases, either…The IT Department is loosing the "King of the Hill" game to another department The IT Department is under funded and under staffed and cannot deliver

The school district is not prepared to spend as much money as it will take to do the "IT Job" right

Human nature trumps good sense, i.e., some of the technical work that is required can only be completed by engineering professionals who easily earn more than school district superintendentsTypes of HomeworkProfessional Development

Elimination of Labs

Integration of Back-End ProcessesStudent Records

Attendance

Parent Communication

Meaningful Test Result Interpretation

Access to Students' Online Portfolios

Access to District Network Assets from HomeIntegration of Data Collection

Data Warehousing

Multi-Level Client Resource Management (CRM)

Infrastructure Repair and Automation

Membership in the Schools Interoperability Framework (SIF) Initiative

Etc.Is all this Possible?All this is possible if a school district is committed to the Integration of Technology. Of course, all this is expensive, very expensive.

But, what is better, 1.) spend the money, hire the staff, purchase the equipment and develop and upgrade teacher's skills over a period of three years; or, 2.) provide less than the minimum of these requirements and place the burden on the backs of teachers?

Which option did the school district that you work for choose?"Cheap and Free" AlternativesCan school districts create effective environments for the Integration of Technology with "cheap" and "free" software?

The answer is "Yes, but…"

The free stuff:Is a bunch of disjointed software programs that don't work together

Is not as easy to use as the commercial programs

Requires more teacher work and effort, when completing the IT Infrastructure Homework would streamline and decrease the technology work that teachers have to do

Fails to work in a transparent manner so that students and teachers focus upon the curriculum and subject-matter content instead of the technologyThe platform required to deliver the IT Infrastructure Homework does not matter.

But, the "free and cheap" arguments of some proponents leads school district administrators and school district budget managers to believe that their obligation has been fulfilled if they supply "free and cheap" technology resources instead of costly and expensive resources.

The debate over "free" and "cheap" Technology Integration solutions distracts IT Departments, keeps IT Deparements from doing their homework for teachers. Streamlining the Work of TeachersStreamlining the work of teachers so that teachers can attend more fully to students seems to be the one core value that underlies the missing IT Infrastructure Homework.

Teaching requires a complex skill set, and teachers require several years of structured help (professional development)

before they move to the level of habit and comfort where integrating technology seems to be "effortless." Useless tasks need to be eliminated from our teachers' routines.

IT Homework also should focus upon making the technology easy to use. Of course, unless the technology streamlines our teachers' workloads, easy to use translates into "busy work." Finding Funding for the Homework Funding a large scale program such as the Integration of Technology requires planning and a re-allocation of resources by school districts and IT Departments.

So far, school administrators and politicians seem to want to do Technology Integration "on the cheap." This forces IT Departments to "skimp and save," but also pressures IT Department staff to pressure teachers into doing on their own, what network administrators, technicians, trainers, programmers and engineers should have done for those teachers. However, real funding, almost unlimited amounts of funding would have been possible if school district IT Departments had focused all IT expenditure on instruction, if instruction (rather than building technology infrastructure) were the IT goal. If school district IT Departments focused upon measuring the direct connection between providing the technology and student achievement.

Focusing on instruction and the needs of students and teachers; this is the missing assignment.

Another missing component of the IT Infrastructure Homework is that the IT Folks locked on to the words "infrastructure." Words like "student outcomes, student achievement, driving instruction, teaching and learning first and foremost" seem to have been relegated to the backseat (maybe the trunk) of the Technology Integration vehicle.

Asking the Right Questions

IT Infrastructure went astray by asking technology questions. Instead, the questions should have been instructional. For example, questions like;

What support do we need to provide to teachers?

What resources do we have to provide?

How long will it take to get teachers up to speed with the new procedures, processes and changes to their teaching styles? Instead of placing the blame upon teachers because Technology Integration efforts languish, we should ask school district IT Departments what homework was left undone. The job of IT Departments is to figure out what tools and skills teachers need to deliver and manage instructions.

The answer that these IT Department come up with only starts when hardware, software, professional development, release time and collaboration time are made available to teachers; in a streamlined and easy to use way.

Once these minimum requirements are in place, then IT Departments can begin their homework of developing the systems that teachers can use to deliver instruction. Who is at Fault? It seems logical that any stakeholder that assumes that technology alone provides a solution to Integrating Technology into instruction is at fault. By not understanding what the educational case for the use of technology is, these stakeholders missed the train, and left a lot of expensive freight (un used and under used hardware, software and network capacity) on sidings and in rail yards.

In my view, our efforts at Technology Integration are similar to going into some isolated rain forest and giving the indigenous tribes a dozen rifles and a case of bullets, then leaving. The tribe may feast for a short time, but what happens when the bullets run out? Support for the rifles would require...

Mining for lead, copper, zinc

Smelting of lead and brass

Molding the bullets, machining the shells

Mining the components of the gun powder

Creating the caps that detonate the bullets

Rifle repair machinery, Optical sight repair facility

Etc. Perhaps this is a silly example, but the question concerning IT Departments completing their homework are similar:

What do we need to provide to enable a sustainable Technology Integration effort?

