



EDUCATIONAL TECHNOLOGY PHILOSOPHY

DEFINITION

technology |tek'näləjē|
noun the application of scientific knowledge for practical purposes, especially in industry.

SUPPORT

The priority for technology (and the technology staff) at Stone is to support learning.

EQUIP

Endeavor to find the best (most effective, efficient) tool for the job.

TRAIN

Everyone is a lifelong learner and should have the access and opportunity for both formal and informal training as needed.

INTEGRATE

Technology shouldn't be a separate subject, but the use of tools and procedures to learn with in every lesson, every day.

VISION

Technology shouldn't be a separate subject

More than computers...

At Stone Middle School, when we talk about technology, it is much more than computers— we think of technology as tools that amplify our senses and extend our capabilities. For instance the human eye can see that skin is not perfectly smooth. However, with the use of a tool designed to magnify our skin (microscope), proper illumination, a tool called scale bar, and a procedure of counting a section of skin for estimation, one can determine number of pores, hair follicles, their size and color.

Technology allows us to:

- ◆ Do things not possible with our natural faculties alone
- ◆ Do things more effectively and efficiently
- ◆ Do things to a higher standard of excellence

Historically, educational technology has been viewed primarily as a better way to get things done: keeping grades, publishing progress reports, creating and revising worksheets and assessments, delivering content to the students, etc.

This is certainly a valid and valuable use of technology; However, in the midst of these *administrative uses of technology*, Stone Middle School intends to focus on student access to technology and on students acquiring technology skills and knowledge.

TECHNOLOGY IS A TOOL FOR LEARNING AND COMMUNICATING.

Project-Based Learning is a big part of what we do at Stone Middle School. For the past two decades, Stone has been known for the elective course science research. Our science research team is one of the best in the nation and there are few more fitting examples of project-based learning than science research. Year after year, Stone has more place awards, more Best of Show awards, more State contenders than any other middle school. Although many do not see science as an art, creativity is huge part of problem solving and experimentation. A large part of that success is the integral daily use of technology throughout the course. Stone science research students have pioneered digital video editing, GIS (Graphic Information Systems) with GPS data, use of Google Sketchup, high tech publishing with Pages and Word, as well as measuring and imaging technologies. This technology focus often spills over into the regular science classes.

Stone is often involved in national and international collaborations that inspire student engagement and learning. Some of these are extended events that take place over several months, such as Rock Our World (ROW). ROW gave six of Stone's classes of students an opportunity to exchange Garageband™ projects with students in other states and countries. As they passed these project files from country to country, they added more and more loops of music- with a specific instrument category (strings, percussion, etc.). At the same time, the classes were doing a Challenge-Based-Learning Activity: 'What can we as students do to encourage tolerance on our campus and in the world?' Video conferencing with other states and countries during this project helped the students gain a wider perspective while learning about cultural differences.

Three teachers at our school have developed Thinkquest Projects (an online collaborative tool focusing on 21st Century skills). These projects have addressed an essential question regarding topics in Renewable Energy, Short Stories, and Latin Culture. The technology specialist frequently joins the classroom teacher in the lab to introduce digital skills, collaborative and planning techniques such as photo editing, using Web 2.0 skills and resources like digital concept mapping with cMap, Etherpad, Wikis, and our content management system (Studywiz). There is not enough room here to detail the many ways creativity is encouraged at Stone. (Please view Tab 12 to see more examples of how Stone teachers truly inspire student learning and creativity.)

The first part of designing and developing digital-age learning experiences and assessments is to review our educational goals and determine how to best reach them. Technology for technology's sake is sometimes valuable for the aspect of novelty, but the learning objectives must still be the focus. In all training, co-teaches, workshops and tutorials, we frame technology as a **tool** & sometimes a **vehicle** to obtain a deeper understanding or assess a student's understanding.

A longtime goal for our school is to provide appropriate and ubiquitous access to these tools, so that there is the least amount of *friction* to get going with the tool. That translates into five mobile labs, three open project labs, six classrooms with a computer for each student, ten classrooms with minilabs and 16 computers in our media center. The labs are managed using an internet calendar system that each of our teachers is subscribed to. We have actively pursued maintaining current site licenses for important software, so that nearly all of our computers have software for photo editing, presentations, web authoring, page layout, concept mapping, video editing, audio composition and editing; as well as Google Earth, ComicLife, Flash, Fireworks and many other state of the art programs. We also have specialized licenses in the arts and science research. Stone understands the difference between databases and spreadsheets. We have about a dozen Filemaker Pro users/developers that manage relational databases for various projects including science research paperwork, inventory, band loan forms, student discipline, etc.

To empower teachers at Stone to deliver digital, project-based student activities, we have been piloting a learning management system called Studywiz utilized by thousands of schools globally. All of our students, their courses and teachers are set up in this system to minimize confusion and permit direct and differentiated digital curriculum using 15 different activity tools.

