Purpose

The purpose of this proposal is to provide the background and framework necessary for a successful training session for teachers and staff at Keys School for the integration of technology into their school. This report will concern itself exclusively with the cognitive issues surrounding understanding and conceptualizing uses for the technology and technological systems that will be implemented this fall.

Background

Currently, teachers’ level of understanding about technology varies greatly. Some are comfortable using and manipulating programs, others are familiar with certain defined tasks, and others still are scared to death of using computers. Each teacher has a unique learning agenda and tailoring the training to an individual level will be a key component of successful implementation. While knowledge of skills is an important component of this training, creating an understanding of the technology and it’s potential will be of greater importance to the teachers.

Needs Assessment

Along with the individual teacher needs, administrators and staff will also be engaged in utilizing new technology. Again, the needs and skills vary greatly in this group. Ideally, members of the Administration will understand the potential of technology in order to assist teachers in their implementation and curricular uses of it. This is currently not the situation. To ensure that this is true, administrators will need a coherent mental model of the applicability of technology as well as how it works.

Prior to the training sessions, it is necessary to ascertain the level of knowledge and more importantly, the level of understanding teachers currently have with technology. While surveying is the most efficient method for collecting this data, experience has shown that these teachers much prefer human interaction and are more willing to discuss their abilities than to quantify them on paper. This individual interviewing will also help establish the rapport that will be needed for successful training to occur. Since each staff member has a completely different zone of proximal development, it is crucial that the trainer be aware of each person’s individual needs and concerns. A blanket class teaching the skills of PowerPoint or web page design will not achieve the goal of understanding and ultimately will not lead to the comfort with technology that is necessary to encourage teachers to utilize it to its fullest potential.

It is important to emphasize this previous point. In all of the courses that teachers at Keys have taken to equip themselves with technology knowledge, none have taught to the cognitive level of understanding. Rather they have been focused exclusively on learning a particular skill such as web page design. After the completion of these classes it has proven entirely possible that a teacher was able to replicate what they just did in the lesson. However, if asked to perform a task beyond the scope of the skill set just learned, few could be able to achieve success. Additionally, it is equally unlikely that teachers would feel compelled or well equipped to be able create their own lesson with technology. In all other aspects of teacher training/development, such as classroom management, curricular development or instructional practices, scaffolding involving some type of a mentor teacher is ever present. However, when it comes to utilizing technology in teaching, a non-too trifling endeavor, little thought is given to
the kind of guided discovery and scaffolded learning so present in each other aspect of teacher preparation. How then can it be expected that teachers can on one hand be comfortable teaching with technology, and on the other, actually teach technology to their students so as to give them a cognitive understanding?

• Proposal

In order for teachers to not only utilize technology in their instruction, but also teach these skills to students, they must possess a high level of understanding of this very technology. The skills of using it are important, but of equal or even greater importance is the understanding that comes from knowing how and why the applications and the very computers function. This is not to suggest that teachers all need to become computer scientists and understand every inner feature and aspect of every piece of software. However, what it does mean is that teachers need to be just as comfortable with a computer as they are with a pencil and paper. Most teachers are familiar enough with technology to sit down and write a paper on a computer just as if they would with paper and pencil. If their pencil does not write, the teacher knows to go sharpen it. Yet, when the computer does not work, rarely can they even begin to comprehend what could be wrong. The reason for this is that teachers have not been given enough cognitive training in how to use the computer. They may have a great set of skills for formatting a paper or even building a website, but they lack any mental model beyond those defined skill sets.

Therefore, it will be crucial to build individual training sessions for each staff member based upon their current skill set and their comfort level with technology. Ideally the trainer will be someone who the faculty are familiar with and comfortable learning from. This will ensure that the faculty will be able to move from one level of understanding to another. It is clear that when cognitive dissonance occurs, the best person to help scaffold higher is someone who the learner is familiar with. This will then put the onus of training back on the Technology Director of the school. This situation will lead to a stronger initial understanding of the technology and also allow a continual building of technology understanding.

In this individual sessions, the goal will be to teach beyond the skill sets necessary to use the programs on the computer, but to build upon the knowledge teachers have about technology to get them to a higher understanding. Beyond the goal of ensuring that teachers will be able to fully utilize computers in multiple aspects of teaching, teachers should be comfortable and knowledgeable enough with the technology to be able to troubleshoot minor problems. Just as they have a mental model of sharpening a pencil, they should have the understanding to be able to construct a mental model of computers and how they work.

• Implications

While this proposal is centered on the training of teachers at Keys School in technology literacy, it is clear that this method of computer training is necessary for all educators. As computers are becoming commonplace in schools, we need to ensure that teachers are just as familiar and knowledgeable with them as they are will all the other aspects of good teaching. Most training classes that teachers take for technology are purely skill based and the cognitive levels of understanding are not emphasized. Therefore, it is clear that more resources need to be devoted to the training of teachers on technology literacy so as to ensure that have a cognitive understanding of the ins and outs of technology. This will ensure that they are comfortable teaching with technology in any environment they choose. Additionally, if teachers are going to
be expected to transfer this knowledge to their students, they definitely need a higher level of understanding of technology.