What support (or maybe cottage industries) do we need to build before the Technology Integration can be successful?

How do we get participants (teachers) to break with their traditional ways of doing things and adopt the new methods?

Will teachers and students be better off?

Will teachers and students be performing at higher levels, to greater capacity, with higher quality outcomes, products and performances that we can directly measure and attribute to the technology investment?

Will our initiatives be easier and less stressful for teachers to use than traditional methods? Teachers's Interests!

IT Department staff forgets that most teachers do most of their instructional development and planning work at home.

School districts are too stingy to provide the support that teachers need for equipment in their home. (Some school districts don't even supply needed support for equipment inside their districts.)

This means that IT Homework requires that everything that teachers need be made available for their use in their homes.

Teachers have little interest in servers, thin clients, or distributions. Teachers just want everything to work, to work without a lot of effort, to work without their having to engage in a steep learning curve, to work seamlessly with everything else. These expectations for support are

justified.

Teachers need help with planning, classroom management, lesson delivery, curriculum and high-stakes test survival.

Teachers need stress relief, strategies for self-improvement, and streamlined ways to keep their jobs. These are areas of homework that school district IT Departments are turning in late.

Training and Professional Development: Different Vocabularies

It is school district IT Department staff members' responsibility to learn instructional vocabulary. Teachers have only a limited need to learn IT Infrastructure vocabulary.

However, the terms "Training" and "Professional Development" need special clarification.

The IT Department calls "it" training, while teachers call "it" professional development.

Both groups talk as though the terms were synonymous. The terms do not mean the same thing.

IT Folks attend training, but teachers attend professional development. This means that one the missing IT Homework assignment is to convert every single bit of training (software training, for example), into curriculum-targeted, instruction-focused, practical and applicable professional development.

If teachers are "ordered to training," they attend out of a sense of duty or out of a need to meet professional development seat-time requirements. But, the training stands little chance of motivating teachers, and stands an even lower chance that teachers will seek follow-up learning. Teachers, like everyone else, want easy solutions, magic pills, quick fixes; but they feel free to ignore (and never apply) training session content that is not directly related to instruction.

Teachers desire solutions that fits into their (comfortable) habit patterns.

To do this, IT Department staff must do their homework and… Develop a "educational case" for the use of the technology

Develop direct measures of student outcomes based upon the use of the technology

Identify exact instructional delivery methods that research proved were the independent variables responsible for increased student learning

Deliver an easy to use, fully-functional solution that included the hardware, network resources, software, professional development, in class coaching, long term follow-up

Track teacher implementation, assess teacher skill at the delivery of those specific instructional tasks

Follow-up with teachers until the teachers "get the specified instructional delivery skills right."The lack of teacher enthusiasm for Technology Integration is easy to explain. Definitely understandable. The lack of teacher enthusiasm for Technology Integration is a realistic response to an untenable and precarious situation that teachers are left in because school district IT Departments have not done their homework.SolutionsSolutions to this Integration of Technology issue range from easy, painless, low-cost and quick to difficult, painful, expensive and long-term.

Why the huge difference in solutions?

Because school districts don't have to do anything about Integrating Technology. A Technology focus distracts school districts from their core expertise, leads school districts away from their area of expertise, requires school districts to play in an arena that is too expensive…an arena that school district officials (unanimously?) agree is beyond the means of most school districts in the financial and knowledge-of-how-to-do-it areas.

Or, school districts can commit to the Integration of Technology, re-purpose funds from every nonessential project and program, "cut the fat" out of every project and program that is essential, and beg (grants, fund-raising development), borrow (bond issues), or steal (rob from other projects and programs and let them flounder from under funding in the ways that the Integration of Technology was let flounder.)

Or, school districts can commit to what they say they are doing to Integrate Technology and actually do their IT Homework. If the expertise does not exist in-house, then the program can be outsourced (hired out to companies that have the expertise). Solutions such as this will cost, and cost, and cost…Other Creative SolutionsThis article is posted under Open Source Solutions section of the Classroom Toolkit Newsletter because moving to Open Source is one creative solution to fulfilling the needs of our school districts to Integrate Technology.

But a workable Open Source project means that school districts would share (contribute) all the proprietary content that they hoard. (Note: This solution does not mean faking a way out of the Technology Integration problem by implementing free and cheap software. This would be an Open Source of quality, usable instructional content, having nothing to do with free computer operating systems. Delivering instructional content is another school district IT Department's missing assignment.)

Quality instructional content is neither free or cheap, unless this content is created through a grassroots effort such as the Open Source for instructional materials started by Classroom Toolkit.Cooperative SolutionsOther, creative solutions include:Cooperatives, inter-district sharing

Open Source, instructional materials collaborative's

Large-scale foundation grants, such as the ones that the Bill and Melinda Gates Foundation supports

State-wide sharing initiativesAll these initiatives could get school district IT Departments "off the hook," and "excuse" these departments from doing their homework.

But as the politics and the rhetoric now stand…

IT Departments: "Do your homework!"