As one of the first schools to site license an electronic gradebook back in the '80's, Stone has aggressively participated in the piloting, adoption and implementation of computerized assessments for Brevard County serving on many district committees. We have pioneered mobile assessment on PDA's for rubrics that are student performance-based, including our own 'long form' teacher assessment so that our administrators could perform teacher evaluations and have it in their printer when they got back to their office. A dozen administrators and teachers of Exceptional Education students are currently piloting a web-based assessment tool (A Deeper View™) on iPod Touches. This helps the teacher code, compile and analyze behavior and skill development from a mobile device. It provides documentation that can be used in student portfolios.

An important part of being an educator is the willingness to show others the authenticity and relevance of the learning/skill acquisition by demonstrating how that educator uses this personally. There are many axioms that reflect the ‘don’t tell me, show me’ idea about education, but there are other reasons that our teachers need to be modeling digital workflow and learning:

1. they need to understand it themselves before they will feel confident showing students.
2. they must experience its value, quality, and efficacy to be passionate about teaching with it.

As *Life-Long-Learners*, Stone’s teachers are voluntarily forming teams and developing departmental policies and practices regarding the use of technologies. Some teams are agreeing to use classroom webpages to publish homework, class policies, and special activities. Others have chosen to move their content and calendars over to Edline.

True digital-age learning is informed by research, and educational research has shown a real need for multimodal, multimedia, and social learning activities. Today’s students are very different in the way that they collect information, engage each other and construct their learning. Stone is highly invested in helping develop a classroom culture and global connections complimented by digital communications. We regularly share new ways of achieving learning through Web 2.0, Social Networking, and other network based tools that were not on our radar a decade ago.

Stone is unique in pioneering the extensive use of the network for digital workflows. Today, about a twenty teachers and nearly all the students at Stone are familiar with using Studywiz, a K12 content management system similar to Blackboard™ (used by universities). These teachers and students will be better prepared to offer or take hybrid or fully online classes such as FLVS. Because of this exposure, teachers find it easier to direct students through online research, webquests, online mysteries, Web 2.0 resources, and to collect student work digitally online. Here students have a safe place to practice social networking and create their digital footprint.

Based on our annual teaching staff technology needs survey, the majority of our teachers are using (on a daily basis) the 21st Century Classroom Equipment installed in each of Stone’s classrooms during the 2008-9 school year. We received many favorable comments, regarding the ease of teaching with color, multimedia and the assurance that everyone could hear equally well throughout the classroom.

The concept of digital citizenship and responsibility is a difficult one to deal with in a systemic fashion. In the recent years, Stone Middle School has attempted to address this in several different ways. In the early (networked) years we would have annual assemblies with each grade level. We would address approximately 50 students per period for two days at the beginning of the school year. The technology specialist would provide a general overview of network privacy, social etiquette and responsibility in what was intended to be an entertaining presentation with special visual effects, sound and current social references.

In order to adhere to the project-based constructivist learning model of education (and avoid a special *preachy* presentation, we have chosen to integrate it more into our curriculum, with extended learning experiences where digital citizenship content was addressed in context: *just in time learning*. Our art teacher would discuss copyright, fair use, creative commons and provide appropriate search tools when beginning a derivative project or looking online for inspiration for a new piece. Science and Social Studies teachers discuss plagiarism and how it is not only easier to plagiarize but much easier than ever to verify that something has been plagiarized. Project based learning requires original creations, or attribution. Our daily news show only uses original music created by the students using GarageBand, and while students do use Creative Commons photos, they are encouraged to attribute authorship and *mix-in* other works to make it more original and effective. The 6 classes participating in Rock Our World had a real-life experience working with the topic of tolerance and collaborating through music composition and video chats with other states and countries.

Students also receive contextual training as we prepare for activities and analyze communications within our school's content management system. This is a secure place and students practice safe, courteous communication using the system's social networking tools. For instance, when our inter-school photo contest began with Oxford, Kansas, we talked about privacy issues, copyright and the possible discipline measures taken against those who purported copied photos to be their own. When the judging began, we discussed online teasing and how text-based communications did not contain the body language and tonal expression that modify the way something is interpreted. Since we run the server, we can track, manage, report and assess all content that has been posted or uploaded.

Stone has also taken a district leadership role in Project Tomorrow Speak-Up. We used their data for training and planning, and recommended that our school district participate in the survey, which then became a district-wide campaign. We distribute the link each year in emails and on our website, and we encourage teachers have their students respond to the survey in our labs or minilabs. We have posted our district's Security Officer's presentation on our internal webserver and viewing is required for our staff. Our next step is to create a followup quiz for staff members to take after viewing the presentation. However, it's often the contextually relevant reminders (such as discussing how a current internet scam or virus works) that result in the greatest conceptualization of network responsibility, safety and internet literacy.

Professional development and leadership is the foundation of all that we have accomplished at Stone, and the basis for all that we will accomplish in the future. Tools that we have access to will go unused, unless we know how and when to use them. Historically, Stone has provided training and quite a few mini-conferences for the entire district. We have organized and hosted advanced network troubleshooting workshops, many summer sessions of integrating technology into the science classroom, digital video editing, and visual literacy.

FL DOE invited the Stone Middle School Choice team to exhibit and present at an Innovation Fair alongside other exemplary K12 programs and academies in 2007. As a result of our presentation, there were four school systems that requested Stone Middle School to mentor their schools and help them formulate a unique program plan. Following video chats, site visits, a full day workshop; this relationship culminated with a week-long summer training where the emphasis was delivering technology-infused learning experiences combined with product development.

We embrace the continuous learning model of professional development. Rather than viewing our training as an *inservice day event*, we view it as just a starting point for the refinement of a skill and knowledge set. Integral to the plan is a structure for revisiting, observing, assisting, and going deeper into the skill over the weeks and months. For instance, followup on *Developing a PLN* workshop, points were awarded for following, retweeting, and contributing to Twitter for 15 Stone teachers last fall and 12 district teachers following a presentation at Brevard's Technology Conference last year. Our tech specialist has been actively involved in PD leading many sessions at FETC, podcasting, blogging and reconnecting with participants from 4 BETC sessions.

Training at Stone is a collaborative task. Even though we have Apple Distinguished Educator and Certified Trainer, training opportunities and leadership is distributed throughout our staff as we identify leaders and put them in charge. We have designated go-to folks for Gradequick, A3, response clickers, podcasting, Web 2.0 and all sorts of other niches in the technology continuum. Each year, the technology staff surveys the teaching staff regarding both the quality of service as well as their needs in addition to soliciting information informally and in small groups. This informs our school technology plan and helps us gauge receptivity to technology adoption. (Because this is such an important component of our successes, there will be far more detail on Professional Development under Tab 11.)

The collaboration between our technology department and staff is nothing less than phenomenal. Cooperation and flexibility are keywords when any campus is involved in project-based learning. At Stone, part of this involves honoring long held traditions for scheduling project due dates, competitions, and the flexibility of ‘loaning’ equipment or students for individual help or project completion. Since the majority of Stone students are bus students, this helps more students get involved and be successful. This type of collaboration between teachers helps students learn how to manage time, be responsible for makeup work and work as a team with their ‘management’ (their elders) and their peers. Without this type of collaboration, a campus would be hard-pressed to put deep learning into their allotted, fixed 54 minute periods. Collaboration between classes occurs in an asynchronous fashion through our content management system and other Web 2.0 websites. All students can collaborate in digital storytelling or through galleries, tagging, commenting and rating systems.

Our administrators have supported collaboration by giving certain departments common lunch periods and our grade-level MESH teams common planning periods in our master schedule. This means that planning for cross-curricular projects is much easier, and small group technology training is less complicated to organize in existing small learning communities.

Efficient, effective communication is the bedrock of collaboration. As with many campuses, we have become accustomed to using email as the backbone of our coordinated efforts. We have also discovered many Web 2.0 resources that help plan the best time for meeting (<http://doodle.com/>) –gathering information (Google Surveys) –collaborations (<http://etherpad.com>; Google Docs). We encourage collaboration through shared, networked campus calendars. To encourage collaboration, administrators, teachers, parents and students need access specific group calendars, school wide calendars, and other calendars of personal interest (sports, holidays, religious events). We employ an open standards calendar format (*.ics) that works with most any calendar program. These calendars can then be viewed independently or aggregated together. We operate our own calendar server, so parents and community members may subscribe or sync their calendars with ours. This also enables us to efficiently republish important dates on our school homepage in a brief list format using an RSS include widget from the

calendar server. Using the RSS feed include feature on our homepage, we also insert a linked list of entries from our Stone Students Rock (a student achievement showcase blog) webpage, ensuring that the content of our homepage changes nearly every day and appears fresh.

We have proactively set up and target learning communities at Stone. Depending on the topic and goals for a technology initiative, we may go through existing learning communities (such as grade-level teams, departments, or wings) or we create new ones. For example, we have a teacher laptop initiative, that was begun when many teachers were requesting a laptop. Laptops are not only more expensive, but more subject to damage or theft because of their size and mobility— so this was an classroom/teacher benefit that had a string attached... To become a part of this cadre, the teacher had to agree to ‘live’ on their laptop (give up their desktop machine), attend monthly face to face meetings, join Twitter and follow each other, as well as begin using iChat. They also agreed to regular use of the laptop cart or Project-Based Learning Lab. We have 15 teachers in this group and they are growing by leaps and bounds.

We have two groups that are exploring the use of iPod Touches: our ExEd Teachers / Administrators and our Music Department— both of these groups were initiated by teachers, the first as a result of offering to participate in a pilot, the second as a result of two grants. Yet another small learning community was begun when one of our teachers became excited about what he was able to do with his MacBook Pro. He started his own professional learning community and has a half-dozen teachers attending bi-weekly after school. Our Choice Team often focuses on technology, as do many of our departmental meetings. We have a SMART Board users group that ran a common blog for a year and we have six teachers that have response system training and are training others. We have enjoyed technology training delivered from our National Board teachers, and are proud to have one of Brevard’s two FL Master Digital Educators spread their expertise amongst our staff and students. In order to reach the Discovery School Constellation designation, we have identified 6 of our more tech/multimedia savvy teachers to lead the charge during their planning periods to get everyone registered, familiar with and using this great resource. We have offered several *Learning with Technology Classes* to our students’ parents in the evening. More are planned for this spring.

As a school, Stone believes in celebrating success and elevating all students, by providing role models of excellence. One novel way we address this is with a blog that is in its fifth year: ***Stone Students Rock!!!*** Here we document and acknowledge exemplary student successes ranging from classic school competitions to community service to personal hobbies. Individuals and groups are given a stage to be recognized for their achievements and the members of our educational community can subscribe to this newsfeed via RSS. This content is primarily derived from teacher and sponsor 'press releases' sent by email, and then repurposed on the student's morning news show, as well as on a 24/7 bulletin board shown on our closed circuit tv cable system underneath the current time and weather widgets. As you can imagine, we are very serious about this and our awards list would be far too long to include here.

Highlighting some of the most notable technology-related awards received by Stone students, is the following (abbreviated) list: Grand Award 1st Place Biological Sciences at the International Science and Engineering Fair (9th grader competing against 10th, 11th and 12th graders from around the world): Student did a micro-biology project that included using GIS software to map results of artesian well samples to septic tank sites throughout rural Palm Bay and Malabar.

Other national recognitions have come through the Discovery Young Scientist Challenge. A Stone student received the national top prize—a \$10,000 scholarship for her genetics science project, "An Investigation of the Factors Affecting Colony Transformation Efficiency Rates" as well as her excellent performance during three days of intense science competition held at the Smithsonian Institution. In a second competition, this student also received another major prize: Travel Channel Dream Science Trip based on her experimental experience and an essay explaining that her dream science trip would be to visit the Roslin Institute in Scotland, where "Dolly" the sheep was cloned. No less than four times our Stone students have made it to the national finals for this Discovery Young Scientist Challenge, which includes smaller cash prizes as well as an all-expense paid trip and tour of Washington, DC.

More recently on the national arena, Stone Students have found favor in the eCybermission competition (a free, web-based science, technology, engineering and math competition for students in grades six through nine). The last four years, teams of Stone students have reached the

regional finalist level and competed for the top prize at the national competition (also an all-expense paid trip and tour of Washington, DC). The top eCybermission prize **in the nation** for 2008 and 2009 has been awarded to the Stone Middle School teams. These eight students have each received grand prize packages (in addition to their DC travel/tour) of \$8000 each!

A Stone Middle School Science and Technology Choice Program student served as a “body double” for Stephen Hawking in 2007, testing the body positioning and management prior to the famous scientist’s zero-gravity flight. Stone Middle School’s remotely operated vehicle team, the Stone Submersible Squad (S3), participated in the 2006 Marine Advanced Technology Education Center’s Florida regional ROV competition sponsored by Scripps Institute. The competition was held at Adventure Island in Tampa. These student made ROVs (remotely operated vehicles) which are small submarine-like devices with on-board video cameras. Stone was the only middle school in the competition and competed against high school and college teams to take home Third Place!

Each year, at a regional/state level, Stone students leverage their technology skills gained in our science research classes to bring home more place awards than any other secondary school. Individual awards are too numerous to list here, but in 2010 Stone was recognized with 46 place awards at the South Area Science and Engineering Fair, and 50% of the students selected (state-wide!) to present their research at the 2010 Annual Florida Academy of Sciences meeting were Stone Middle School students (as Florida Junior Academy of Scientists). Last year, one-third of the state's presenters were Stone students and in 2008, twenty percent of the students were from Stone. At the 2009 South Brevard Regional Science and Engineering Fair, Stone again took more state fair bids (6), more place awards (39) and more firsts (6) and seconds (9) than any other middle school. In 2009, **Stone students won 10 of the 14 first place awards** and 9 second place awards, taking a total of 50 place awards. Stone had almost 3 times the 1st place winners than all the other schools combined. We also scored one of the two Best of Shows and one of the two Alternate Best of Shows.

There are many other Science and Technology special awards, honors and recognitions that our science research students are involved with (such as Florida Solar Energy Center and Or-

lando Science Center), but now we would like to highlight student performance in clubs that are not specifically science research elective students: the Science Olympiad and Lego League. During the recent years, our Science Olympiad team has risen to be 10th (2009) and 11th (2007 and 2006) in Florida's state competitions.

Thirty-five Stone Middle School girls were selected to participate in the Society of Women Engineers workshop, WOW! That's Engineering!, at Bayside High School on Saturday, October 3, 2009. These girls experienced the creativity and innovation of engineering and technology. They met women engineers and technologists and heard first-hand about these exciting careers. Our school has also had great success with Lego League Robotic competitions and this year had both a boys' and a girls' team competing at the state level.

This year, Stone's Lego League Sponsor (Mrs. Coleman) was one of only 2 coaches in the state of Florida awarded with a Gold Level Presidential Service Award in recognition of her dedication to FIRST LEGO League of Florida. She will be receiving a certificate, special pin, and a letter from President Barack Obama.

The technology leadership of Gordon Shupe, Stone Technology Director is an underpinning support of the successes of the students and staff. He is a former science teacher and continues to teach. Mr. Shupe says he 'likes mixing it up with the students, it keeps me young and helps keep me grounded in the reality of classroom teacher responsibilities'. Mr. Shupe also continues to sponsor clubs and is one of the decorated science research team sponsors at Stone. In 1993, he was the co-author of the second highest-rated retrofit grant in the state of Florida. In 1994, Mr. Shupe was selected by the National Association of Science Teachers as an Access Excellence Fellow, a career high point that helped shape his current standings in technology and science education. He was awarded a laptop, printer and trip to spend a week in San Francisco as a guest of Genentech, a biotechnology industry leader. He and his colleagues were charged with developing an online community for life science educators- a clearinghouse for developing collaborative projects and sharing exemplary science education resources. In addition to rubbing shoulders with industry leaders and scientists, he was exposed to industry technologists, server/network managers, and given the opportunity to visit the campus of Apple Computer in Cupertino, CA.

During the course of the following 5 years, Mr. Shupe served as the Online Project Collaboration Coordinator for Access Excellence, developing online database for Acid Rain/Acid Snow Data collection, Mentornet (a expert teacher/novice teacher 'matching service'), helped develop several interactive online science mysteries and collaborative projects like 'Habitat (shoe) Boxes' for exchanges organized online. Genentech invited him back in 1995 as Genentech Summer Scholar for a month, with several trips to Cupertino, many biochemistry labs, and website development instruction. This better equipped him to provide pioneering web and listserv amenities for Stone.

Mr. Shupe began providing professional development through the Florida Institute of Technology FDOE's Center for Excellence and was a Sunshine State Science Benchmarks Project Member. He was also asked to serve on the Florida State NETS Standards Expert Panel and invited to be a part of a National Science Software Review Committee. He served as an adjunct professor at Florida Tech for over 10 years including seven years teaching Science Methods and five years teaching a graduate course in Computer Science Methods. In association with another professor at Florida Tech, he was awarded a \$17,000 EPA Grant to develop a National Environmental Science Education Web-based Survey.

In 2003, Mr. Shupe received the second major recognition of his career as an Apple Distinguished Educator. This has placed him in an international league of highly creative, innovative educators who are pushing the limits of technology in the classroom. He has been very active in that community and has been an invited alumni attendee of five subsequent summer institutes including an international institute "Global Awareness" held in Berlin and Prague in 2007. He is an Apple Certified Trainer and carries the current Final Cut Pro Certification. He has been a keynote speaker at numerous conferences, led many sessions at various subject area conferences as well as FETC and NECC. He recently was the keynote speaker at Full Sail University's iTunes U kickoff and a keynote speaker at the Florida Virtual School Online annual conference. Mr. Shupe was the CoProducer of Conference Connections, the official podcast of FETC and NECC 2005-2009, as well as other state educational technology conferences. This summer, he has been invited to be an International Society for Technology in Education (ISTE) Leadership Bootcamp Facilitator, and to direct the effort for live-streaming the event on the internet.

Another staff member who has been crucial to Stone's integration of technology is our science department chair, Choice Program director and science research teacher, Richard Regan. Mr. Regan has been at the helm of the science department since the late 1980's and worked with Mr. Shupe in the 90's as co-Tech Specialists deploying computers, telephones and printers in every classroom. He also served as a Florida Institute of Technology adjunct professor teaching an undergraduate class in Educational Technology. He helped write our initial retrofit grant and co-taught a student cadre of technology specialists until 2001. His success with science research students is legendary and the recognition the students have received in science research, ROV's, eCybermission is largely accredited to him. He was recognized as Stone's Teacher of the Year twice, most recently in 2007– at which time he was also a South Brevard's Secondary School's Teacher of the Year and a District finalist. He was also recognized as the Space Coast Science Education's Association (SCSEA) Exemplary Science Teacher twice, most recently in 2008 and was inducted into Harris Corporation's Science Teacher Hall of Fame in 2008. He has been recognized also by Central Florida's Prism Project, the Florida Association of Science Teachers, and the 36th Space Congress for his commitment to science and technology.

Jared Campbell is Stone Middle's Technology Education teacher. He is Nationally Board Certified, and has followed Mr. Regan's mentoring as a science research teacher since interning with Mr. Regan in 2000. In addition to being a big part of Stone's Science Research successes, Mr. Campbell was the team sponsor for two of the national top eCybermission teams and ROV Team Sponsor. He was Stone Middle School's 2008-2009 Teacher of the Year. He was the SCSEA Exemplary Science Teacher of the Year in 2008.

Stone's Reading Resource Teacher, Maria Peebles, has accepted the challenge many times to help tech-up campus. Ms. Peebles is one of our county's two Florida Master Digital Educators, as well as a certified trainer for Thinkfinity and Thinkquest. She is the ultimate 'resource teacher,'—very involved with our teachers and has helped with the 7 student response system deployments. She is a great grant-writer and has brought both material resources to our school as well as great professional development. Ms. Peebles and Social Studies teacher, Mr. Schachter are Stone's first two Planning & Implementing New Technology (PAINT) Academy-Trained teachers.

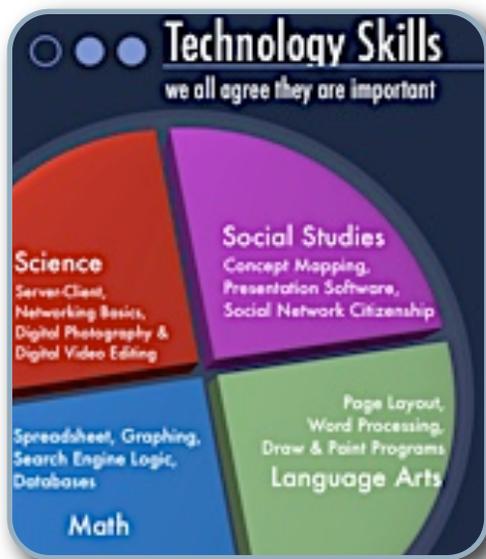
Our school's Science and Technology Choice Program was one of the model schools selected to exhibit at Florida DOE's Innovation Fair. There were 4 school districts in the state that selected us as their mentor to implement a new Choice/Academy program modeled after Stone's Choice Program. A large part of the \$40,000 we received from these four grants was devoted to SMART Boards, Student Response Systems, Probeware and many training workshops.

Our school's fame was further extended when our students and Remotely Operated Vehicle team were featured on a nationally syndicated Public Broadcast System program: *Dragonfly TV*. The PBS filming crew met our students and teachers in the Florida Keys, where they used the student-designed submarines to answer essential questions about coral reef bio-diversity.

Stone's list of recently received grants is remarkable. Many of our teachers are invested so deeply in integrating technology that they know what they need, how they will use it, and how to articulate it's value for grant proposals. Each year that the Brevard Educational Technology Grant Program has been offered, Stone has written and been funded for a disproportionate number of the grants awarded. Even though there are a hundred schools represented and typically fewer than 30 grants awarded annually, Stone teachers have received at least 3 and as many as 5 each year. These grants have provide enhancements such as digital cameras, GPS, eLearning solutions, robotic equipment, Rosetta Stone Software, statistics packages, iPods for Music Education, etc. We have also had grants from Dollar General for \$5K, as well as many thousands of dollars towards small initiatives funded by Myra Langford Memorial grants for such items as mechanical arms to hold laptops in a science lab setting (great for using with probeware and recording observations), graphic pads, tripods, choir microphones, PA System, a midi keyboard lab as well as Sumo Bots (robotics).

Our school began a major initiative to get all of our teachers registered with Discovery Educator's Network this year and reach Discovery Constellation School status. At the completion of this ATTAIN application, 31 teachers have attained STAR Discovery Educator status, creating a considerable front-line buzz about using multimedia infused lessons and student activities.

Recognizing that many students may go through their entire K12 education and not receive any comprehensive instruction in basic computer applications (a minority take the elective *Computer*



Applications), Stone has articulated an approach that intentionally embeds these skills in the MESH subjects. Although it is required for our eight Choice Team teachers to address these skills, the intent is that the entire school will eventually adopt this approach. We ask the MESH teachers to teach specific program types and skills where it makes a good match with their instructional goals. The key is that the technology is a tool, relevant to the instructional goals. This is intentional instructional design to assure a greater level of skill coverage.

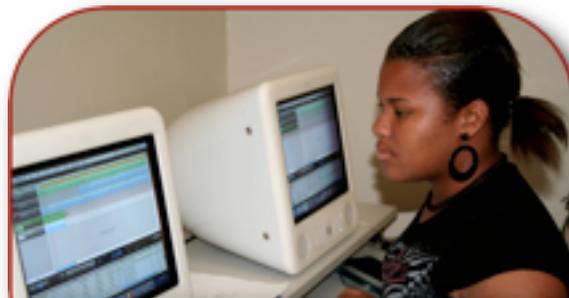
Studywiz (a local server-based curriculum management solution) was previously mentioned as an important way that Stone has led the charge, piloting new technologies for learning. Almost half of our staff have used this resource and it is most heavily used by teachers that teach with computers whether in a classroom or lab setting. We believe it provides students and teachers with a leg up in preparation for fully online as well as hybrid coursework in high school (FLVS), college and trade certifications. It also provides students with eLocker to back up files and move files between home and school. Parents are also provided an account so that they can view instructions, deadlines, rubrics and their student's responses to assignments

Studywiz is specially designed not only to work on all major computer platforms but even mobile platforms such as the iPod Touch and the soon to come iPad. We are very excited about Studywiz, because it gives our students a 'sandbox' to try out Web 2.0 type activities with RSS feeds, commenting, rating, tagging, subscribing, etc. Teachers can also deploy differentiated digital instructional in groups they customize. All items are audit-able and reported, so that their experience is within a walled-garden where teachers can manage and protect the students. RSS feeds and reporting systems mean that not only are the students managed for internet safety reasons, but also their behaviors are assessable for the purposes of accountability and grading.

We also have a high adoption of some of the new learning management tools built into our district gradebook program: Edline. Some of our teams have now adopted this fully as their conduit to distribute important papers, homework, and communications with parents. Both our teachers and administrators are now using Edline's email functionality to replace the listserv that Stone operated since 1995 for parent communications. All teachers at Stone maintain Gradequick gradebooks and post grade reports to Edline biweekly.

We are also pleased with the content management possibilities now available to students in Discovery Education. Now the valuable resources of the Discovery / United Streaming multimedia library are not solely available to the teacher at the front of the classroom, but giving our students the resources to leverage color, motion, sound in a paperless environment for the full effect of multimedia on learning. Our entire student body now has accounts in Discovery Education, and all of our classroom teachers are DEN members. This year our school achieved the goal of becoming a Discovery Education Constellation school with more than 25 STAR teachers.

There are very few high schools—much less middle schools—that give students the kind of opportunities that Stone students have with technology. In 2009, we took an exploratory wheel class assigned to a band teacher and turned it into a Digital Music Composition class. Students that do not necessarily think of themselves as musicians are being exposed to the basics of musicality and composition as they use a nearly professional level mixing program to mix loops, live sound, midi files, sound effects and even pictures. They are challenged to make music scores, advertisement music beds and other original music. In addition to a digital music composition elective, we offer programming and robotics classes that introduce students to markup language (HTML) and Javascript, as well as both standard and object-based programming languages such as ALICE, Scratch, and Basic. We have also provided a technology-heavy elective in Forensics for students to learn authentic application of science principles—such as analysis of video collected at the crime scene.



Mr. Lee's classes compose music using a vast library of loops and live recorded sound

Students are often challenged to tell their own digital tale by using a comic generating program that Stone coordinated a district license for. ComicLife makes storytelling and visual reporting fun with either original pictures or ones that have been provided by others. It has been used to reflect on field trip experiences, create autobiographies, and report on science experiments. Students have also experimented with other forms of page layout and display of information. AVID students are creating College Guides, Social Studies students are generating Travel Brochures for the 13 Colonies & making Middle East Conflict Analysis Charts, while young scientists create ePosters (presenting concepts visually, similar to Poster Sessions at conferences).

We also have had reading fluency improve as students prepared Radio Reads –podcasts that



have a radio show sound with sound effects, theme music and special voice alterations in GarageBand. Social Studies students produced podcasts that provide the first hand perspective of a Civil War Soldier

and science students did a series called ‘The Dead Scientists Society’ following internet research.

Two of our social studies classes are experimenting with creating iReports for CNN using iMovie, Garageband, and Photobooth. Another social studies teacher had her students do Civil War Video Mashups with period source media. Digital video has permitted some marvelous stop motion video techniques to create claymation, and sensor triggers to catch butterflies emerging from their pupae as well as sharks and octopi emerging from their eggs. Science classes have created podcast series on common science misconceptions, and our SNN news team has not only covered the news at Stone, but has also conducted Elective, Club, Sport and Staff interviews. Students also created an Educational Thought of the Week, Science Vocabulary Word of the Day and Prefix and Suffix word of the day programming. ETGP grant funded a video camera with a microphone input for these projects.

Stone teachers have used grants money, fundraisers and lead money to make learning more visual with digital video cameras and still cameras. Teachers and students on our campus have the ability to immediately share select photos using the built-in local network sharing feature in iPhoto. These photos can be password protected or open for all to access and this makes it easy for our Yearbook class and Morning News team as well as our webmaster to access new assets for their projects without burdening our mail system. iPhoto is also frequently used to give students access to a common set of images for project based learning. Teachers are learning how to manage large sets of visuals with keywording and photo album subsets, as well as Geotagging and Face recognition in iPhoto. They are also learning the basics of photoediting (cropping, sharpening, saturation, color histogram profiles, etc.) and photo publishing skills. Students and teachers are inspiring deeper thought and forming wider conceptual knowledge from slide shows used as transitional activities or props for presentations. Classroom culture is personalized and enhanced with digital cameras.

Ms. Statlick's Algebra class measures the circumference of the earth in a videocast with Equador and California

Last year, Stone hosted their first Spring Photo Contest with 5 categories of original pictures taken by students.

Stone Middle School initiated and planned our contest with a middle school in Oxford, Kansas through a series of video chats and shared Google documents for rules and protocol.

We promoted our contest with posters and classroom meet-

ings with the science classes, then accepted student submissions for three weeks into 5 online galleries hosted in our school's content management system- Studywiz. A few classes made picture-taking a school activity, but most of the pictures were taken at home. Metatag file information helped insure that it was an original picture. We also verified some suspect pictures using Google Image search and color profiles. After the submission deadline, the entire school was involved in rating and commenting on over 200 pictures to determine the place awards. Concurrently, the Kansas school's picture contest was running in the same fashion. We took the first and



second place award winners, put their pictures in a new gallery, then each school determined the best of show from the other school's photographs.

Stone Middle students have also benefited over the years from video



Mr. Campbell's class videochats with Poland and Virginia

conferencing, with the software installed on each of our computers. We have transported students that haven't seen snow into live interaction with a professional musher in Alaska as a class studied western expansion and Seward's Folly. Science students have conferred with professors at Cornell while organizing their school's Neighborhood Bird Watch. Digital Music Composition and Elective Wheel students have examined cultural differences with students in Canada, Portugal, England, Mexico, Poland, and Peru as well as several different states of the US during our Rock Our World video conferences. Math students have had an opportunity to watch and exchange shadow measurements with students in Ecuador and California to determine the circumference of the earth. (<http://www.koce.org/prodGreeksLive.htm>)

Another unique initiative at Stone is to leverage the built in functionality of iChat to help teachers collaborate and form *ad hoc* help groups. For over a decade, Stone's Tech Specialists and lab managers have taken advantage of a \$300/seat Apple Remote Desktop to screenshare, run updates and inventory computers. But that was financially feasible for only a handful of technology savvy leaders on campus, so when Apple's instant messaging system included peer-to-peer screen sharing (with a voice channel bonus) we were quick to spread the word. Now—beyond just text, voice and video chats—all of our teachers are able to either share their screen or request to view their mentor's screen with a



Students exposed to the latest technology at the Army Science Conference

couple of clicks of the mouse. This has democratized our technology professional development significantly—over half of our teachers are using iChat's Bonjour (zero-config) networking pro-

to connect for brief tech lessons without having to leave their desk, using the computer they are familiar with. Configuration and use is so click, click easy, even novices love it.

Sometimes, taking students out into the real world to inspire them with the relevance of their learning is also important. Technology-centric field trips include data-gathering with probeware on the Indian River Lagoon, then crunching that data when we return to the classroom using shared databases, spreadsheets and statistical software field trips. Our students visit Full Sail University to see how the entertainment industry uses technology, and we are regularly invited to attend the Army Science Conference with our students. Researchers and scientists have special activities with our students and open the exhibit hall to them at this conference. Annual trips to the Marine Resources Development Foundation's Marine Lab on Key Largo is infused with technology as we take a set of laptops along, collect data with probeware, capture digital still and video with a set of underwater cameras and video housings, and run all sorts of experiments with our 'homemade' remote operated vehicles. Our weekend trip concludes with a multimedia show of images and video students captured over the three days in (and under) the Keys. This is shared with the students back at school that weren't able to go. Pictures are complimented with GPS coordinates using a ETGP funded set of student GPS. Students can use iPhoto to locate the exact reef or grassbed on Google Earth where the pictures were taken. Other data (salinity, pH, turbidity is also geolocated.



Junior Scientists preserve & reflect on their marine ecology experiences with underwater digital cameras

Another pair of ETGP grants funded two sets of iPod touches for the Music Department. Our Music department has embraced the digital revolution with a classroom set of midi keyboards, a digital music composition elective, and a set of iPod touches for personalized rehearsal partners, sight-reading exercises, and enrichment activities. Additionally, the Music department integrates technology with each class using their SMART Boards purchased with money saved by our tech specialist installing our 21st



Ms. Jameer's class pilots 3d Multiplayer Online Algebra game (DimensionM)

Century Classroom projectors.

Ms. Regan's students challenge each other with Punnet Square drills using SMART Board & Bluetooth Tablets

All of our teachers are learning how to use iTunes to download podcasts and store and manage other multimedia formats for the classroom (including Discovery downloads). They are learning the difference of streaming, individual downloads, monitoring, and subscribing to content for their classroom and their



students. Many of the teachers are staying informed and inspired professionally using Twitter and Facebook (some have even experimented with classroom Twitter accounts). We are in a continually discussion about classroom culture and virtual presence in social networks. Teachers and students are social creatures, and our classroom culture can be positively impacted by proper use of technology. We have used wikis, galleries, electronic notebooks, blogs and bulletin board systems to offer teachers and students a opportunity to read, write, and reflect on learning. We use and teach tagging, commenting and rating in an educational setting.

Our teachers and students have a full arsenal of digital tools on their computers to accomplish most any task and generate a higher quality product to communicate understanding. Our standard computer image includes ComicLife, Garageband, iPhoto, Google Sketchup, Google Earth, concept mapping software, iMovie, iPhoto, iDVD, Keynote, Pages, and Numbers. All of our computers have the Adobe Web Studio suite of software to create webpages, bitmap and vector graphics, including Flash animation. Having the software installed is not enough, but we provide training in every format, email reminders and suggestions when and how to use the software. The point here is that we have effectively removed one barrier to technology literacy by



Mr. Regan's Science Research students use probeware to get exacting data

ensuring that our computers are fully equipped and up to date. Teachers don't have to wait to get the tool, the tool is in the shed and sharp. Because we know:

**WHEN EDUCATIONAL EXCELLENCE IS THE GOAL,
ACCESS AND QUALITY OF THE TOOLS ARE CRUCIAL.**

TECHNOLOGY IS A TOOL FOR LEARNING AND COMMUNICATING.